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PATRICK MINFORD CONSIDERS WHAT MEASURES ARE NEEDED TO TRANSFORM THE BRITISH ECONOMY

INFLATIONARY PRESSURES MEAN A FINANCIAL POLICY RESET IS NEEDED, ARGUES AGUSTÍN CARSTENS

JON CUNLIFFE DISCUSSES THE CRYPTO WINTER AND THE LESSONS TO BE LEARNED

21ST CENTURY FINANCE

Foreword

Welcome to the Autumn edition of FINANCE2I, a *World Commerce Review* supplement. This publication has been prepared in response to readership demand for an overview of the financial sector in these turbulent and unique times.

All aspects of the sector are examined, with the most respected authors providing the reader with the most comprehensive information available. Our brief is to provide all the data necessary for the readership to make their own informed decisions. All editorials are independent, and content is unaffected by advertising or other commercial considerations. Authors are not endorsing any commercial or other content within the publication. ■

CONTENTS

CONTENTS

CONTENTS

Reforming British economic policy

Economic policy in Britain is at a crossroads. Patrick Minford argues that a change of leader creates an opportunity to reform policies which are set to create economic disaster

Economic policy in Britain is at a crossroads. The change of leader creates an opportunity to reform inherited policies which I argue in this article are set to create economic disaster. Fortunately, Liz Truss is pledged to grasp this opportunity, very much in the way I will argue is needed.

The current outlook under scheduled policies

Under current policies the UK economy was drifting into a bad economic future in which the gradual defeat of inflation by higher interest rates and reversing commodity prices would be marred by a nasty recession and substantially lower growth in the long term.

Policy on taxes and the budget were scheduled to deliver rising corporate tax rates and have already raised tax rates on wages (via higher National Insurance Contributions, NICs, and via higher income tax rates as inflation pushes people up the tax scale).

According to much modern work on incentives to innovate and so stimulate productivity, growth depends on an environment where entrepreneurial incentives are high and so tax rates and regulative barriers are low - modern thinking on 'endogenous growth'.

In our models of UK growth, the raising of corporation tax to 25% will lower growth by about 2.5% pa; on top of that the rise in NICs lowers competitiveness and also depresses output. In our baseline forecast without all this growth is projected at 2%. Reducing it by this much implies actual decline.

The rise in taxes was intended to strengthen the public finances and bring down the debt ratio. Ironically by destroying growth it does the opposite. My Cardiff research team has projected long-term debt according to the

effects of these taxes on growth and so on tax revenues net of benefits, where spending is kept on its present trajectory[1].

The result is that the debt ratio spirals upward, reaching 125% by 2035. What this illustrates is the Treasury's intellectual error in neglecting the effect of its policies on growth.

Post-Brexit and post-COVID there are major challenges for government policy; the recovery needs to be sustained, and policies must be put in place for solid long-term growth and levelling-up

In principle, if uncorrected, it could react to this evolving scenario by raising taxes even further to restore the finances. But this would worsen matters further, creating a 'doom loop' in which events and policies interact to destroy both the economy and the finances.

As for inflation, if this continuing recession were to cause a sharp loosening of monetary policy in a forlorn attempt to restore growth, we could also face a worsening inflation outlook. What we see is that the policy orthodoxy enshrined in the Treasury's policies as planned by the previous government would have been likely to produce very poor economic prospects for the UK economy. This is what needs to change.

How to change the approach - moving to long-term rules

The pity of all this self-harm in taxation is that it is entirely unnecessary, an 'unforced error', inflicted by the UK Treasury failure to understand the role of debt management.

This Treasury view has been that debt contracted during COVID should now be repaid as soon as possible, as a priority, and hence that any new spending must be met from new taxes. However, this view is quite wrong and at variance with welfare-maximising debt policy.

The reason is not rocket science. To maximise welfare, tax rates should be set to maximise growth over the long run. This means, because higher tax rates reduce growth, they should be kept constant at the lowest rate the government can afford over the long term, which means equal to long run expected spending.

This in turn is equal to long run spending on goods and services plus debt interest. As for short term fluctuations in spending and debt interest these should be paid for by borrowing which consequently 'smooths' out the need

for tax rises - much like households or businesses use borrowing to allow them to keep their consumption or investment spending constant.

It is incomprehensible that the Treasury threw over this basic economics. A more forceful Chancellor than Rishi Sunak, who has proclaimed that he is a 'low tax supporter', would have overruled officials on this.

Instead, he gave way to Treasury insistence on 'balancing the books' short term with tax rises. Boris Johnson went along with this, in spite of strong opposition from his backbenches. As a result he and his Chancellor threatened to kill off economic growth just when post-COVID and post-Brexit we most need it to boost confidence in the economy's future.

There are those who are uncomfortable with a public debt ratio to GDP well above the 50% or so to which we became accustomed before the financial crisis and COVID. Of course, over the long term such a ratio must be brought down to the comfort zone.

But the way to do this is not to sabotage growth but to allow growth gradually to bring it down over time by raising revenue and lowering the need for benefits.

In our baseline forecast my Cardiff team show, using our model of the economy, that leaving our growth rate at a trend rate of 2%, achievable without the sabotage created by scheduled tax rises, the debt ratio steadily falls to around 50% by 2035. It does so in the time-honoured fashion, in which growth raises net tax revenues steadily.

This Treasury idea that borrowing is a bad thing goes back a long way, especially in Conservative circles after all the battles over the tough 1981 budget under Mrs Thatcher.

But the world has changed radically since then. Inflation then reached 25%, today it has been close to or at 2% for most of the last three decades. Unions, mighty then, are today weak and controlled by tough union laws.

In 1981, the government controlled both debt and money and markets were afraid it had lost control of both; to bring inflation down it had to convince them with that tough budget. Today the Bank controls money; its current tightening will bring inflation down which allows the government freedom to use the budget to support the economy.

Finally interest rates today, the cost of borrowing, are close to zero, whereas in 1981 they were well into double digits. Real interest rates today are negative, which means the Treasury is actually being paid to borrow. The Treasury has resisted all advice to reissue as much debt as possible at today's negative real rates; why look such a gift horse in the mouth?

Government borrowing today should optimally support the real economy by keeping taxes down, growing output and productivity and tempering wage costs. Furthermore, it should aim to go further and actually cut taxes, not merely cancel the planned and recent increases, to boost growth further. I discuss this further below in the next section.

The Treasury likes to parade its scepticism that the tax and regulative environment is crucial to growth; for it, growth is 'exogenous', and falls or not like manna from heaven.

There is strong evidence that a free market approach to cutting taxes and regulation on entrepreneurs has been successful here in the decades since 1970, confirming that UK growth has indeed been 'endogenous' - ie. policy-dependent - once you allow for all the shocks that have buffeted the economy over the period.

Table 1. UK growth by decades (eg. 1970s=Q1 1970 to Q1 1980)

Decade	Growth rate
1970s	2.5
1980s	2.8
1990s	2.3
2000s	1.6
2010s	1.7

Source: Fed of St Louis databank, FRED.

We have estimated and tested a full regional model of the economy in which growth due to all relevant factors depends on tax and regulation; it matches the UK economy's behaviour well - the table of decadal growth suggests why: growth surged in the 1980s as the Thatcher reforms took hold.

As one side implication, it finds that the North responds more to a policy of cutting tax and regulation than the South - see next section for more details.

Hence it provides strong evidential support for a policy of not merely keeping taxes down but actually cutting them further.

A longer-term programme for stimulating growth

The economy is now recovering from the pandemic, after the collapse of 2021 and the resulting run-up in public debt to pay for the emergency. Post-Brexit and post-COVID there are major challenges for government policy; the recovery needs to be sustained, and policies must be put in place for solid long-term growth and levelling-up.

This policy formulation requires the government to take a long-term view, as we have seen, and not to panic in the face of short-term pressures.

Table 2. A fiscal stimulus package costing £100 billion pa.

Tax cuts	Amount
Cut corporation tax by 10%	£32 billion
Abolish the very top additional 5% rate	£1 billion
Cut the top rate of income tax to 30%	£15 billion
Cut the standard rate of income tax by 5%	£28 billion
Total tax cuts[1]	£76 billion
Public spending[2]	£24 billion
Total Package	£100 billion

Notes: 1. Representing a weighted average tax cut across all income of about 15%. 2. On public services and infrastructure.

What this implies is that having reversed the scheduled tax rises, we need to do more to stimulate growth further. It is generally agreed that our inherited EU regulation needs urgently to be liberalised and replaced with the environment of the common law where people's rights are protected by the ordinary criminal law and the civil laws of contract and tort.

With this back in place, the need for bevies of regulators and long complicated regulations forbidding swathes of actions is removed, as recommended in the TIGGR report of the Task Force under Sir Ian Duncan Smith[2]. However, in addition we need to reinforce our growth environment with a programme of actual tax cuts, not merely the reversal of scheduled tax rises.

Such policies will also generate 'levelling-up' where growth in the North exceeds that in the South- we define the South as consisting of London, the South East and the South West and the 'North' as all other regions (with apologies to Wales, the Midlands and the east).

The new Cardiff regional model of the UK is designed to frame the best way for policy to address this agenda. Our work[3] produces the policy results shown in Table 3.

The model is based on well-known and well-tried ideas of supply-side channels through which targeted tax cuts and regulative reform raise entrepreneurial incentives to innovate as well as creating labour market flexibility and lowering labour costs.

Previous work has shown that these sorts of policy have worked well in the UK to boost the economy in the 1980s and 1990s. Much policy commentary has criticised the government for aiming at 'levelling-up' without any strategy for achieving it.

Table 3. Effects on growth in Regional Model (% of GDP over next decade) from full policy package of £100 billion pa.

Percentage change in	GDP_N	GDP_S	GDP
Cut standard rate of income tax or VAT or other general income/consumption tax	3.3	1.5	
Cut corporation tax rate	2.4	1.2	
Cut marginal tax rate and regulative burden on entrepreneurs/SMEs	20	17	
Increase infrastructure spending in the North	3.8	-	
Total	29.5	19.2	24.4

We show here that there is a potential strategy that is feasible without affecting public sector solvency; also that it 'levels up' the North without cutting down the South - all boats rise in this strategy.

The policy package we propose below will, according to the Cardiff model, raise growth by 2.4% per annum, that is to 4.4% against the 2% baseline assumption. It will also raise growth in the North faster than that in the South, so achieving levelling-up in a way that raises all boats.

The projections for the public finances under this scenario not surprisingly show that, with this growth trajectory, tax revenues surge, pushing the debt ratio down rapidly, providing spare resources for yet further tax cuts, in a virtuous circle, the mirror-image of the doom loop set up by rising taxes.

How short-term economic management of the economy needs to change

The above 'Treasury Orthodoxy' maintains that the restraint of government borrowing is the key priority for the government. Yet in truth public debt is simply another and an important instrument of policy to achieve the overriding aim of a prosperous economy.

To achieve growth, as I have just argued, we need a policy of reducing taxes and improving regulation in a new reform of 'supply-side' policy; this will improve business innovation and so productivity growth, and will also promote levelling-up, as the north responds most due to having more spare resources.

To enable it, there has to be government borrowing to finance any temporary excesses of spending over tax revenues as shocks like the business cycle hit the economy. This 'tax-smoothing' function of borrowing merely has to be consistent with the long run constraint that the debt ratio must come down again to a safe level of around 50%, with spending matching tax in the long run.

But short run fiscal rules of the various sorts that have been used from time to time obstruct the vital tax-smoothing function of debt and borrowing. So much we have already seen above. We have also shown that a bold supply-side reform programme that includes tax cuts is entirely consistent with long term public solvency, with the debt ratio coming down steadily to safe long-term levels.

But there is more than such a supply-side agenda to 'fiscal policy', in the form of the effects on demand in the economy from the current balance of government spending minus revenue - the 'fiscal deficit' for short. What I also propose is that this should stabilise output, going up when recession threatens and down in booms. At the present time when rising interest rates threaten a recession, this implies fiscal policy should support demand and avert a recession.

Meanwhile monetary policy has the job of controlling inflation, mainly by moving interest rates around but also by directly printing/reducing money through buying/selling market-held bonds.

Currently, with inflation close to double digits, the Bank of England is raising interest rates. It is having to decide continuously how far to raise them to get inflation back down to its 2% target; accordingly we can describe its behaviour as a rule by which money tightening responds to inflation and output.

What my Cardiff research team's work on modern economies has told us is that the most successful policies for stabilising inflation, output and interest rates are a combination of a fairly tough monetary policy reaction rule and a fiscal policy that stabilises output.

This is because then people and firms know that inflation will not be tolerated, so they act to restrain their wages and prices; but they also know that recession will be avoided so they keep on spending in a way that keeps growth on course.

Finally, because this stops inflation from rising too much and also stops output from slumping, this also keeps interest rates stable - with the Bank not needing to raise them too much when inflation shocks hit and not being pressured to lower them to zero as it did (with bad side-effects on saving and the survival of zombie firms) after the financial crisis.

In other words, using the instrument of fiscal policy side by side with a monetary policy to control inflation ensures a generally stable economy - implying stability in all of inflation, output and interest rates.

This is why it is nonsense to say, as so many orthodox economists today have said, that for fiscal policy to support the economy now is inflationary and pushes up interest rates.

The opposite is true: by reinforcing the Bank's freedom to get on top of inflation, it contributes to both lower inflation and lower interest rates.

What the orthodoxy asserts is a naïve simplification of the economy's workings which omits the way private expectations and responses interact with policy rules- this is a key element in modern models of the economy.

What the orthodox see is just the direct effect of fiscal expansion on demand and inflation, and the assumed direct offsetting effect of interest rates needing to be raised by the Bank. However, this leaves out the vital reactions of expectations to the policy rules.

People see that the Bank is now freer to raise interest rates due to the recession being prevented by fiscal policy. This reinforces the Bank's credibility in the control of inflation, which in turn restrains people's inflationary reactions and so reduces inflation, without the Bank having to raise rates by more.

It is a bit like the general putting his army with its back to a river knowing the enemy will fear it more and so will fight less enthusiastically.

The failure of the UK Treasury to understand these ideas needs to be remedied by Whitehall reforms. It should not be necessary for ministers to have to import teams of outside advisers to remedy Whitehall failings and resulting obstinacy.

Admittedly the government to date has failed miserably even to have good enough teams of advisers to get policy right, let alone ones capable of remedying Whitehall obstructionism.

As part of the Whitehall reforms, there also needs to be a review of what went wrong in detail in the Bank and Treasury policy processes that permitted double digit inflation to take hold this year; while this is unlikely to recommend changing the Bank's independent mandate to control monetary policy, there may well be areas where practices can be improved.

This Whitehall situation has occurred before. When Mrs Thatcher embarked on her 1980s monetarism and supply-side reform programme, it was widely opposed and misunderstood by the senior civil service.

To carry it out required a huge effort of Whitehall transformation involving the removal or side-lining of numerous senior officials and the promotion of able junior civil servants who understood and implemented the programme. A similar effort seems to be needed today if the government is to succeed in launching the new reforms that must go forward. ■

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Endnotes

1. These and other projections I refer to here can be found in our latest Quarterly Bulletin at https://www.patrickminford.net/QEB/QEB%202022%20July.pdf

2. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/994125/FINAL_TIGRR_REPORT__1_.pdf

3. Gai, Y, Meenagh, D, and Minford, P (2020) North and South: A Regional Model of the UK, Cardiff Economics Working Papers E2020/14, forthcoming Open Economies Review http://carbsecon.com/wp/E2020_14.pdf

Monetary policy and the Great Volatility

The Great Moderation was a period of prosperity. Isabel Schnabel argues that it is up to central banks whether today's challenges will lead to the Great Volatility

The Great Moderation was a period of prosperity and broad macroeconomic stability[1]. The volatility of both inflation and output declined, the length of economic expansions increased, and people in most economies experienced sustained improvements in their standards of living.

There is broad agreement that better monetary policy was an important factor behind the Great Moderation[2]. As central banks took up the fight against spiralling inflation in the late 1970s and early 1980s, they brought down and stabilised inflation expectations at levels that provided a solid nominal anchor for firms and households.

The subsequent advance of inflation targeting around the world is believed to be a prime reason why the global financial crisis of 2008 merely interrupted the Great Moderation[3]. Afterwards, macroeconomic volatility quickly dropped back to its previous low levels.

Yet, monetary policy was not the only factor behind the Great Moderation. Good luck, in the sense of a smaller variance of the shocks hitting the global economy, is widely believed to have played an important role as well[4]. Compared with the 1970s, for example, real oil prices traded in a much narrower range from the second half of the 1980s until the mid-2000s.

The question I would like to discuss is whether the pandemic, and more recently Russia's invasion of Ukraine, will herald a turning point for macroeconomic stability – that is, whether the Great Moderation will give way to a period of 'Great Volatility' – or whether these shocks, albeit significant, will ultimately prove temporary, as was the case for the global financial crisis.

My answer to this question is that of a 'two-handed economist'. On the one hand, there is a tangible risk that the nature and persistence of the shocks hitting our economies will remain unfavourable over the coming years.

On the other hand, the decisions that central banks are taking today to deal with high inflation can shape the future course of our economies in a way that mitigates and limits the ultimate impact of these shocks on prosperity and stability.

Trust in our institutions is even more important at a time of major and disruptive structural change that brings about larger, more persistent and more frequent shocks

A new era of volatility

The pandemic and the war in Ukraine have led to an unprecedented increase in macroeconomic volatility. Output growth volatility in the euro area over the past two years was about five times as high as it was at the peak of the Great Recession in 2009[5]. Inflation volatility has surged beyond the levels seen during the 1970s.

Once the exceptional effects of the pandemic and the war wash out from the data, output and inflation volatility are bound to decline.

Yet, there are valid grounds to believe that policymakers will find themselves in a less favourable environment over the medium term – one in which shocks are potentially larger, more persistent and more frequent.

Climate change is a major driver. The experience of recent years leaves no doubt that the incidence and severity of extreme and disruptive weather events are rising sharply, exposing the global economy to greater volatility in output and inflation[6].

This summer, the European Union – like many other parts of the world – is suffering from one of the most severe droughts on record, with nearly two-thirds of its territory in a state of alert or warning[7].

The pandemic and the war are likely to add to instability in the years to come. They challenge two of the fundamental stabilising forces that have contributed to the decline in volatility during the Great Moderation: globalisation and an elastic energy supply. Globalisation acted as a gigantic shock absorber.

The breakup of the Soviet Union and global economic liberalisation from the 1980s onwards led to about half of today's world population being integrated into the global economy.

Labour supply became so abundant, and production capacity so large, that even periods of strong demand rarely succeeded in putting persistent upward pressure on prices and wages[8].

However, even before the pandemic, protectionism and nationalism were on the rise[9]. Tariff and non-tariff barriers were raised as the benefits of free trade were increasingly being called into question[10].

Today, the world economy is at risk of fracturing into competing security and trade blocs. The international network that connects our economies is fragile. We are witnessing new and alarming forms of protectionism.

Consider health. Although vaccines have been rolled out in advanced economies for nearly two years now, a third of the world population is still unvaccinated. Unequal access to effective COVID-19 vaccines means that ending the pandemic remains elusive.

Food protectionism, meanwhile, is causing misery and social unrest in parts of the world. The number of governments imposing export restrictions on food and fertilizers is close to that recorded during the 2008-2012 food crisis, exacerbating the repercussions of the war on food supply.

Protectionism is going hand-in-hand with a fundamental reappraisal of global value chains. Many critical inputs to our modern societies, such as semiconductor chips, are produced in just a handful of countries. Europe's energy crisis has exposed the deep fragilities of such an economic system.

Efforts to enhance diversification will help secure strategic autonomy and make value chains more robust. But they also imply duplication and inefficiency.

And if used as a form of protectionism, a greater reliance on domestic production may leave countries more – rather than less – vulnerable to shocks in the future[11].

The second stabilising force – an elastic energy supply – will also become less powerful in absorbing shocks in the years to come.

Following the oil price shocks of the 1970s, the distribution of global oil supply changed drastically. OPEC's global market share fell from 53% in 1973 to 28% in 1985 as Mexico, Norway and other countries started producing significant amounts of oil[12].

The 'Shale Revolution' in the United States, which started at the turn of the century, changed the oil market once again. It is estimated to have resulted in a significant increase in the price elasticity of oil and gas supply[13].

As a result, just as globalisation led to excess supply in product and labour markets, limiting price and wage increases, the emergence of the United States as a large net exporter of energy buffered the impact of demand shocks on oil and gas prices over the past 15 years.

The green transition and the war in Ukraine will lastingly make fossil energy scarcer and more expensive at a time when renewable energy carriers are not yet sufficiently scalable. Over the coming months, acute shortages, in particular in Europe, may require painful adjustments to production and consumption.

The shift to greener technologies will reduce such pressures over the longer run, but it will also broaden the sources of energy shocks during the transition.

Most green technologies require significant amounts of metals and minerals, such as copper, lithium and cobalt. As their supply is constrained in the short and medium term, and often concentrated in a small number of countries, action to quickly reduce our dependency on fossil energy will lead to firms and governments competing for scarce commodities, thereby pushing up prices[14].

Of course, such fundamental and disruptive changes to the structure of our economies also offer important opportunities.

There is hope that the war in Ukraine unites those who embrace the values of liberty, territorial integrity and democracy. And the determined fight against climate change holds the potential for strong and sustainable growth.

But even then, the challenges we are facing are likely to bring about larger, more frequent and more persistent shocks in the years ahead.

The role of monetary policy

The transition to the Great Volatility is not a pre-determined outcome, however. If the nature of the shocks changes – that is, if one of the factors that had contributed to the Great Moderation subsides – the other factor – better policies – becomes more important in ensuring macroeconomic stability.

Fiscal policy will play an important role in enhancing the resilience of our economies.

Governments need to adapt their policies to the risk of a protracted period of lower potential output growth. With debt-to-GDP ratios at or close to historical highs, spending should focus on protecting social cohesion and

promoting productive and green investments that will help secure long-term prosperity and rebuild fiscal space needed to cushion future shocks.

Monetary policy, in turn, needs to protect price stability. What this means in an environment of elevated volatility and structural change is, however, controversial.

Because monetary policy operates with long lags, price stability is typically defined over the medium term, giving central banks some discretion over the extent and length of inflation overshoots that they are willing to tolerate over the short run.

This discretion is particularly relevant in the case of supply-side shocks that tend to push prices and output in opposite directions. Stabilising inflation is then no longer equivalent to stabilising output – the divine coincidence of monetary policy disappears[15]. Such shocks therefore imply a trade-off for monetary policy, between inflation and output.

The experience of the 1970s suggests that the extent of this trade-off is highly path dependent. A poorly chosen course of action can make attaining price stability significantly more costly in the future.

This path dependency puts a heavy weight on the decisions that central banks are taking in response to the challenges we are facing today.

For the first time in four decades, central banks need to prove how determined they are to protect price stability. The pandemic and the war are consistently suppressing the level of aggregate supply at a time of strong pent-up demand, leading to sharp price pressures across a large range of goods and services.

There are two broad paths central banks can take to deal with current high inflation: one is a path of caution, in line with the view that monetary policy is the wrong medicine to deal with supply shocks[16].

The other path is one of determination. On this path, monetary policy responds more forcefully to the current bout of inflation, even at the risk of lower growth and higher unemployment. This is the 'robust control' approach to monetary policy that minimises the risks of very bad economic outcomes in the future[17].

Three broad observations speak in favour of central banks choosing the latter path: the uncertainty about the persistence of inflation, the threats to central bank credibility and the potential costs of acting too late.

Uncertainty about inflation persistence requires a forceful policy response

The first observation relates to how central banks should act in the current environment of large uncertainty.

William Brainard's well-known attenuation principle suggests that central banks should tread carefully in the face of uncertainty about how their policies are transmitted to the broader economy[18]. There are at least two conceptual cases where the Brainard principle breaks down.

One is the existence of the effective lower bound. The best way for central banks to avoid the perils of a liquidity trap is to ease policy swiftly when a disinflationary shock hits the economy in the vicinity of the lower bound[19]. This principle has become a cornerstone of the monetary policy strategies of many central banks, including the ECB.

The second case is when there is uncertainty about the persistence of inflation. When the degree of inflation persistence is uncertain, optimal policy prescribes a forceful response to a deviation of inflation from the target to reduce the risks of inflation remaining high for too long[20].

In this case, it is largely irrelevant whether inflation is driven by supply or demand. If a central bank underestimates the persistence of inflation – as most of us have done over the past one-and-a-half years – and if it is slow to adapt its policies as a result, the costs may be substantial[21].

In the current environment, these risks remain significant. Unprecedented pipeline pressures, tight labour markets and the remaining restrictions on aggregate supply threaten to feed an inflationary process that is becoming harder to control the more hesitantly we act on it.

About 20 years ago, here in Jackson Hole, Carl Walsh was clear about what this implies for the conduct of monetary policy: to reduce the risks of a Volcker-type policy shock, central banks should conduct policy assuming that inflation is persistent, as the costs of underestimating persistence are higher than those of overestimating it[22].

Such a policy naturally puts a stronger emphasis on incoming data. Two sets of indicators matter most for deciding on the policy adjustment required to restore price stability.

One is actual inflation outcomes along the entire pricing chain. These play a more critical role than they would normally do, as they serve as an important reference point for policymakers to evaluate future pipeline pressures, the forces driving inflation persistence and risks of a de-anchoring of inflation expectations.

The other is data on the state of the economy to assess how fast supply and demand imbalances are correcting in response to both changes in interest rates and the repercussions of adverse supply-side shocks.

At the same time, the nature of inflation uncertainty implies that forward guidance on the future path of short-term interest rates becomes less relevant, or that it even risks adding to volatility rather than reducing it.

A key condition for the success of forward guidance in steering expectations over the past decade was a macroeconomic environment characterised by both historically low inflation volatility and the constraints of the effective lower bound.

Forward guidance is less appropriate in conditions of high volatility. When shocks are large and frequent, central banks can give no reliable signal about the future path of short-term interest rates, other than the broad direction of travel consistent with a reaction function that is calibrated on the assumption of high inflation persistence.

Risks of a de-anchoring of inflation expectations are rising

The second observation tilting the trade-off facing monetary policy towards more forceful action relates to central banks' credibility.

Our currencies are stable because people trust that we will preserve their purchasing power. For politically independent central banks, establishing and maintaining that trust is an important policy objective in and of itself.

Failing to honour this trust may carry large political costs[23]. History is full of examples of high and persistent inflation causing social unrest. Recent events around the world suggest that the current inflation shock is no exception. Sudden and large losses in purchasing power can test even stable democracies.

Surveys suggest that the surge in inflation has started to lower trust in our institutions[24]. Young people, in particular, have no living memory of central banks fighting inflation.

We are witnessing a steady and sustained rise in medium and long-term inflation expectations in parts of the population that risks increasing inflation persistence beyond the initial shock.

In the euro area, consumers' medium-term inflation expectations were firmly anchored at our 2% target throughout the pandemic. According to the most recent data, median expectations are close to 3%, while average expectations have increased from 3% a year ago to almost 5% today[25].

Average long-term inflation expectations of professional forecasters, too, have started to gradually move away from our 2% target. In July, they stood at 2.2%, a historical high.

For both consumers and professional forecasters, we are also observing a marked increase in the right tail of the distribution – that is, the share of survey participants who expect inflation to stabilise at levels well above our 2% target[26]. Option prices in financial markets paint a similar picture[27].

In the 1970s, such shifts in the right tail of the distribution preceded shifts in the mean[28].

We broadly know why these shifts happen among consumers who are financially less literate. These consumers predominately form their expectations based on inflation experiences[29].

But for the euro area, the ECB's consumer expectations survey shows that people who are financially more literate and who see themselves as playing a relevant role in actual price and wage-setting have recently revised their medium-term inflation expectations to a larger extent than other survey participants.

This is a source of concern. Unlike for consumers who form their expectations based on their experience of inflation, the higher inflation expectations of financially literate people are unlikely to subside if and when inflation starts decelerating. This increases the probability of second-round effects.

We cannot say for certain what is behind these upward revisions to inflation expectations. But two potential explanations come to mind. One is that higher medium-term inflation expectations may be the result of a perception that monetary policymakers have reacted too slowly to the current high inflation.

A cardinal principle of optimal policy in a situation of above-target inflation is to raise nominal rates by more than the change in expected inflation – the Taylor principle. If real short-term interest rates fail to increase, monetary policy will be ineffective in dealing with high inflation.

In the United States, a systematic failure to uphold the Taylor principle was one of the key factors contributing to the persistence of inflation in the 1970s[30].

The second explanation is that higher inflation expectations may reflect more fundamental concerns, possibly related to fiscal and financial dominance, or to the recent review of central banks' monetary policy frameworks that focused more on the challenges of too-low inflation rather than too-high inflation[31].

All these factors may have created perceptions of a higher tolerance for inflation and a stronger desire to stabilise output.

Determined action is needed to break these perceptions. If uncertainty about our reaction function is undermining trust in our commitment to securing price stability, a cautious approach to policymaking will no longer be the appropriate course of action.

Instead, a politically independent central bank needs to put less weight on stabilising output than it would when inflation expectations are well anchored.

Policymakers should also not pause at the first sign of a potential turn in inflationary pressures, such as an easing of supply chain disruptions. Rather, they need to signal their strong determination to bring inflation back to target quickly[32].

This is another key lesson of the 1970s. If the public expects central banks to lower their guard in the face of risks to economic growth – that is, if they abandon their fight against inflation prematurely – then we risk seeing a much sharper correction down the road if inflation becomes entrenched.

Central banks are facing a higher sacrifice ratio

The third, and closely related, observation that supports a more forceful policy response relates to the potential costs of acting too late – that is, when high inflation has become fundamentally entrenched in expectations, a situation that neither the United States nor the euro area are facing today.

In the early 1980s, many central banks had to tolerate large and costly increases in unemployment to restore confidence in the nominal anchor. There are at least three reasons to believe that a similar endeavour could be even more costly today in terms of lost output and employment.

One is that our economies have become less interest rate-sensitive over time, meaning that more withdrawal of monetary accommodation would be required for a given desired decline in inflation.

The growing importance of intangible capital is partially responsible for this. In the United States, its share in total investment has tripled since 1980. And in the euro area, it has increased from about 12% in 1995 to 23% today. Research finds that intangible capital-intensive firms tend to be net savers because intangible capital is more difficult to mobilise as collateral for bank lending, making the cost of credit less important[33].

These effects are reinforced by the structural shift towards services, which tend to be, on average, less responsive to monetary policy than more capital-intensive sectors, such as manufacturing[34].

The second reason why a de-anchoring of inflation expectations has become more costly relates to the slope of the Phillips curve.

There is a wealth of studies that find that the Phillips curve has become flatter over the past few decades[35].

Before the pandemic, a flat Phillips curve meant that central banks could allow the economy to run hot before inflationary pressures would emerge. Today, a flat Phillips curve means that lowering inflation – once it has become entrenched – potentially requires a deep contraction.

The third reason concerns the relevant measure of slack.

Even if the true slope of the Phillips curve were to be steeper than is suggested by reduced-form estimates, the fact that it is often global rather than domestic slack that matters for price-setting reduces the sensitivity of the economy to interest rate changes on a much broader level[36].

The events of the past one-and-a-half years are testimony to the increased relevance of global economic conditions for inflation[37].

In other words, central banks are likely to face a higher sacrifice ratio compared with the 1980s, even if prices were to respond more strongly to changes in domestic economic conditions, as the globalisation of inflation makes it more difficult for central banks to control price pressures.

Conclusion

High inflation has become the dominant concern of citizens in many countries.

Both the likelihood and the cost of current high inflation becoming entrenched in expectations are uncomfortably high. In this environment, central banks need to act forcefully. They need to lean with determination against the risk of people starting to doubt the long-term stability of our fiat currencies.

Regaining and preserving trust requires us to bring inflation back to target quickly. The longer inflation stays high, the greater the risk that the public will lose confidence in our determination and ability to preserve purchasing power.

Trust in our institutions is even more important at a time of major and disruptive structural change that brings about larger, more persistent and more frequent shocks. A reliable nominal anchor eases the transition towards the new equilibrium, and improves the trade-off facing central banks in the future.

All in all, therefore, an important lesson from the Great Moderation is that it is also up to central banks whether the challenges we are facing today will lead to the Great Volatility, or whether the pandemic and the war in Ukraine will ultimately be remembered as painful but temporary interruptions of the Great Moderation. ■

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At the heart of global markets

Elise Donovan outlines the pivotal role that the BVI plays in supporting the global economy, which lies in the expertise and services that the BVI offers

International financial centres, such as the British Virgin Islands (BVI), remain vital cogs in boosting the global economy by enabling investment, facilitating sophisticated transactions, and making for a more efficient global marketplace.

The BVI's international business and financial centre has continued to go from strength to strength in recent years despite devastating hurricanes, the COVID-19 pandemic, and other global political and geo-economic challenges.

The resilience and agility displayed has enabled the BVI to overcome these challenges with gusto, a trait that the BVI has demonstrated time and time again.

Not only does it attract companies and individuals from around the world to do business, but the BVI also plays a pivotal role in supporting the growth of the global economy.

This continued success lies in the expertise and services that the BVI offers across the whole lifecycle of a company, from incorporation, through mergers and acquisitions, public listings, privatisation, digitalisation, restructuring, litigation, insolvency, and liquidation.

These services are provided by a network of BVI-specialised practitioners from the world's leading corporate firms, trust companies, law firms and accounting firms. The jurisdiction's tax neutrality, agile corporate framework, low administrative costs, and strong legal sector have long created the perfect ecosystem to conduct business.

The BVI's commitment to a robust regulatory framework and international standards, in lock step with its dedication to driving innovation in financial services, have also been key components of its success.

This has resulted in companies choosing the BVI as a premium jurisdiction, making it the largest offshore international finance centre for company incorporations and related business. So far, in 2022, the BVI saw the highest number of first-quarter new incorporations in four years.

Moreover, in the first half of 2022, BVI financial services firms acted on tens of billions of high-value, sophisticated transactions, from initial public offerings (IPOs) and registered direct offerings (RDOs) to complex debt restructuring and launching new funds.

The [BVIs] tax neutrality, agile corporate framework, low administrative costs, and strong legal sector have long created the perfect ecosystem to conduct business

Below are some of the highlights:

M&A

BVI Financial Service firms have advised companies on all aspects of mergers and acquisitions (M&As) across various sectors.

For example, in the technology sector, law firm Mourant advised Nasdaq Stockholm-listed Stillfront Group, a powerhouse of gaming studios, on the $201 million acquisition of Six Waves Inc, a BVI company. The acquisition of the computer game developer included an earn-out capped at US$100 million and will add to Stillfront's diverse and exciting games portfolio.

In infrastructure, law firm Maples and Calder provided BVI counsel to SCC Power on its acquisition of the business enterprise of Stoneway Capital Corporation, consisting of four power generation facilities in Argentina. As part of the acquisition, SCC power issued a total of $527 million in lien notes to certain Stoneway creditors and interest holders. The move has allowed SCC Power to stabilise operations and enhance cash flow generation.

The BVI's close links to Asia continued to play an important part in its international offering when law firm Harneys acted as the BVI counsel to Hong Kong-listed NWS Holdings Limited for its $340 million acquisition of logistics properties in China from Goodman China Logistics Partnership.

The transaction marked a major milestone in NWS's expansion into the logistics property market and is a prime example of companies benefiting from the jurisdiction's global presence and expertise.

Take-private

Take-privates are a rarity in international finance. This year, BVI financial services firms have been instrumental in several significant deals, including Ogier representing the Atairos group in a ground-breaking $580 million take-private of Ocean Outdoor Limited, which operated the famous Piccadilly Lights screen in London. The innovative use of a BVI Statutory Merger allowed the transaction to be completed without involving the courts.

In healthcare, Walkers functioned as BVI legal counsel to Pfizer Inc. on its US$11.6 billion acquisition of NYSE-listed Biohaven Pharmaceutical. The take-private transaction was implemented by way of a BVI statutory merger. The resulting merger is the largest ever takeover of a publicly listed BVI company by transaction value.

Additional capital

As a global financial centre, the BVI is perfectly positioned to facilitate multi-jurisdiction deals. Earlier this year, Harneys acted as BVI counsel in the $130 million term loan financing of Adium Pharma S.A. by a consortium of lenders across five jurisdictions, mainly in South America.

Law firm Ogier advised on an extension and increase of a multi-currency revolving credit facility for real estate investment firm Colliers. The deal increased Colliers' borrowing capacity from $1 billion to $1.5 billion. The additional capital will be linked to sustainable projects sustainability as part of Colliers' Elevate the Built Environment framework.

Following the launch of Marwyn Acquisition Company II on the London Stock Exchange, law firm Conyers advised on the $577 million funding round. Following the successful launch of that 12-month placing programme, Conyers advised Marwyn Acquisition Company III on an additional $577 million share issuant, bringing the total funding rounds to $1.2 billion.

Restructuring

The BVI's distinctive restructuring framework provides firms in the jurisdiction the ability to effectively assist in restoring business viability for companies as well as offering leading insolvency services.

Recently, Ogier in the BVI advised the Hong Kong-based global commodities trading business, Noble Group, on its $1.3 billion financial restructuring, which was implemented through a lender-led BVI share pledge enforcement. The restructuring de-leveraged the group and transitioned part of the ownership to its noteholders.

Investment/funds

The investment funds sector in the BVI has also been an area of focus and growth. For example, O'Neal Webster has advised on the formation or conversion of multiple open-ended investment funds in the first two quarters of 2022 and several approved manager applications for clients primarily based in North America and Asia.

In addition, Walkers' BVI office acted as counsel to The Central America Bottling Corporation in relation to its $1.1 billion offering in the first US dollar-denominated Sustainability-Linked Bond (SBL) by a bottling company in the region.

The offering also broke new ground by being the first SLB by a Central American issuer and the second largest single tranche SLB by a Latin American issuer ever.

Digital assets

The BVI continues to champion innovative technologies and asset classes. Building on the reputation and success of its excellent corporate product, the BVI has become a beacon for innovative companies in the digital asset space.

Earlier this year, two such companies, a global energy-saving bitcoin mining operator - SAITECH Limited - and a clean-tech company that integrates Bitcoin mining, heating, and power industries - TradeUP Global Corporation - completed their 'De-SPAC' business combination.

As a result, transaction values for the company reached $188 million, up from $8 million in the first half of 2021. Harneys acted as BVI to SAITECH over the acquisition of TradeUP Global Corporation, a publicly traded special purpose acquisition company.

The BVI has become an attractive crypto destination because of its success in balancing innovation with a robust and stringent regulatory landscape.

In February this year, Chainswap, a BVI incorporated company that provides for 'cross-chain bridging' - the process of synthetically transferring cryptocurrency tokens between different blockchains - was hacked on at least one occasion.

ChainSwap sought urgent ex-parte relief in the Commercial Court to recoup the stolen assets. In a first for the BVI, the Court granted a worldwide freezing order against the persons unknown accused of stealing the digital assets.

Similarly, advisory firm Teneo BVI, after being appointed by the court, took control of high-profile Three Arrows Capital assets, the $10 billion crypto hedge fund that the courts ordered liquidated.

This September the BVI Financial Services Commission granted an investment business license to Huobi subsidiary Brtuomi Worldwide Limited (BWL) to operate a virtual asset exchange. BWL plans to offer a range of crypto trading services, including spot trading of cryptocurrencies like Bitcoin and Ether as well as derivatives trading.

According to the company, they are the first digital asset trading platform operator in the BVI, licensed to run an institutional-grade crypto trading platform for both professional and retail investors.

Going from strength to strength

As these examples show, the experts doing business in the BVI's international business and finance centre are engaged in the types of substantive, high-value transactions essential to the functioning of global markets.

The BVI's financial services sector's ability to remain resilient and prosper while operating in a shifting economic and regulatory landscape has enabled the jurisdiction to remain competitive and consolidate its position as one of the world's leading international financial centres. ■

Elise Donovan is CEO of BVI Finance

A story of tailwinds and headwinds

Aggregate supply tailwinds are turning into headwinds, raising inflationary pressures and calling for a policy reset, argues Agustín Carstens

Introduction

My remarks will reflect on aggregate supply's importance for macroeconomic stabilisation. We are used to viewing the economy mainly through the lens of aggregate demand, with supply assumed to adjust smoothly in the background. But we need a more balanced approach. Signs of fragility in supply have been ignored for too long.

Recent events have shown the dangers of doing this. Reinvigorating productivity growth and enhancing the flexibility and resilience of supply will have to play a larger role in policy debates going forward. Let me elaborate on these thoughts.

An era of supply tailwinds

In the three decades leading up to the pandemic, four criss-crossing tailwinds made aggregate supply highly responsive to shifts in aggregate demand: a relatively stable geopolitical environment, technological advances, globalisation and favourable demographics.

A relatively stable global political landscape arose around the broad consensus that free markets and cooperation would support economic growth. At an international level, this helped forge trade agreements that drew more countries into global production networks.

At a domestic level, it helped strengthen market forces through privatising state enterprises, deregulating labour, product and financial markets, and legal improvements, including more secure property rights.

Liberalised and globalised markets, in turn, disciplined policymaking, as they made it harder to deviate from prudent approaches and helped spread best practices, such as inflation targeting.

At the same time, technological advances pushed down costs, made time and physical distance less of a constraint on economic activity and thus provided the basis for a lift in global productivity[1].

Intertwined with these political and technological developments, globalisation expanded the world production frontier. Globalisation in goods and factor markets gave firms access to a larger consumer base, a wider pool of resources, access to international know-how and chances for specialisation.

The sooner policymakers recognise the need for a reset and commit to sustainable growth strategies focused on revitalising the supply side, the stronger and more resilient the global economy will be

Financial globalisation alleviated constraints. As a result, more productive capacity was brought online and opportunities for efficiency gains and cost reductions were exploited on a global scale.

Meanwhile, demographic trends were favourable. The working age share of the global population grew rapidly from 1970 onwards. In advanced economies, baby boomers injected a large cohort of workers into the job market from the 1980s.

And trade brought the previously untapped young workforces of emerging market economies into the global labour pool.

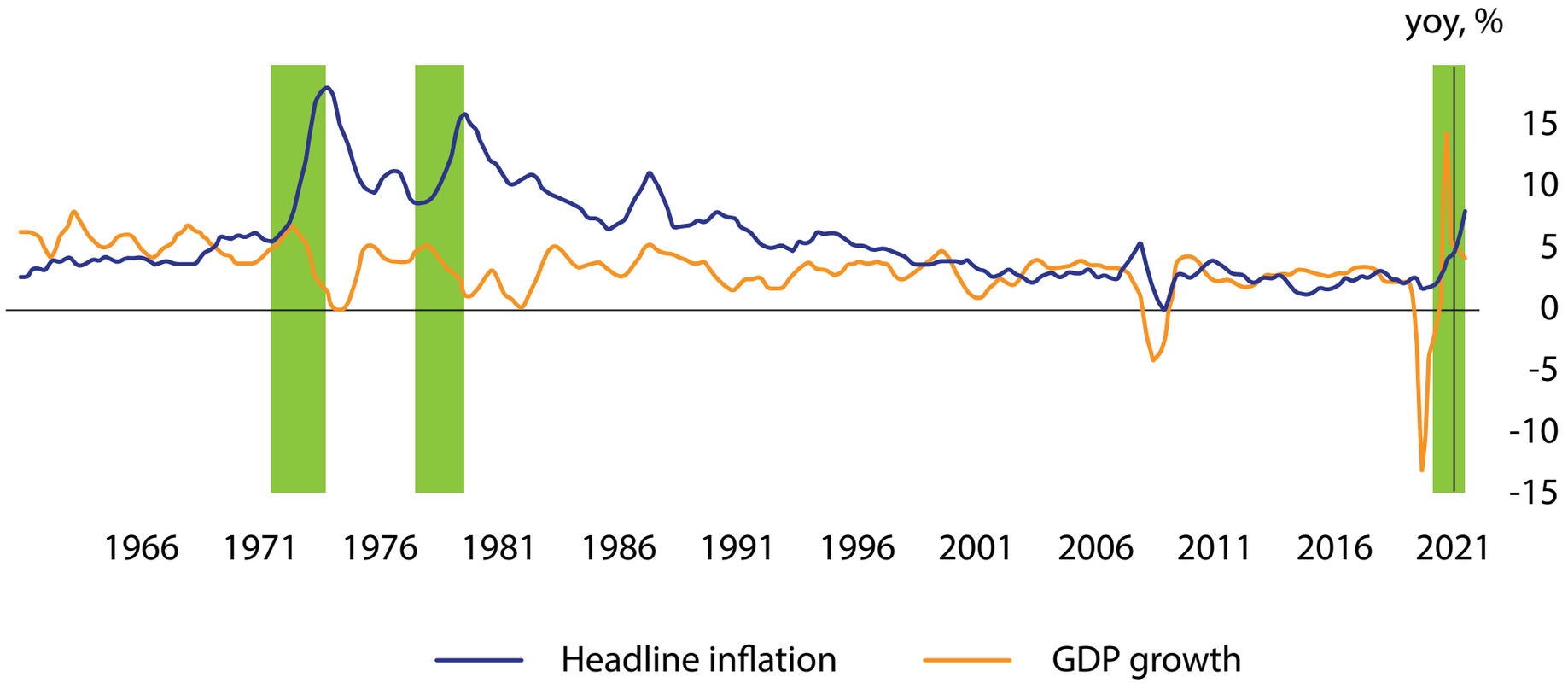
These tailwinds fostered growth alongside low inflation in several ways (Figure 1). A key one was by loosening the link between domestic economic activity and inflation (Forbes (2019)).

Access to cheaper production locations drove inflation down. More contestable domestic markets and sharper international competition weakened the pricing power of firms and bargaining power of workers. And because countries – especially advanced economies – could more easily tap global resources, domestic supply constraints became less binding.

As a result, Phillips curves flattened (Borio (2017))[2] and global – rather than domestic – slack increasingly became the key driver of inflation (Borio and Filardo (2007), Boissay *et al* (2021)).

At the same time, the tailwinds also made supply more responsive to changes in demand. Producers could easily access a network of worldwide suppliers. This allowed them to take advantage of the best available prices. After disruptions, supply would generally adjust quickly to new demand patterns.

Figure 1. Mostly solid growth and low inflation characterised much of the decades before COVID-19



Notes: Weighted averages based on GDP and PPP exchange rates across 10 advanced economies (AU, CA, DK, EA, GB, JP, NO, NZ, SE and US) and 11 emerging market economies (CL, CO, IN, KR, MX, MY, PH, SG, TH, TR and ZA). Green shaded areas represent persistent inflation periods, where the cumulative rise in inflation was above 5.5 percentage points.
Sources: OECD; World Bank; Global Financial Data; national data; BIS.

A build-up of fragilities

The supply tailwinds produced a business cycle distinct from that seen in the post-war period. With inflation low and stable, monetary policy had less need to tighten during expansions than in the past. And in recessions, central banks were usually in a position where they could provide forceful stimulus, confident that inflation would remain under control.

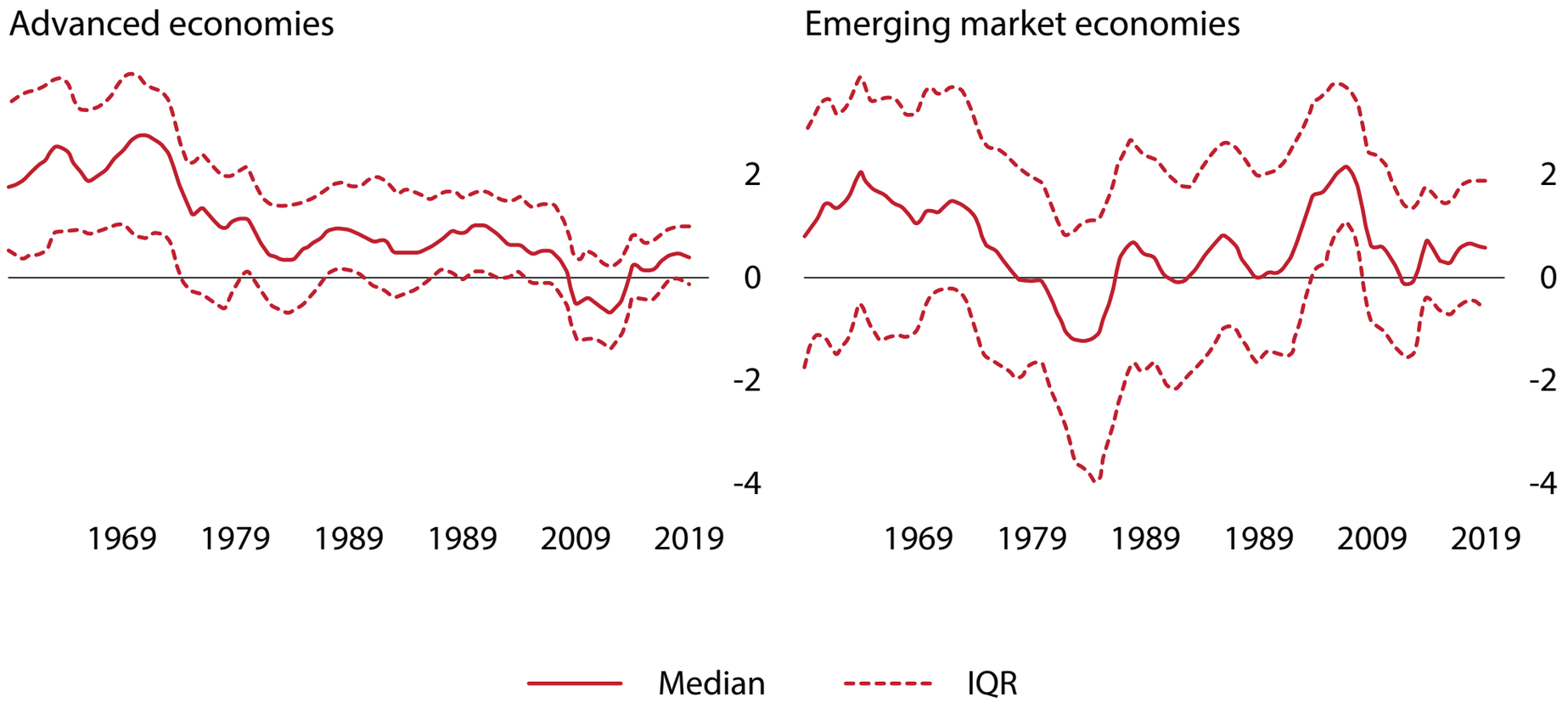
Fiscal policy also had more leeway, as nominal and real interest rates fell to their lowest levels since records began. But, even though macroeconomic conditions remained benign, fault lines emerged.

Low productivity growth was a key warning sign. In advanced economies, it plunged during the Great Financial Crisis (GFC) and never fully recovered, part of a longer decline going back at least to the late 1990s (Figure 2). In emerging market economies, the productivity boost from integration into global networks and structural reforms proved to be fleeting. The post-GFC slowdown has been the steepest and most prolonged of the past three decades.

In retrospect, some slowdown in productivity growth was probably inevitable. Liberalising reforms that improve the quality of institutions[3] can deliver rapid productivity gains. But these naturally slow as countries exploit them and approach the productivity frontier. Incremental improvements in institutional quality become harder to achieve.

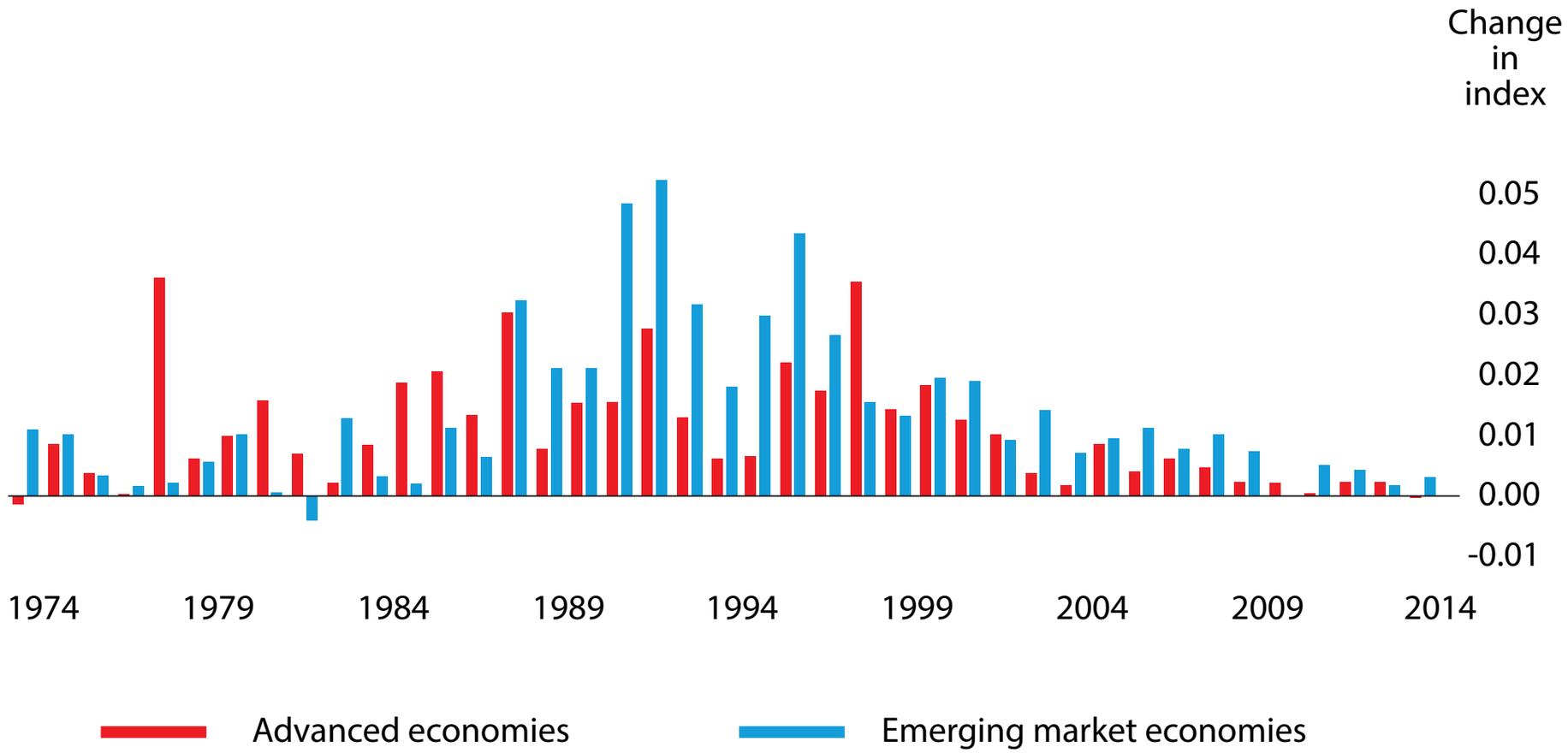
That said, there is no hiding the fact that the growth-enhancing structural reform drive prevalent during the 1990s and early 2000s slowed significantly in many countries (Figure 3). There are many possible explanations for this. Vested interests resist changes. And, as the benefits of structural reforms accrue only in the longer term, they usually rank low in governments' priority lists.

Figure 2. Productivity growth has been difficult to keep up (in per cent)



Notes: Five-year moving averages of median and interquartile ranges of year-on-year changes in total factor productivity at constant national prices. Advanced economies: AT, AU, BE, CA, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IS, IT, JP, LU, MT, NL, NO, NZ, PT, SE and US; emerging market economies: AR, BR, CL, CN, CO, CZ, EE, EG, HK, HR, HU, ID, IL, IN, KR, LT, LV, MA, MX, MY, PE, PH, PL, PY, RO, RU, SA, SG, SI, SK, TH, TN, TR, UA, UY and ZA; where data are available.
Sources: Penn World Table, version 10.0; BIS.

Figure 3. Structural reforms largely stalled in the 2000s



Notes: Change in average reform index computed as the arithmetic average of indicators capturing liberalisations in five areas: domestic finance (regulation and supervision), external finance (capital account openness), trade (tariffs), product market (network industries) and labour market (job protection legislation). The index ranges from 0 to 1, with higher scores indicating greater liberalisation.
Sources: IMF, BIS.

Paradoxically, the supply side tailwinds may also have played a role. Plentiful global supply and low inflation concealed the costs of low productivity. In consequence, governments lost the appetite for technically difficult – and often politically unpopular – structural reforms. The can was kicked down the road[4].

Missing the lift that robust productivity growth could have provided, economies had to rely on other sources of growth. Expanding financial systems provided an impetus, at least until the GFC – when the engine of growth fuelled by debt and driven by demand sputtered.

Crucially, this was not neutral for potential growth, as indicated by the break in productivity patterns I mentioned earlier. And fiscal and monetary policies were increasingly called upon to sustain output. Although obscured by acceptable growth, the constraints were increasingly visible, even before the pandemic.

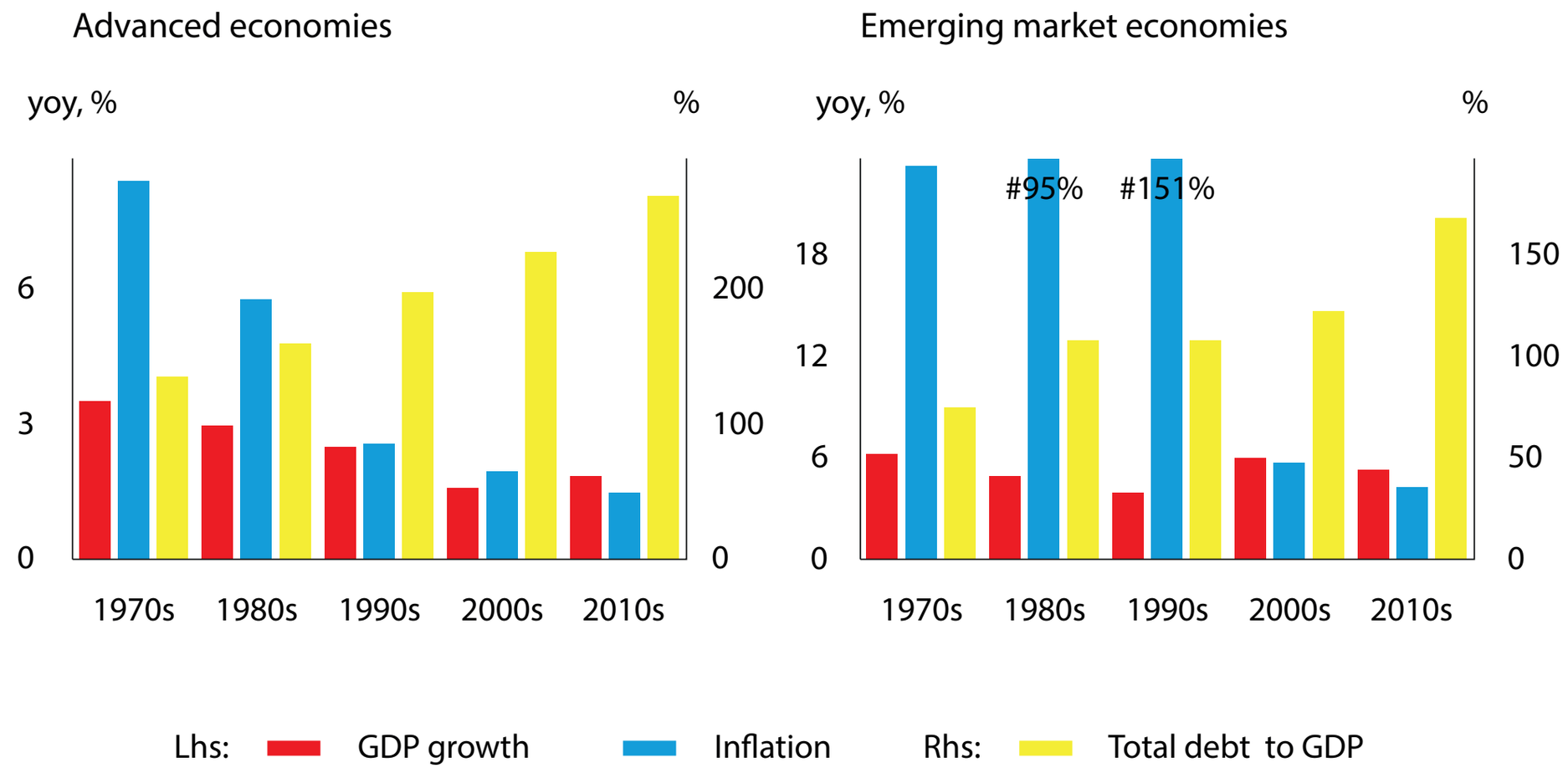
Economies were becoming fragile as private and sovereign debt levels reached historical highs (Figure 4) and inequality rose. The room for policy manoeuvre was eroding, with policymakers forced to do ever more to bring economies back to trend after each downturn[5].

Nonetheless, with supply side tailwinds still lending support, increased reliance on demand management did not lead to higher inflation. Indeed, in many parts of the world, the key challenge for central banks on the eve of the pandemic was to bring inflation back up to target. The winds were about to change, however.

A rude awakening

The pandemic and the war in Ukraine have been a rude awakening both in an economic and humanitarian sense. To be sure, both were exceptional shocks that arose from exogenous causes.

Figure 4. Debt levels climbed as inflation came down



Notes: Decade average of respective variables where regional aggregates are computed as weighted averages based on GDP and PPP exchange rates. Advanced economies: AU, CA, CH, DK, EA, GB, JP, NO, NZ, SE and US; emerging market economies: AR, BR, CL, CN, CO, CZ, HK, HU, ID, IN, KR, MX, MY, PE, PH, PL, RU, SG, TH, TR, TW and ZA; where data are available. 2 Sum of public and non-financial private sector debt.
Sources: IMF; World Bank; Global Financial Data; national data; BIS.

But they painfully revealed that the supply side could only be stretched so far. This made demand side policy responses far harder to calibrate. I draw several lessons from this experience. First, to fight the pandemic it was decided to bring the global economy intentionally to an immediate standstill in mid-air. But turning on and off supply is not like turning on and off demand. With the benefit of hindsight, it was perhaps naïve to expect that it would be possible to easily reignite the growth engine, quickly recover speed and again fly smoothly. We now know better.

The second lesson is that we cannot take the availability of aggregate supply for granted. The global supply networks that adjusted smoothly to changes in aggregate demand turned out to be far less resilient than we thought. Seemingly robust supply chains broke down in the face of disruptions to a few key production inputs.

The final lesson is the sensitivity of inflation to supply constraints. Policymakers had grown accustomed to decades of ample supply, and, with no experience in calibrating stimulus to restart an engine that had been intentionally switched off, reached for their familiar demand side tools.

These had boosted growth in the past, without stoking inflation. The consequences for inflation when supply could no longer keep up caught many of us off guard.

As tailwinds turn into headwinds

Looking further out, a key challenge I see is that even if the specific supply disruptions caused by the pandemic and the war fade, the importance of supply side factors for inflation is likely to remain high.

This is because the global economy seems to be on the cusp of a historic change as many of the aggregate supply tailwinds that have kept a lid on inflation look set to turn into headwinds.

If so, the recent pickup in inflationary pressures may prove to be more persistent. Let me consider three of the forces I noted earlier: geopolitics, globalisation and demographics.

Even before the war in Ukraine, the political environment had been growing tense and less friendly to the principle of international cooperation.

This backlash reflects, in part, the course globalisation has taken: the perceived uneven distribution of benefits within and across countries and discontent with local and global governance mechanisms.

Greater inequality has given rise to populism, which has threatened the rules-based international trade and finance system, and more broadly democratic norms and institutions, including independent central banks (Goodhart and Lastra (2018), Borio (2019)). Thus, it is not surprising that globalisation has been losing steam.

Other, more structural, factors have also weighed on global trade integration. As emerging market economies converge to their richer trade counterparts, comparative advantage on the basis of wages narrows.

Advances in robotics and information and communications technology (ICT) that decrease the relative importance of labour in production processes could also favour local production and discourage global goods trade[6].

Recent developments could accelerate this trend further. The pandemic revealed the fragility of global supply chains that prioritised cost reduction above all else.

The war in Ukraine has rattled commodity markets and threatened energy and food security. It has also accelerated the realignment of geopolitical alliances.

As a result, access to global production networks and international financial markets can no longer be taken for granted. A reconfiguration of global value chains could well follow. Some of these developments may be warranted. But we should not imagine that they will be costless.

Meanwhile, demographic tailwinds are set to reverse, and labour may not be as abundant as it used to be. The baby boomers are retiring. The pandemic may leave a persistent imprint on both the quantity and quality of workers.

Labour force participation rates remain below pre-pandemic levels in many countries, signalling a potential shift in attitudes towards work. Lost schooling and disruptions to regular healthcare services during the pandemic could scar human capital. International labour mobility also faces increasing obstacles.

Moreover, even as these tailwinds turn into headwinds, new headwinds are emerging. In particular, the threat of climate change calls for an unprecedented policy-induced reallocation of resources. And it will only intensify war-induced food and energy bottlenecks.

Increasing extreme weather events and an interconnected global food supply system raise the risk of disruptions and higher, more volatile prices, not to mention human costs[7]. Expectations of a shift away from fossil fuels have deterred investment (Meyer (2022)), threatening energy shortages before clean energy options can catch up to meet demand. This pushes up inflation.

Policies to deliver the lift needed and avoid the stall

This new and more hostile supply environment has sobering implications for economic policy. We may be approaching what in aviation is called a 'coffin corner', the delicate spot when an aircraft slows to below its stall speed and cannot generate enough lift to maintain its altitude.

It takes skilled piloting to get the aircraft back to a safer, stable place. Continuing to rely primarily on aggregate demand tools to boost growth in this environment could increase the danger, as higher and harder-to-control inflation could result.

So what needs to be done? Getting the economy back to a durable path starts with a reset to macroeconomic policymaking. As demand side policies cannot substitute for supply tailwinds, we need to be realistic about what these policies can deliver and more keenly aware of the associated costs.

When economic disturbances come from supply as well as demand, the 'divine coincidence' breaks down. In this environment, central banks cannot hope to smooth out all economic air pockets, and must instead focus first and foremost on keeping inflation low and stable (BIS (2022)). Monetary policy needs to meet the urgent challenge of dealing with the current inflation threat.

Fiscal policy should also be aware of tighter limits on what demand management policies can deliver. In a world of unforgiving supply, what fiscal stimulus adds to demand may need to be taken away by monetary policy tightening.

Scarce fiscal resources should instead be used to tackle supply constraints head on, including those imposed by climate change, ageing populations and infrastructure, through growth-friendly actions and support for broad structural reforms. Such a focus on reinvigorating growth through the supply side could also create scope to rebuild fiscal buffers.

The aim should be to create a dynamic, nimble environment encouraging innovation, enhancing resilience and supporting the required institutional, technological and ecological transitions.

Policymakers should focus on fostering investment in healthcare to better protect human capital. They should also promote investment in climate-friendly industries and all types of infrastructure, including digital.

Priority areas of action should involve competition, labour and education policies to provide and sustain the much-needed innovative impetus.

At the same time, reaping the benefits of technological innovation requires a favourable regulatory and legal environment. Efforts to make the financial system more balanced yet more innovative go hand in hand with reforms on the real side.

Sustaining international cooperation in the face of rising protectionist and populist impulses will also be important. One solution could be to promote a 'better' and more sustainable form of globalisation, rather than scaling back trade integration in a major way[8]. This would strike a balance between resilience, sustainability and efficiency[9].

We can achieve it by giving businesses incentives to set up shorter or more diversified supply chains when the social benefit exceeds the private cost, and by leveraging new technologies to monitor and stress-test systems.

These new arrangements would also have to recognise the redistributive implications of integration and offer concrete remedies, taking to heart the lessons that not all members of society have benefited from globalised trade and finance.

Let me conclude. As any pilot will tell you, when the warning lights flash, there is a premium on timely and decisive action. The sooner policymakers recognise the need for a reset and commit to sustainable growth strategies focused on revitalising the supply side, the stronger and more resilient the global economy will be.

If we manage to do that, new tailwinds may well develop, with substantial benefits for both growth and price stability. ■

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Endnotes

1. Intermodal standardised freight containers, introduced in the 1950s and widely adopted over the subsequent decades, drastically lowered shipping costs and boosted international trade (Bernhofen et al (2016)). In the meantime, the information and communication technology (ICT) revolution made it easier for firms to operate on a global scale (Baldwin (2016)), while improving production processes and opening up new business opportunities.

2. Globalisation also affected inflation through commodity prices. The increased importance of emerging market economies and their higher demand for raw materials meant that global commodity prices became more tightly linked to growth in emerging market economies – particularly in China. Given more volatile growth in these economies, this development contributed to sharper commodity price swings. As a result, global commodity price movements came to explain a larger share of the variance in inflation. See Forbes (2019) for more on this effect.

3. These institutions include the rule of law, property rights, competition and human capital. The importance of each factor may vary across countries. For instance, in emerging market economies rule of law and property rights are key to the development of a stable financial system for intermediating domestic savings and to making the most of foreign capital to benefit supply, not least through diffusion of know-how. For advanced economies, competition, labour market and education policies are instrumental to remain on the knowledge frontier and ensure that gains from global integration and technological advances are distributed evenly.

4. Meanwhile, the productivity-enhancing promise of many technological developments – particularly in the information and communications technology (ICT) sphere – has not been realised. Indeed, many new technologies such as big data and artificial intelligence seem to have favoured incumbents and further encouraged concentration, limiting the spread of productivity across the economy. Other explanations for the puzzling discrepancy between rapid ICT innovation and slow aggregate productivity growth include the arguments that the economic benefits of these new technologies are overblown, that productivity is mismeasured or that the gains will take time to emerge given the necessary investment for adoption, including training of current and prospective workers to acquire the skills needed for the digital workplace. See Mihet and Philippon (2019) for a detailed discussion.

5. Aggressive monetary policy easing could create conditions that make it necessary to maintain extraordinary accommodation. One possibility is the potential link between monetary policy and the natural interest rate, eg. due to the former's effect on debt (Mian et al (2021)) or because the act of policy easing leads the public to believe that the natural interest rate has declined and save more as a result (Rungcharoenkitkul and Winkler (2021)).
6. Conversely, technological advances could facilitate an increase in trade in services and intangibles. Such a shift away from tangibles to intangibles has already taken place in several economies and could explain some of the productivity slowdown. Bailey (2022) shows that, between 2000 and 2007 in six advanced economies, intangible-intensive industries had a more pronounced slowdown in productivity growth than tangible-intensive industries did.
7. The global food system involves production, transport, processing, packaging, storage and retail. It feeds the great majority of the world population and supports the livelihoods of over 1 billion people (Mbow et al (2019)).
8. For views on what such forms of globalisation could look like, see Rodrik (2011) and Wolf (2019).
9. For a discussion of the importance of resilience in promoting macroeconomic stability, see Brunnermeier (2021).

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Beyond GDP

Paul Allin, Diane Coyle and Tim Jackson argue that changing how we measure progress is key to tackling a world in crisis

It's an odd quirk of history that, on the first day of his ill-fated presidential campaign in March 1968, Robert F Kennedy chose to talk to his audience about the limitations of gross domestic product[1] (GDP) – the world's headline indicator of economic progress.

It seems stranger still that, despite the power of that iconic speech, growth in GDP remains to this day the predominant measure of progress across the world. Economic success is measured by it. Government policy is assessed by it. Political survival hangs on it.

Kennedy's speech inspired a host of critiques. It has been quoted by presidents, prime ministers and Nobel laureates. Yet GDP itself has survived until now, more-or-less unscathed.

But amid ever-louder concerns about the failure of national economies to tackle the multiple threats posed by climate change, spiralling energy costs, insecure employment and widening levels of inequality, the need to define and measure progress in a different way now looks as unarguable as it is urgent.

The goods, the bads, and the missing

In simple terms, GDP is a measure of the size of a country's economy: how much is produced, how much is earned, and how much is spent on goods and services across the nation.

The monetary total, whether in dollars or euros, yuan or yen, is then adjusted for any general increase in prices to give a measure of 'real' economic growth over time. When governments adopt policies to pursue economic growth, this is how those policies are evaluated.

Since 1953, GDP has been the headline measure in a complex system of national accounts overseen by the United Nations. Developed during the second world war, these accounts were motivated in part by the need to determine how much governments could afford to spend on the war effort.

But in measuring the monetary value of economic activity, GDP can incorporate many of the 'bads' that detract from our quality of life. War, pollution, crime, prostitution, traffic congestion, disasters like wildfires and the destruction of nature – all can have a positive impact on GDP. Yet they cannot really be construed as components of economic success.

But in their search for a reliable guide towards social wellbeing, governments, businesses, statisticians, climate scientists and all other interested parties must work with civil society, the media and the public to establish a more effective framework for measuring progress

At the same time, there are numerous aspects of our lives that simply go missing from this conventional account. The inequality in our societies. The contributions from unpaid work.

The labour of those who care for the young and the elderly at home or in the community. The depletion of natural resources or biodiversity. And the value of data and many digital services.

What lies outside the market, including public services funded out of taxation, remains unmeasured in a metric of monetary exchange. Kennedy was blunt: *"[GDP] measures everything, in short, except that which makes life worthwhile."*

It's a sentiment that has resonance half a century later. In a striking encounter during the Brexit debate, a UK academic was trying to convey to a public meeting the dangers of leaving the EU. The impact on GDP would dwarf any savings from the UK's contributions to the EU budget, he told the audience. *"That's your bloody GDP!"* shouted a woman in the crowd. *"It's not ours."*

This sense of an indicator out of touch with reality may be one of the reasons there is momentum for reform. When GDP conceals crucial differences between the richest and the poorest in society, it inevitably says little about the prospects for ordinary people.

But there are other reasons too for an emerging change of heart. The pursuit of GDP growth as a policy goal, and the impact that has on government, business and personal decision-making, has accompanied increasing devastation of the natural world, a loss of forests and habitats, the destabilisation of the climate, and near-meltdowns of the world's financial markets. At the same time, GDP has become a poor measure of the technological transformation of society.

Its tenacity as a measure of progress, despite these well-known limitations, arises from factors which are on the one hand technocratic, and on the other sociological.

As the headline measure in a sophisticated system of national accounts, GDP has a technocratic convenience and analytical elegance that remains unsurpassed by many alternative measures. Its authority arises from its ability to be simultaneously a measure of production output, consumption expenditure and income in the economy.

Despite this complex framework, it also offers the deceptive simplicity of a single headline figure which appears to be directly comparable from year to year and across nations, based on the simple (if inadequate) idea that more economic activity necessarily leads to a better life.

However, the combined technical authority and political usefulness of this idea has led to "path dependence" and forms of social lock-in that are difficult to address without significant effort. Think of switching to an alternative as being like switching from driving on the left to the right-hand side of the road.

Yet what we measure matters. And while we're busy looking in the wrong direction, as Kennedy pointed out, bad things can happen. Kennedy's campaign – and his critique of GDP – was cut cruelly short on June 5 1968, when he was fatally wounded by an assassin's bullet. More than half a century later, his call for reform of how we assess progress (or its absence) has never been stronger.

The trouble with GDP: historical flaws

The way societies have understood and measured progress has changed considerably over the centuries. Measurement of 'the economy' as a whole is a relatively modern, 20th-century concept, beginning with efforts

by statisticians and economists such as Colin Clark and Simon Kuznets in the 1920s and 1930s to understand the impact of financial crisis and depression.

Kuznets, now best known for his curve describing the relationship between GDP and income inequality, was particularly concerned to develop a measure of economic welfare rather than just activity. For example, he argued for omitting expenditures that were unwelcome necessities rather than services or goods consumers actively wanted – such as defence spending.

However, the second world war overtook and absorbed these earlier notions of a single measure of economic welfare, resulting in what first became modern gross national product (GNP), and then GDP.

The imperative – set out on the Allied side by John Maynard Keynes in his 1940 pamphlet *How to Pay for the War* – was measuring productive capacity, and the reduction in consumption required to have enough resources to support the military effort. Economic welfare was a peacetime concern.

Post-war, unsurprisingly, American and British economists such as Milton Gilbert, James Meade and Richard Stone took the lead in codifying these statistical definitions through the UN – and its process for agreeing and formalising definitions in the system of national accounts (SNA) is still in place today.

However, since at least the 1940s, some important inadequacies of both the SNA and GDP have been widely known and debated.

Indeed, as long ago as 1934, Margaret Reid published her book *Economics of Household Production*, which pointed out the need to include unpaid work in the home when thinking about economically useful activity.

The question of whether and how to measure the household and informal sectors was debated during the 1950s – particularly as this makes up a larger share of activity in low-income countries – but was omitted until some countries, including the UK, started to create household satellite accounts around 2000.

Omitting unpaid work meant, for instance, that the UK's increased productivity growth between the 1960s and 1980s was then overstated, because it in part reflected the inclusion of many more women in paid work whose contributions had previously been invisible to the national GDP metric.

Another longstanding and widely understood failure of GDP is not including environmental externalities and the depletion of natural capital. The metric takes incomplete account of many activities that do not have market prices, and ignores the additional social costs of pollution, greenhouse gas emissions and similar outputs associated with economic activities.

What's more, the depletion or loss of assets such as natural resources (or indeed buildings and infrastructure lost in disasters) boosts GDP in the short term because these resources are used in economic activities, or because there is a surge in construction after a disaster.

Yet the long-term opportunity costs are never counted. This massive shortcoming was widely discussed at the time of landmark publications such as the 1972 *Limits to Growth* report from the Club of Rome, and the 1987 *Brundtland Report* from the World Commission on Environment and Development.

As with household and informal activity, there has been recent progress in accounting for nature, with the development of the System of Environmental Economic Accounting (SEEA) and publication of regular (but

separate) statistics on natural capital in a number of countries. The UK has again been a pioneer in this area, while the US recently announced it would start following this approach too.

New challenges to the value of GDP

Other, perhaps less obvious failings of GDP have become more prominent recently. Digitisation of the economy has transformed the way many people spend their days in work and leisure, and the way many businesses operate, yet these transformations are not apparent in official statistics.

Measuring innovation has always been tricky, because new goods or improved quality need to be incorporated into observable prices and quantities – and what is the metric for a unit of software or management consultancy?

But it is harder now because many digital services are 'free' at point of use, or have the features of public goods in that many people can use them at the same time, or are intangible.

For example, data is without doubt improving the productivity of companies that know how to use it to improve their services and produce goods more effectively – but how should a dataset's value, or potential value, to society (as opposed to a big tech company) be estimated?

Recent work looking at the price of telecommunications services in the UK has estimated that output growth in this sector since 2010 has ranged anywhere from about 0% to 90%, depending on how the price index used to convert market prices to real (inflation-adjusted) prices takes account of the economic value of our rapidly growing use of data.

Similarly, it is not obvious how to incorporate advertising-funded 'free' search, crypto currencies and NFTs in the measurement framework.

A key limitation of GDP, particularly in terms of its use as an indicator of social progress, is that it offers no systematic account of the distribution of incomes. It is entirely possible for average or aggregate GDP to be rising, even as a significant proportion of the population find themselves worse off.

Ordinary incomes have stagnated or fallen in recent decades even as the richest in society have become wealthier. In the US, for example, Thomas Piketty and his colleagues have shown that in the period between 1980 and 2016, the top 0.001% of society saw their incomes grow by an average of 6% per year. Income for the poorest 5% of society fell in real terms.

Given these many issues, it might seem surprising that the debate about 'Beyond GDP' is only now – possibly – turning into actions to change the official statistical framework. But paradoxically, one hurdle has been the proliferation of alternative progress metrics.

Whether these are single indices that combine a number of different indicators or dashboards showcasing a wide range of metrics, they have been ad hoc and too varied to build consensus around a new global way of measuring progress.

Few of them provide an economic framework for consideration of trade-offs between the separate indicators, or guidance as to how to interpret indicators moving in different directions. There is a breadth of information but as a call to action, this cannot compete against the clarity of a single GDP statistic.

Statistical measurement is like a technical standard such as voltage in electricity networks or the Highway Code's rules of the road: a shared standard or definition is essential.

While an overwhelming majority might agree on the need to go beyond GDP, there also needs to be enough agreement about what 'beyond' actually involves before meaningful progress on how we measure progress can be made.

Change behaviour, not just what we measure

There are many visions to supplant GDP growth as the dominant definition of progress and better lives. In the wake of the COVID pandemic, it has been reported that most people want a fairer, more sustainable future.

Politicians can make it sound straightforward. Writing in 2009, the then-French president Nicolas Sarkozy explained he had convened a commission – led by internationally acclaimed economists Amartya Sen, Joseph Stiglitz and Jean-Paul Fitoussi – on the measurement of economic performance and social progress on the basis of a firm belief: that we will not change our behaviour *"unless we change the ways we measure our economic performance."*

Sarkozy also committed to encouraging other countries and international organisations to follow the example of France in implementing his commission's recommendations for a suite of measures beyond GDP.

The ambition was no less than the construction of a new global economic, social and environmental order.

In 2010, the recently-elected UK prime minister, David Cameron, launched a programme to implement the Sarkozy commission's recommendations in the UK.

He described this as starting to measure progress as a country *"not just by how our economy is growing, but by how our lives are improving – not just by our standard of living, but by our quality of life."*

Once again, the emphasis was on measurement (how far have we got?) rather than behaviour change (what should people do differently?).

The implication is that changing what we measure necessarily leads to different behaviours – but the relationship is not that simple. Measures and measurers exist in political and social spheres, not as absolute facts and neutral agents to be accepted by all.

This should not dissuade statisticians from developing new measures, but it should prompt them to engage with all who might be affected – not just those in public policy, commerce or industry. The point after all is to change behaviour, not just to change the measures.

Economists are increasingly adopting complex systems thinking, including both social and psychological understandings of human behaviour. For example, Jonathan Michie has pointed to ethical and cultural values, as well as public policy and the market economy, as the big influences on behaviour.

Katharina Lima di Miranda and Dennis Snower have highlighted social solidarity, individual agency and concern for the environment alongside the 'traditional' economic incentives captured by GDP.

GDP alternatives in practice

Since Kennedy's 1968 critique, there have been numerous initiatives to replace, augment or complement GDP over the years. Many dozens of indicators have been devised and implemented at local, national and international scales.

Some aim to account more directly for subjective wellbeing, for example by measuring self-reported life satisfaction or 'happiness'.

Some hope to reflect more accurately the state of our natural or social assets by developing adjusted monetary and non-monetary measures of 'inclusive wealth' (including a team at the University of Cambridge led by this article's co-author Diane Coyle).

The UK government has accepted this as a meaningful approach to measurement in several recent policy documents, including its Levelling Up white paper.

There are two fundamental arguments for a wealth-based approach:

- It embeds consideration for sustainability in the valuing of all assets: their value today depends on the entire future flow of services they make available. This is exactly why stockmarket prices can fall or rise suddenly, when expectations about the future change. Similarly, the prices at which assets such as natural resources or the climate are valued are not just market prices; the true 'accounting prices' include social costs and externalities.

- It also introduces several dimensions of progress, and flags up the correlations between them. Inclusive wealth includes produced, natural and human capital, and also intangible and social or organisational capital.

  Using a comprehensive wealth balance sheet to inform decisions could contribute to making better use of resources – for example, by considering the close links between sustaining natural assets and the social and human capital context of people living in areas where those assets are under threat.

Other initiatives aim to capture the multi-dimensional nature of social progress by compiling a dashboard of indicators – often measured in non-monetary terms – each of which attempts to track some aspect of what matters to society.

New Zealand's Living Standards Framework is the best-known example of this dashboard approach. Dating back to a 1988 Royal Commission on Social Policy and developed over more than a decade within the New Zealand Treasury, this framework was precipitated by the need to do something about the discrepancy between what GDP can reflect and the ultimate aim of the Treasury: to make life better for people in New Zealand.

The NZ Treasury now uses it to allocate fiscal budgets in a manner consistent with the identified needs of the country in relation to social and environmental progress.

The relevance to combating climate change is particularly clear: if government spending and investment are focused on narrow measures of economic output, there is every possibility that the deep decarbonisation needed to achieve a just transition to a net zero carbon economy will be impossible.

Equally, by identifying areas of society with declining wellbeing, such as children's mental health, it becomes possible to allocate Treasury resources directly to alleviate the problem.

The UK's Measuring National Wellbeing (MNW) programme, directed by Paul Allin (a co-author of this article), was launched in November 2010 as part of a government-led drive to place greater emphasis on wellbeing in national life and business.

Much of the emphasis was on the subjective personal wellbeing measures that the UK's Office for National Statistics (ONS) continues to collect and publish, and which appear to be increasingly taken up as policy goals (driven in part by the What Works Centre for Wellbeing).

The MNW team was also charged with addressing the full 'beyond GDP' agenda, and undertook a large consultation and engagement exercise to find out what matters to people in the UK.

This provided the basis for a set of indicators covering ten broad areas which are updated by the ONS from time to time. While these indicators continue to be published, there is no evidence that they are being used to supplement GDP as the UK's measure of progress.

Accounting for inequality within a single aggregate index is obviously tricky. But several solutions to this problem exist. One of them, advocated by the Sen-Stiglitz-Fitoussi commission, is to report median rather than mean (or average) values when calculating GDP per head.

Another fascinating possibility is to adjust the aggregate measure using a welfare-based index of inequality, such as the one devised by the late Tony Atkinson.

An exercise using the Atkinson index carried out by Tim Jackson, also a co-author of this article, calculated that the welfare loss associated with inequality in the UK in 2016 amounted to almost £240 billion – around twice the annual budget of the NHS at that time.

Among the most ambitious attempts to create a single alternative to GDP is a measure which has become known as the Genuine Progress Indicator (GPI).

Proposed initially by economist Herman Daly and theologian John Cobb, GPI attempts to adjust GDP for a range of factors – environmental, social and financial – which are not sufficiently well reflected in GDP itself.

GPI has been used as a progress indicator in the US state of Maryland since 2015. Indeed, a bill introduced to US Congress in July 2021 would, if enacted, require the Department of Commerce to publish a US GPI, and to *"use both the indicator and GDP for budgetary reporting and economic forecasting."*

GPI is also used in Atlantic Canada, where the process of building and publishing the index forms part of this community's approach to its development.

A potential gamechanger?

In 2021, the UN secretary-general António Guterres concluded his *Our Common Agenda* report with a call for action. *"We must urgently find measures of progress that complement GDP, as we were tasked to do by 2030 in target 17.19 of the Sustainable Development Goals."* He repeated this demand in his priorities for 2022 speech to the UN General Assembly.

Guterres called for a process *"to bring together member states, international financial institutions and statistical, science and policy experts to identify a complement or complements to GDP that will measure inclusive and sustainable growth and prosperity, building on the work of the Statistical Commission."*

The first manual explaining the UN's system of national accounts was published in 1953. It has since been through five revisions (the last in 2008) designed to catch up with developments in the economy and financial markets, as well as to meet user needs across the world for a wider spread of information.

The next SNA revision is currently in development, led by the UN Statistics Division and mainly involving national statistical offices, other statistical experts and institutional stakeholders such as the IMF, World Bank and Eurostat.

But unlike the UN's COP processes relating to climate change and, to a lesser extent, biodiversity, there has, to date, been little wider engagement with interested parties – from business leaders and political parties to civil society, non-governmental organisations and the general public.

As the British science writer Ehsan Masood has observed, this revision process is happening below the radar of most people who are not currently users of national accounts.

And this means many very useful ideas that could be being fed in are going unheard by those who will ultimately make decisions about how nations measure their progress in the future.

The essence of sustainable development was captured in the 1987 *Brundtland Report*: *"To contribute to the welfare and wellbeing of the current generation, without compromising the potential of future generations for a better quality of life."*

Yet it remains unclear how the next SNA revision will provide such an intergenerational lens, despite a new focus on 'missing' capitals including natural capital.

Similarly, while the revision programme is addressing globalisation issues, these are only about global production and trade – not, for example, the impacts of national economies on the environment and wellbeing of other countries and populations.

Ambitious deadlines have been set further into the future: achieving the UN's Sustainable Development Goals by 2030, and reducing global net emissions of greenhouse gases to zero before 2050.

The SNA revision process – which will see a new system of national accounts agreed in 2023 and enacted from 2025 – is a key step in achieving these longer-term goals. That is why opening up this revision process to wider debate and scrutiny is so important.

It's time to abandon this 'GDP fetish'

One lesson to learn from the history of indicators, such as those about poverty and social exclusion, is that their impact and effectiveness depends not only on their technical robustness and their fitness for purpose, but also on the political and social context – what are the needs of the time, and the prevailing climate of ideas?

The current SNA revision should be a process as much about the use and usefulness of new measures as about their methodological rigour.

Indeed, we might go as far as Gus O'Donnell, the former UK cabinet secretary, who said in 2020: *"Of course measurement is hard. But roughly measuring the right concepts is a better way to make policy choices than using more precise measures of the wrong concepts."*

In short, there is an inherent tension involved in constructing an alternative to GDP – namely achieving a balance between technical robustness and social resonance.

The complexity of a dashboard of indicators such as New Zealand's Living Standards Framework is both an advantage in terms of meaningfulness, and a disadvantage in terms of communicability.

In contrast, the simplicity of a single measure of progress such as the Genuine Progress Indicator – or, indeed, GDP – is both an advantage in terms of communication, and a disadvantage in terms of its inability to provide a more nuanced picture of progress.

Ultimately, a plurality of indicators is probably essential in navigating a pathway towards a sustainable prosperity that takes full account of individual and societal wellbeing. Having a wider range of measures should allow for more diverse narratives of progress.

Some momentum in the current SNA revisions process and ongoing statistical research is directed toward measurement of inclusive wealth – building on the economics of sustainability brought together in Partha Dasgupta's recent review of the economics of biodiversity.

This framework can probably gain a broad consensus among economists and statisticians, and is already being implemented by the UN, starting with natural capital and environmental accounting.

Including wellbeing measures in the mix would signal that wellbeing matters, at least to some of us, while also recognising that many different things can affect wellbeing. The evidence to date is that planting wellbeing measures in a different part of the data ecosystem means they will be overlooked or ignored.

Wellbeing measures are not a panacea, but without them we will continue to do things that restrict rather than enhance wellbeing and fail to recognise the potential economic, social and environmental benefits that a wellbeing focus should bring.

The task of updating the statistical framework to measure economic progress better is non-trivial. The development of the SNA and its spread to many countries took years or even decades.

New data collection methodologies should be able to speed things up now – but the first step in getting political buy-in to a better framework for the measurement of progress is an agreement about what to move to.

National accounting needs what the name suggests: an internally consistent, exhaustive and mutually exclusive set of definitions and classifications. A new framework will require collecting different source data, and therefore changing the processes embedded in national statistical offices.

It will need to incorporate recent changes in the economy due to digitalisation, as well as the long-standing issues such as inadequate measurement of environmental change.

Ultimately, this 'beyond GDP' process needs to grapple not only with measurement problems but also with the various uses and abuses to which GDP has been put. Kennedy's neat summary that it measures *"everything except that which makes life worthwhile"* points as much to the misuse of GDP as to its statistical limitations.

Its elegance in being simultaneously a measure of income, spending and output means that in some form, it is likely to remain a valid tool for macroeconomic analysis. But its use as an unequivocal arbiter of social progress was never appropriate, and probably never will be.

Clearly, the desire to know if society is moving in the right direction remains a legitimate and important goal – perhaps more so now than ever.

But in their search for a reliable guide towards social wellbeing, governments, businesses, statisticians, climate scientists and all other interested parties must abandon once and for all what the Nobel Laureate Stiglitz called a 'GDP fetish', and work with civil society, the media and the public to establish a more effective framework for measuring progress. ■

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Endnote

1. Strictly speaking, Robert Kennedy referred to gross national product (GNP) in his 1968 speech. You can read more about the UN's Towards the 2025 SNA process here.

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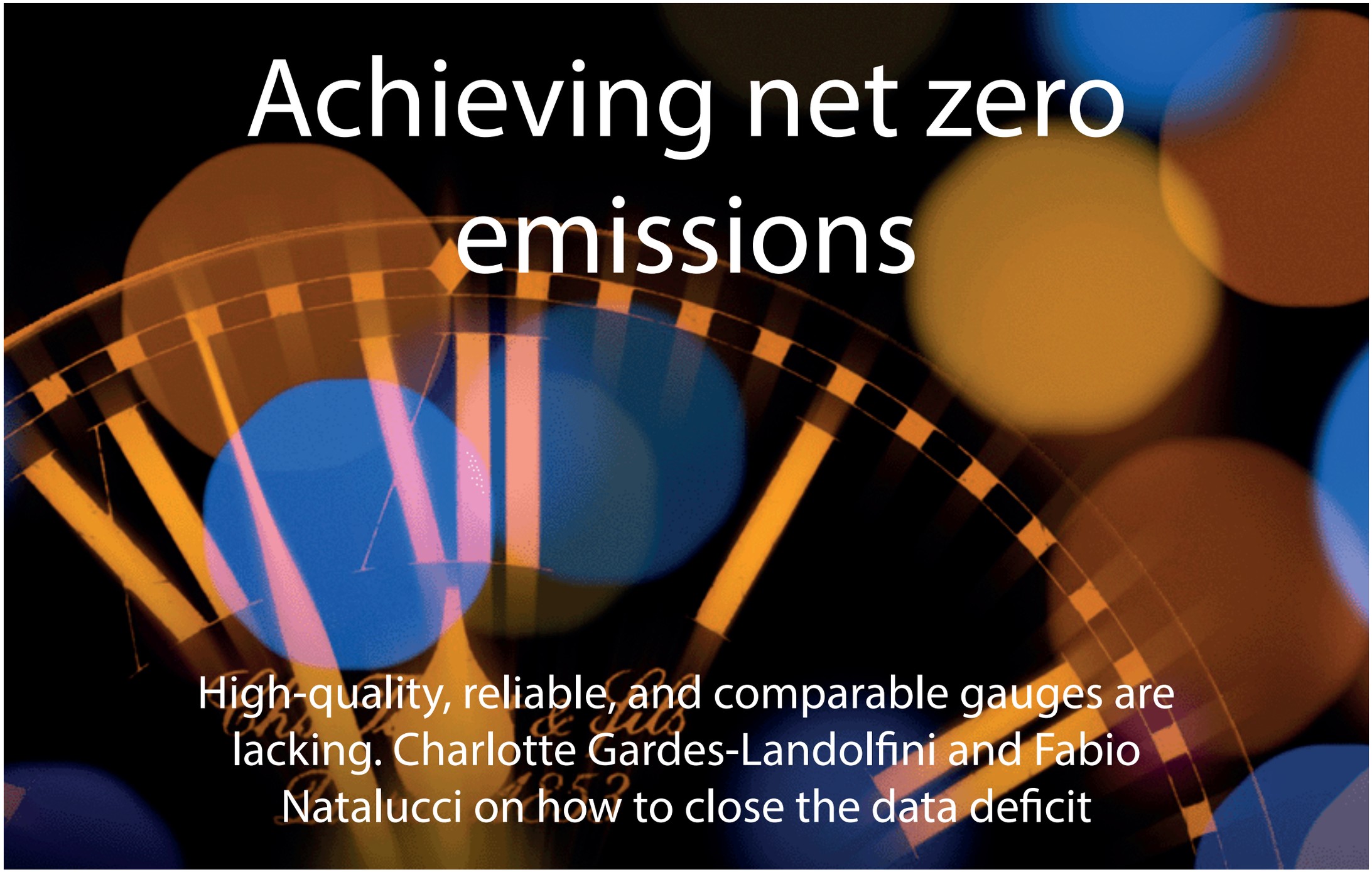

Achieving net zero emissions

High-quality, reliable, and comparable gauges are lacking. Charlotte Gardes-Landolfini and Fabio Natalucci on how to close the data deficit

Climate change is transforming the global investment landscape, creating new risks and opportunities. Physical risks, from rising sea levels to the lethal heat waves scorching Europe and elsewhere, affect asset values for everything from stocks to real estate and infrastructure. So-called transition risk—including government policies to reduce greenhouse gas emissions—lowers the value of fossil fuel companies.

To evaluate these risks and support the transition to a low-carbon economy, investors and others in the financial world need information. For example, they may want to know if a company's assets are physically vulnerable, the volume of greenhouse gases it emits, and what its plans are for lowering emissions.

In addition, heightened geopolitical risks, notably due to Russia's war in Ukraine, and the deterioration of the global economic outlook may make the transition to a low-carbon economy more complex, expensive and disorderly.

Energy policy decisions could also be affected by the amount of carbon lock-in—which occurs when fossil fuel-intensive systems perpetuate, delay or prevent the low-carbon transition—that is generated in the near term, including by a delayed phase-out of thermal coal.

Data deficit

Currently, however, financial market participants face a lack of high-quality, reliable, and comparable data needed to efficiently price climate related risks and avoid greenwashing—spurious attempts by financial or non-financial companies to burnish their environmental credentials.

This data deficit poses a serious obstacle to the energy and ecological transition, which requires migrating capital toward low-carbon industries and massive new investments in mitigation and adaptation.

It also makes it more difficult for financial supervisors to assess risks to financial stability given uncertainties and challenges to quantifying climate-related impacts. Therefore, policymakers urgently need to ensure that better climate data are made available.

A new report from the Network for Greening the Financial System takes an important step. It features a directory that evaluates available climate data, identifies gaps, and offers practical, concrete ways to close those gaps.

The report, a product of a working group co-chaired by the IMF and the European Central Bank, strengthens what we call climate information architecture. This has three building blocks: high quality, comparable data; global disclosure standards; and climate alignment approaches and methodologies, including taxonomies of assets and activities.

Banks, pension funds, and other investment firms need better climate data to assess risks

The report makes three contributions. First, it highlights that, despite the substantial progress on the climate data front since COP26, challenges remain, including:

- Insufficient coverage in disclosures of non-publicly listed companies and small and medium-sized companies
- Limited availability of comparable and science-based forward-looking information, such as targets, commitments, and emissions pathways, that are needed to assess physical and transition risks
- Auditability is needed to build trust and enhance the quality of data, yet it remains limited

Second, the report makes tangible policy recommendations:

- Foster convergence toward common and consistent global disclosure standards, for example by increasing availability of granular emissions data and improving the reliability of reported climate-related data
- Increase efforts toward shared principles for taxonomies, for example by increasing the linkages between taxonomies and disclosures
- Develop well-defined metrics and methodological standards, for example by better harmonizing forward-looking metrics and reinforcing public and private cooperation to improve methodologies
- Better leverage available data sources, approaches, and tools, for example by improving use of new technologies

The third and most important contribution is the climate-data directory, which surveys available data based on the needs of the financial sector and how information is used.

For example, banks, pension funds, and other investment firms apply scenario analyses and stress testing to analyse climate-related risks from individual securities and companies themselves, in combination with credit ratings. They need climate-related data to assess vulnerability to these risks at the sector, company, household, and sovereign level, and to evaluate the determinants of physical risks and transition risks.

Policymakers may need other data to determine whether a sharp drop in asset prices could hurt balance sheets of financial companies, putting financial stability at risk.

Climate data directory

The climate data directory can shape evidence-based conclusions on the main data gaps. For example, it shows where raw data aren't available to construct metrics such as the exposure to climate policy relevant sectors, or the share of assets such as coal-fired power plants in energy portfolios.

Missing are accounting data and exact geographic location of assets, as well as data on greenhouse-gas emissions and effects related to biodiversity, forest depletion, floods, droughts, and storms.

Though not offering direct access to underlying data, the directory is a public good, a living tool aimed at better disseminating climate-related data and offering practical solutions to bridge data gaps. It's designed to help financial professionals identify relevant sources to meet their needs, facilitate access, and better disseminate existing climate-related data. It can play a decisive role in fostering progress on the four policy recommendations described above.

The report's findings and accompanying policy recommendations line up closely with the IMF's work on climate data, disclosures, and taxonomies and other methodologies intended to align financial portfolios with Paris Agreement goals.

Metrics and methodologies

For example, the Fund's Climate Change Indicators Dashboard, a statistical initiative to address the growing need for data used in macroeconomic and financial stability analysis, may benefit from the directory's improved metrics and underlying methodologies.

The IMF is also leading a joint project to provide guidance on the Group of Twenty's high-level principles for taxonomies and other sustainable-finance alignment approaches. This work is particularly relevant for emerging market and developing economies, which face considerable challenges in reducing greenhouse-gas emissions and attracting private capital to finance the transition.

The IMF participates in the International Financial Reporting Standards Foundation's new standard-setting board for sustainability and climate disclosures, which plays a key role in such work. It also co-leads the Financial Stability Board's Climate Vulnerabilities and Data workstream to incorporate climate in the organization's regular vulnerabilities assessment.

These efforts aim to address areas of concern in climate vulnerabilities, metrics, and data based on their materiality and their cross-border and cross-sectoral relevance. Finally, the IMF has started to include climate-related risk analysis in its financial sector assessment programs.

Late last year, the IMF dedicated its annual statistical forum to gauging climate change and discussed with other international bodies how to close climate finance data gaps. And in October, we will publish an analytical chapter of the Global Financial Stability Report that takes a more in-depth look at financial markets and instruments in scaling up of private climate finance in emerging market and developing economies. ■

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This article is based on an IMF Blog

Making sense of ESG data

There is a regulatory push towards the disclosure of ESG information. Martijn Groot says there is a need for a more comprehensive approach to data preparation

Until recently, environmental, social and governance (ESG) data management was at a low level of maturity across both the buy side and sell side. Although there have been reporting frameworks in place for decades including the principles for responsible investment (PRI) and global reporting initiative (GRI) standards, the absence of standard data collection, integration, and reporting solutions often required firms to create their own 'ESG data hub' to provision their own analysts, front office, and client reporting teams.

This situation is rapidly changing. Financial services firms are recognising the key role ESG metrics play in decision-making across the investment management process. Not only does ESG data inform new product development, asset allocation and client reporting in an increasingly competitive market, but the regulatory push towards the disclosure of ESG information under the Sustainable Finance Disclosure Regulation (SFDR) means that asset managers are required to report on the ESG metrics of their portfolios.

SFDR also requires proper documentation as to the sources or models behind the reported information. Data preparation processes need to withstand rigorous scrutiny, as regulators demand the ability to explain figures and are increasingly conscious of the issue of greenwashing

This has far-reaching ramifications for financial services firms globally. Any firm that sells or distributes investment products into the European Union will have to follow the SFDR regulation. SFDR requires firms to report on mandatory Principal Adverse Impact (PAI) Indicators as well as some optional ones.

Paradoxically, the reporting requirements for the publicly listed companies that asset managers invest in lag behind the SFDR timetable. This causes an information gap and the need to supplement corporate disclosures with third party ESG scores, expert opinion, as well as internal models to come to an overall assessment of ESG criteria.

However, the regulatory environment for ESG data is far from the only factor driving growth in ESG data management.

In recent Alveo research that polled the views of 300 asset owners and asset managers in the UK, US and Asia-Pacific, just 21% of the survey sample cited 'regulatory reporting' as a key driver of their use of ESG data. This indicates that beyond regulatory compliance enhancing their ESG data management is something firms see as a must do to boost the overall value of their business.

ESG data management and quality challenges are very real and the inability to surmount them significantly impairs the ability to meet new and evolving standards, regulations and industry best practice protocols

Regulation has an important role, of course, but firms are increasingly investing in an ESG data management capability today because they understand the broad benefits that it will bring to their business rather than being forced to do so by the need to comply with the latest rules and stipulations.

Need for enhanced ESG data management

This growing need for ESG data will impact a vast array of financial services businesses worldwide. Asset management firms are increasingly concentrated on optimising their ESG data management and doing so quickly.

The Alveo research found that well over nine out of ten (95%) of the sample are looking to improve their ESG data management. 32% are looking to do so in the next six months, with 80% in total looking to do so within a year.

There is also a need for ESG-data for the banking industry. For instance, in corporate banking, ESG data is increasingly crucial to support customer onboarding and, in particular, Know Your Client (KYC) processes.

On top of that, banks will have to report their 'green asset ratio' – in essence, the make-up of their loan book - in terms of the mix of business activities of the companies they lend to, categorised according to the EU Taxonomy.

In the future, if a company signs up in order to obtain a loan from a bank as part of the screening criteria, it will be asked to disclose what kinds of business activities it is involved in and what kinds of sustainability benchmarks it has in place.

Banks and other sell-side financial services firms will also frequently screen their suppliers, as part of a process called Know Your Third Party (KY3P). They will want to know who they are doing business with, so they can then report this in their own Annual Report.

Banks will also want to climate stress test the products they hold in their trading book for their own investment against certain climate scenarios.

The European Central Bank (ECB), the Monetary Authority of Singapore (MAS), as well as the Bank of England have all incorporated climate stress test scenarios in their overall stress testing programmes to gauge the solvency and resilience of banks.

ESG data also has a role to play in the way banks manage their mortgage book as they are increasingly looking for geospatial and climate data, for example, to work out the flood risk of the properties they finance.

This is information that was previously typically used by (re)insurance firms but that will now be used more broadly in the financial services industry.

Both sell-side and buy-side financial services companies will also need to integrate ESG data with data from the more traditional pricing and reference providers to give a composite view, incorporating not just the prices of instruments and the terms and conditions but also the ESG characteristics.

Scoping the challenge

ESG data needs to be anchored across the organisation, integrating with all the different data sets to provide a composite picture, becoming a key source of intelligence, not just for the front office but also for workflows in risk, finance and operations.

Given that need, it is perhaps unsurprising that the Alveo research finds that 80% of businesses are aiming to improve their ESG data management within the next year.

However, for many firms, this may be easier said than done. Sourcing accurate ESG data and properly interpreting it is a particular challenge, as information needs to be gathered from a wide array of data sets including third party estimates, ratings, news and corporate disclosures.

Corporate disclosures especially are still patchy and sometimes difficult to come by, while the withholding of relevant data means that records are frequently incomplete or held in silos.

This inevitably impacts the effectiveness with which key data is distributed and disseminated to senior leaders and decision-makers. In some cases it is simply missing.

Usability issues include the disparity in methodologies third-party firms use to estimate or score firms on ESG criteria. Rating firms have their own input sets, models and weights and often come to different conclusions. Compared to credit ratings, the correlation between the scores given to a firm by different rating agencies is lower.

However, credit analysis is as old as the banking industry and the metric gauged (probability of default) is clear. It could be that, with increased global disclosure standards under IFRS, ESG scores will converge.

Comparability issues in ESG are exacerbated by different standards, different reporting frequencies or calendars and also the lack of historical data to track progress and benchmark performance over a longer time period.

The biggest challenge in many firms, however, is how to embed the ESG data in a range of different business processes to put users on a common footing. This requires the capability to quickly onboard new data sources, integrate, harmonise and vet that data, fill in the gaps where needed and provide it to users and business applications.

Achieving all this is far from easy. The data management structure and model is not always clear and invariably siloed. It often still needs to be integrated into wider reporting, especially in finance and risk, which are typically the functions where all information flows necessarily come together. These firms are therefore focused on improving their ESG data management and are also prepared to invest to make that happen.

Beyond pure data management, putting in place robust high-quality data governance processes and practices will also have an important role to play here in controlling access and ownership and ensuring that data usage is monitored efficiently.

Finding a solution

Accessing ESG data and ensuring it is of good quality, comparable with other ESG data sets and well-integrated within existing workflows can often be complicated.

Whenever new data categories or risk metrics are introduced, data management practices typically start with improvisation through desk-level tools including spreadsheets, local databases and other workarounds. This is gradually streamlined, centralised, operationalised and ultimately embedded into core processes to become business-as-usual (BAU).

Generally speaking, firms need to cross-reference to a comprehensive data model that covers regulatory ESG information and underlying data sets. In addition, they must achieve transparency as to which sources and what types of data are leveraged, the business rules used and any manual remediation.

Comprehensive ESG data management

A comprehensive approach to ESG data management is needed to provide consistent data to service multiple use

cases. Yet, accessing ESG data and ensuring it is of good quality and well-integrated within existing workflows can be difficult.

However, data management solutions and Data-as-a-Service offerings are now available to help firms acquire the ESG information they need, the capabilities to quality-check, supplement and enrich it with their own proprietary data or methods, and the integration functionality to place users and applications on a common footing.

Achieving this demands that any challenges presented by the quality of data are dealt with from the outset. What organisations need is a process that seamlessly acquires, integrates and verifies ESG information. Additionally, historical data to run scenarios can help with adequate risk and performance assessment of ESG factors.

A data management function should also facilitate the easy discoverability and explainability of information and effective integration into business user workflows.

In short, data management should service users from the use case down, rather than from the technology and data sets up. Specific capabilities should include cross-referencing taxonomies and condensing information, for example to report on indicators that serve as performance KPIs, or that meet reporting mandates in the financial sector.

Data derivation capabilities and business rules can spot gaps, highlight outliers, whether they are related to historical patterns, or outliers within a peer group, industry or portfolio; and provide estimates where needed. Additionally, historical data to run scenarios can help with adequate risk and performance assessment of ESG factors.

The speed that the regulator has picked up with regard to enabling a sustainable economy not only confronts companies with a very tight implementation schedule, but also with major challenges regarding the sourcing, processing and quality assurance of large sets of frequently unstructured data.

Mastering this data challenge is a prerequisite for successfully competing for new market offerings and sustainable products. Early operational readiness is key to staying ahead of the curve in adapting to the new ESG regime.

The major decision points that need to be addressed right now are first, determining the target operating model and governance, second, designing the target data and system architecture and third, moving forward with a well-proven approach for a customised implementation.

Once a data management system has been put in place within an effective operating model, there are many benefits: from efficient data onboarding and provisioning business users to securing data lineage and data cost and usage management.

This significantly increases the return on any existing and future ESG data investments. Firm-wide availability will increase usage and, in turn, will benefit the whole organisation and ensure firms are optimising their data.

Towards ESG Data-as-a-Service

Because ESG data management capabilities should support a company's compliance processes end-to-end, the Data-as-a-Service model where a supplier manages the sourcing and integration but also quality management of required ESG data emerges as the preferred service model.

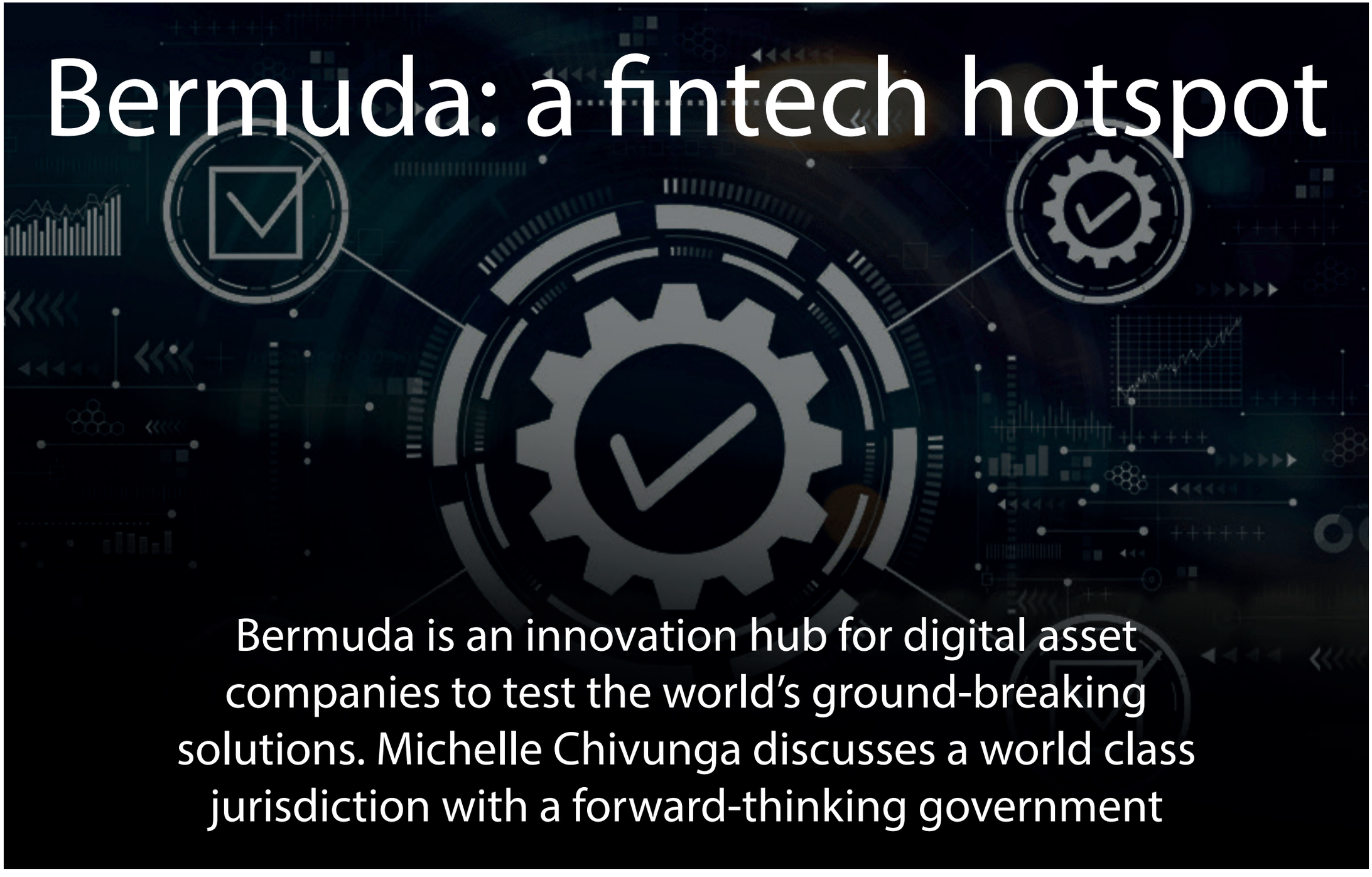
Research conducted among hedge funds, pension funds, insurance companies and other investment firms in the UK, US and Asia-Pacific found more than three-in-ten opted for this approach. Having capabilities in-house is good news for all stakeholders, but beyond this, drawing on the services of an expert solutions provider and adopting Data-as-a-Service models may prove to be the best route to address these challenges.

ESG data management and quality challenges are very real and the inability to surmount them significantly impairs the ability to meet new and evolving standards, regulations and industry best practice protocols.

Given the complexity and range of the challenges, there is a clear need for firms to draw on in-depth third-party expertise and use solutions that help collect, collate and validate data and offer a one-stop shop of ESG content as well as the integration of it into business workflows to put it to use. ■

Martijn Groot is VP Marketing and Strategy at Alveo

Bermuda: a fintech hotspot



Bermuda is an innovation hub for digital asset companies to test the world's ground-breaking solutions. Michelle Chivunga discusses a world class jurisdiction with a forward-thinking government

In 2018, Bermuda created the foundation for fintech regulation with the Digital Asset Business Act (DABA), a ground-breaking set of laws and policies that provided legal clarity and transparency for businesses in the fintech industry.

Shortly thereafter, DABA was enhanced with the Digital Asset Issuance Act 2020 and the Digital Asset Issuance Rules 2020 which updated the criteria and provided clarity regarding the issuance of digital assets.

Modelled on the success of Bermuda's insurance and re-insurance industry, and leveraging the global recognition of the Island's digital leadership and unrivalled risk-management spurred by an active and inclusive regulator of financial services, the Bermuda Monetary Authority, a solid, secure regulatory environment has been paved for both global and local innovative companies.

The 3 Cs of fintech

Bermuda's collaborative approach toward building best practices exemplified in the re/insurance industry was the perfect template to establish an enviable regulatory framework, through which risks are mitigated via the three Cs of fintech: cybersecurity, custody and compliance.

- **Cybersecurity** is a significant industry issue where it is no longer a question of *"if you'll get hacked"* but *"when."* The framework has put in place clear requirements around the means to prevent cyber-attacks and to respond and mitigate them if, or more aptly when, they happen.

  Cybersecurity is one of the world's biggest areas of concern particularly as institutions are still grappling with a relatively new digital economy and new ways of doing business in a VUCA[1] and COVID-led environment.

Bermuda is driving forward innovative approaches to providing a cyber-proof fintech ecosystem which is attracting more businesses to the Bermudian market. For digital value to be exchanged, secure and robust systems must be in place.

Cybersecurity is centre stage for Bermuda and preventative measures are critical to mitigate against future risk. A cyber-led digital economy is necessary to boost productivity and aid economic growth.

Companies who are looking for a world class jurisdiction with a forward-thinking government that welcomes entrepreneurs who have an idea they are required to demonstrate on a country-wide scale can find in Bermuda the jurisdiction that can make that idea a business reality

- **Custody:** the framework is built around ensuring there are clear procedures, protections, and guidance to make sure that Bermuda companies distinguish themselves, can follow best practice, and are globally competitive. This has given them additional credibility and security.

- **Compliance:** compliance is the elephant in the room in terms of risk. Part of the reason finance has been so slow to adapt to technology is the ever-increasing list of requirements pursuant to Know Your Customer and Anti Money Laundering regulations, which can be costly and complex.

  The challenge is that many companies prioritise growth, often at the expense of proper compliance, and that introduces significant business risk. Bermuda has led the way to support businesses navigate the dynamics and complexity of compliance and places prominently within its frameworks the significance of ensuring that data is protected from misuse.

Three licenses

Bermuda's structure allows companies to progress a concept from an idea until go-to-market readiness. DABA's licensing regime provides different licenses that vary depending on the company's growth stage and readiness:

- The test license (**Class T** - test *"alpha testing environment"*) provides an environment for businesses looking to develop a business model.

  The purpose is to gain understanding of the risks of that business so that it can define for itself appropriate risk management policies and procedures. Self-risk management also enables greater accountability and responsibility by the businesses.

- The sandbox license (**Class M** - modified, *"beta testing environment"*) allows the operation of specific business activities within a defined scope and time period.

  This is designed for companies whose principals understand their business model and have scoped out the risk management policies and procedures but have not yet demonstrated the ability to implement them. The sandbox provides the environment to experiment with implementation under the supervision of a competent regulator.

- The full license (**Class F** - full, *"production environment"*) allows to fully operate a fintech business in accordance with a business plan and according to the approved classes of activities.

From alpha to beta to production, Bermuda is set to provide the necessary innovative platform and benchmark that can support the next generation of unicorn global companies. Many parts of the world are still grappling with how to regulate and manage risk with fast-transforming assets.

Indeed digital assets, although relatively new, are gaining global traction. With the Government of Bermuda's flexible and collaborative approach, the jurisdiction has led the way by lowering barriers to innovation, fostering a diverse business community, and supporting digital asset businesses to thrive.

The Currency Standard Initiative

The introduction of the Currency Standard Initiative (CSI) enables the development of standardised and harmonised rules for the private issuance and the distribution of digital value across interoperable systems.

It could boost growth not only in Bermuda but across the globe, supporting the renaissance of financial services, improving crossborder trade and opening up new market opportunities.

> *"CSI is an important instrument that can change the way institutions and global stakeholders interact. Imagine the removal of silos: that would significantly enable better coordination between policy makers, business leaders, regulators and innovators working together to bring not only profitable returns but sustainable and impactful value that is changing people's lives.*
>
> *"At Global Policy House, we care about people and we want them to have access to this next generation of value and wealth which can complement what we have today. Mitigating risk is vital but what is unquestionable is the digital revolution bringing a new kind of value that provides opportunity to so many cut out before.*
>
> *"Bermuda is leading the way by providing the way to safely build wealth that trickles down across whole communities. What could be more exciting?"*
>
> Michelle Chivunga, CEO, Global Policy House

With the current regime regulating digital assets, Bermuda is at the cutting edge of an emerging, disruptive technology. It is providing for itself the opportunity to create jobs, build an ecosystem that is best in class, generate incremental revenue, and leave for future generations a world that is innovative, customer-focused, and sustainable.

Companies who are looking for a world class jurisdiction with a forward-thinking government that welcomes entrepreneurs who have an idea they are required to demonstrate on a country-wide scale can find in Bermuda the jurisdiction that can make that idea a business reality.

One can find accelerators and incubators anywhere in the world, from London to New York to Singapore, but there's only one place where the entire place is itself is an innovation campus; and that is Bermuda. Bring your business to the Island, innovate securely and feel the magic of Bermuda. ■

Michelle Chivunga is a member of the Bermuda Fintech Advisory Board

Endnote
1. VUCA stands for volatility, uncertainty, complexity, and ambiguity

TISE's strategy for sustainable growth

In this Q&A Cees Vermaas explores the impact of macro-economic conditions on latest listing trends and the execution of a strategy to deliver a business model for sustaining future growth

Cees, can you tell us a little about yourself and your role as CEO of The International Stock Exchange (TISE)?

Yes, it would be my pleasure. Originally, I am from The Netherlands and I have an information technology background but now I have been working within international financial market infrastructure for more than 20 years.

I have held senior executive positions within several international exchanges, including CEO of CME Europe Ltd, CEO of Euronext Amsterdam and Head of European Cash Markets for NYSE Euronext.

Since November 2020, I have been CEO of TISE with responsibility for all aspects of leadership and management of the Exchange. Focusing on strategy, business development and infrastructure, I am working with, and creating enhanced value for, all our stakeholders, including our staff, members, issuers and shareholders.

Our aim is to do this by executing a strategy which delivers a more diversified and scalable business model to sustain future growth.

And can you give us an overview of TISE?

Built on a culture of responsiveness and innovation, TISE is one of Europe's leading stock exchanges for listing bond issuances aimed at professional investors.

We have an increasingly diversified and scalable business model which puts us in an excellent position to make the most of the opportunities which will emerge, not least when more buoyant market conditions return

Headquartered in Guernsey and with staff operating across Dublin, Guernsey, the Isle of Man, Jersey and London, our regulated market is uniquely positioned within the European time zone but outside both the UK and the EU.

As a major professional bond market, we are among the leading venues in Europe for listing high yield bonds and private equity debt securities, and we are experiencing solid growth in structured finance and securitisation transactions.

We also have a pool of 'domestic' equities and a significant share of the market for listed UK Real Estate Investment Trusts (REITs), as well as a comprehensive sustainable market segment, TISE Sustainable.

We are living in a very unstable period politically, economically and socially – how has this impacted business so far this year?

The first half of 2022 comprised two very different quarters in terms of new listing volumes on TISE. Following a record 2021 and a record first quarter this year, new listings have since been subdued primarily due to a significant shift in macro-economic conditions.

There has been the much-anticipated pullback from the historic bull market run as geopolitical instability, global supply chain issues, persistent inflation and rising interest rates have combined to provide unfavourable conditions within the debt capital markets.

I would be lying if I said that we have been immune from the effects of the more unfavourable conditions, but the refinement of our core bond market proposition has successfully mitigated against the worst of the downturn and facilitated further growth in the size of our market.

So far, we have gone through the fixed income market downturn much better than most of our competitors.

Ultimately, there were 487 securities listed on TISE during the first half of the year, contributing to a 11.2% rise year on year in the total number of securities on TISE's Official List, which reached 3,815 on 30 June 2022, representing a total market value of more than £600 billion.

You mentioned that TISE is a major professional bond market so what have been some of the trends and developments in that sector?

It was just over a year ago that we enhanced our international bond listing offering through the introduction of our Qualified Investor Bond Market (QIBM). Launched at the start of August 2021, there were more than 1,000 newly listed bonds on QIBM in its first year.

Most recently, the QIBM proposition has been further enhanced through a detailed revision of its post-listing continuing obligations to ensure it reflects a proportionate regulatory and disclosure regime for all bond products and structures.

Listings on QIBM during the first half of 2022 have included investment grade corporate bonds, high yield bonds, private equity debt securities, securitisations, sovereign bonds, convertible bonds and profit participating notes.

The volumes are marginally lower than the same period during what was a record 2021 and actually if you look closer they were on a par with last year when excluding the impact of high yield bonds.

TISE remains the leading European venue for listing high yield bonds and the slowdown is a function of high yield market being particularly impacted by the wider economic backdrop. Lenders have shown significant risk aversion and issuers have paused issuances as rates and yields made borrowing more expensive.

There is a relatively healthy pipeline in institutional loans and high-yield bonds earmarked for M&A and LBO transactions which should precipitate listings in the future.

In terms of other trends, there was a 7.6% increase year on year in private equity related listings on QIBM during the first half of 2022. The private equity sector remains very strong with a significant amount of capital to be deployed and TISE remains the leading venue for the listing of securities related to this transactional activity.

There have also been more investment grade corporate bonds, sovereign bonds (including another bond from the States of Jersey) and securitisations listed on QIBM during the same period. Securitisation listings increased by 10% year on year and included prominent deals from major international banks backed by a range of asset classes including auto loans, credit card receivables, loans to SMEs, as well as residential and commercial mortgage-backed securities.

Sustainability is a key item on everyone's agenda now, so what has been happening at TISE in terms of related listings?

TISE bond listings are including a growing number of sustainable bonds. In July 2021, we became a Partner Exchange of the United Nations' Sustainable Stock Exchanges Initiative (UN SSE) and we launched our comprehensive sustainable market segment, TISE Sustainable.

TISE Sustainable is open to issuers and securities from across both our bond and equity markets who are independently assessed as complying with an internationally recognised framework or rating which demonstrates their environmental, social or sustainable credentials.

Since its launch, we have admitted sustainable issuers, green bonds, sustainable bonds, sustainability-linked bonds and humanitarian catastrophe bonds to TISE Sustainable.

At the end of June 2022, there were more than £13 billion of listings on TISE supporting environmental, social and sustainable initiatives, which demonstrates the role we can play as a facilitator of global sustainable capital flows.

You've talked about a strategy of diversification, and we can see that in terms of the bonds you are listing but what about the geographical origin of the business?

There has been continued growth and internationalisation of member firms who facilitate business on the Exchange.

Building on the success in this regard during 2021, so far during this year there have been two new Member firms from Ireland and one from Jersey. This means that most of the leading listing agents for Euronext Dublin's GEM market are now Members of TISE and in a position to directly facilitate listings on our market.

As well as strengthening TISE's credibility and visibility amongst the advisory community, the geographic expansion in the membership underpins the delivery of our strategy to diversify and scale up our bond listings in the UK, Europe and internationally.

In H1 2022, the UK remained the largest single domicile of issuers with listed securities on TISE, but more than 25% of all issuers listing securities on TISE in the first half of the year were domiciled in the European Union, predominantly Luxembourg, Ireland, and The Netherlands, as well as France, Germany, Italy, and Sweden.

Have there been any more developments regarding trading activity or other services?

In February, we launched our new bespoke auction trading system, NOVA. The auction platform provides an automated price discovery and transaction model which delivers even greater value to our current equity issuers.

NOVA also provides us with a flexible platform which can be adapted to support new products and services, including a prospective private markets offering.

Indeed, we have continued to explore opportunities to launch our own offering within the private markets. This has included partnering with a selected potential customer to explore beta testing of an initial product concept which we intend to bring to market by the end of the year.

Utilising our NOVA trading system and expertise in the regulated market, we are well positioned to provide an efficient and scalable private market facility for private companies and private funds.

Could you summarise your plans for the future?

We remain focused on executing our strategy to add significant scale in our core markets and service a diversified

range of products. I am pleased with the progress we have made in executing our strategy, despite the challenging macro-economic environment.

We have an increasingly diversified and scalable business model which puts us in an excellent position to make the most of the opportunities which will emerge, not least when more buoyant market conditions return.■

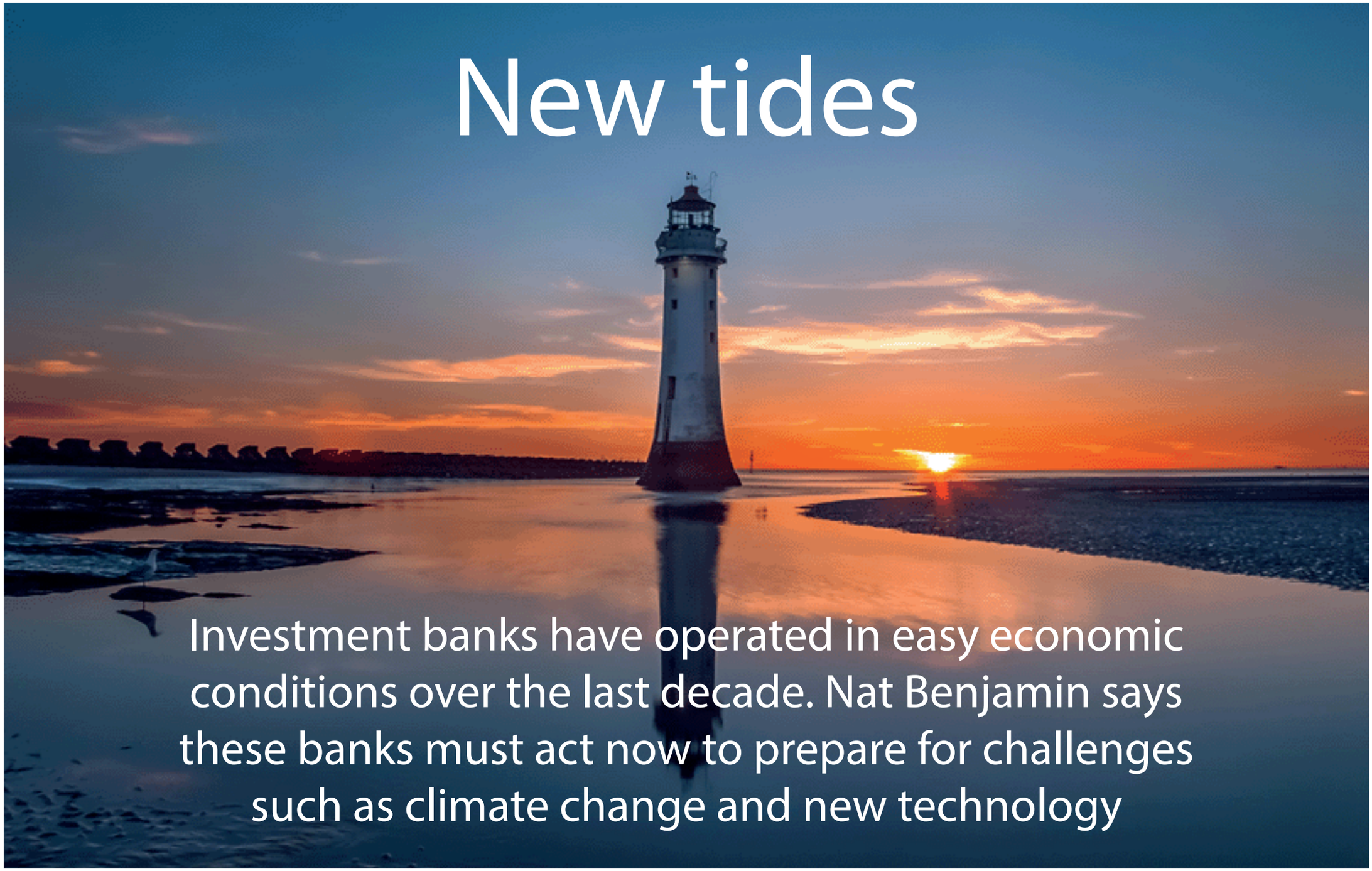
Cees is the Chief Executive Officer of The International Stock Exchange Group Limited, a position he has held since November 2020. He is responsible for all aspects of leadership and management of the Company. With a strong focus on strategy, business development and infrastructure, he aims to work with, and create enhanced value for, the Group's stakeholders, including its staff, members, issuers and shareholders.

Cees has more than 20 years' experience within international financial market infrastructure. He has held senior executive positions within several international exchanges, including CEO of CME Europe Ltd, CEO of Euronext Amsterdam and Head of European Cash Markets for NYSE Euronext. Prior to that, he spent a decade working in IT and programme management roles within leading Netherlands based companies Philips and Delta Lloyd Group.

Cees holds a degree in Business Administration and Industrial Engineering from The Hague University of Applied Sciences in the Netherlands.

TISE
The International Stock Exchange

New tides



Investment banks have operated in easy economic conditions over the last decade. Nat Benjamin says these banks must act now to prepare for challenges such as climate change and new technology

As those of you who are keen swimmers will know, there is a big difference between a visit to the local pool and swimming in open waters. The pool is predictable and safe. You know where you are going. There are no currents. There is no surf. It is usually not too deep, you can often touch the ground easily. And the water is (generally) kept at a comfortable temperature.

Performing in this environment is easy. Conditions in the last decade, including at times supported by major government stimulus, have resulted in a benign environment for investment banks to do business in. Many reported record earnings[1] last year. In such waters, it would be easy to be complacent and kid yourself that you are a good enough swimmer to take on the open ocean. That would, of course, be very dangerous.

In January, my colleague Rebecca Jackson and I wrote to Chief Executive Officers of international banks operating in the UK to outline the PRA's priorities for the year ahead[2]. Whilst waters were calmer at that time, we could see waves on the horizon. We warned that future cyclical and structural changes could materially threaten profitability and sustainability of certain business models.

In the months since we sent that letter, events have unfolded – and indeed a war broke out – that now make this is all feel more present and real. Geopolitical and macroeconomic uncertainty is translating into market volatility.

Meanwhile, digitalisation continues at pace, as new technologies, products and partners enter the financial services ecosystem. And the risks from climate change loom and threaten to change the very nature of the environment banks operate in. These are all key features of a new world facing investment banks.

Like anyone preparing for an open water swim, if investment banks are to perform in these uncharted waters, they will need to challenge themselves on their true capabilities, be forward-looking, anticipate changing conditions,

and prepare to encounter unexpected currents along the way. This will be a real test of their true mettle. So what does this mean in practice?

Financial resilience

Investment banks' business models have changed significantly since the Global Financial Crisis. Legacy balance sheets have mostly been cleaned up. Firms no longer look to boost returns from proprietary trading. Client-driven strategies have become the norm.

Have banks fully considered their changing role in this new world defined by changing macroeconomic conditions, increasing digitalisation and climate change?

Today investment bank businesses have bifurcated:

- on the one hand, you have high-volume, low-latency vanilla flow offerings in liquid markets;
- whilst on the other hand, you have less liquid or more bespoke businesses (in the form of financing and derivatives-based activities).

Both are predicated on facilitating client activity but they present very different challenges.

Investment banks tend to think of 'good volatility' as the friend of liquid businesses – client flows increase, bid-offer spreads widen, and firms position themselves to deploy capital and reap the benefits. Traditionally this provides a natural risk offset to less liquid businesses during a market correction.

On the other hand, the more illiquid, complex and concentrated risk books often lose revenue in periods of volatility (for example, equities autocallables – a business that has experienced growth over the last ten years – tend to suffer losses during periods of stress, and frequently make headlines).

But invariably these losses tend to be masked by greater than normal returns from liquid business lines. But what if this dynamic of liquid markets and supernormal profits during a stress, which people have started to regard as the norm, doesn't play out next time?

The last decade has been an era of global financial asset appreciation. Given the changing macroeconomic backdrop, traders, investment managers, and investors will need to be alive to the financial market environment

in which they run their business. They should challenge themselves and whether their assumptions have been complacent in hindsight. What if, next time, 'good volatility' turns into 'bad volatility'?

Well firstly, let's turn our attention to market risk.

Are banks' risk appetite appropriately calibrated here? Despite limits and controls becoming more sophisticated, are they focused on the right risks? Whilst gross exposure risks are now generally captured, more often than not, their risk profile is assessed through the lens of historical time series. The risk is that the absolute scale of positions, which may well be appropriate for market liquidity conditions so far, might be outsized tomorrow.

Next, let's look at the risk from client and counterparty default.

Given that since the global financial crisis the balance of direct risk-taking in specific products has shifted away from investment banks to their clients, counterparty risk is greater than ever before.

Today, the bigger risk to investment banks is not from their proprietary positions, but from the aggregate exposures of their clients. Clearly losses from counterparty risk are not new.

During the Global Financial Crisis losses from counterparty defaults totalled over $50 billion. But these losses were overshadowed by banks' own losses of nearly $200 billion from principal positions.

The Global Financial Crisis however taught us that it was concentrations that present a great danger in firms' counterparty risks. 70% of counterparty losses in the Crisis came from similar uncollateralised CDS exposures to a small number of monoline insurers. These risk concentrations were not well managed or controlled.

Unfortunately we have again seen banks' counterparty risk concentrations not appropriately identified or controlled. It is disappointing that lessons from the crisis on counterparty risk management were not properly learned.

As we set out in our Dear CEO letter last year, Archegos is a prime example of this – a single client of many firms had built up risk concentrations that proved to be outsized. Some banks also got caught by this in the nickel market more recently.

In other cases, we have seen groups of clients with similar risk exposures, whether that be large, concentrated positions of their own or trades with banks that held such positions, which proved difficult to exit as market conditions and liquidity dynamics changed. Risk concentration should not only be assessed on a client-by-client basis, but across all clients combined.

And most importantly, across the client's market-wide portfolio, not just the portion held with a single firm itself. Whilst this information may not be readily available, the onus is on firms to demand of their clients the information they need to assess the risks they are exposed to.

We also see some firms not adequately assessing the liquidity position of their counterparties. Look at the 'Dash for Cash' in March 2020 or recent issues in the commodities markets. Whilst counterparties may be fully hedged against capital losses from sharp moves in asset prices, some have found difficulty in monetising their assets in order to meet margin calls.

Firms' management and boards should ensure that in credit assessments equal focus is placed on the liquidity profile of their clients as on their capital strength. Right-way risk is only right-way if a client is still standing when the hedge matures.

Investment banks must bear in mind that their positions can play an important role in the functioning of the economy. Whilst it might be good risk management to reduce a client's exposures when it suffers cash flow stresses from margin calls, was it good risk management for the bank to sleepwalk into that position in the first place?

Working with the client to understand and anticipate all possible future outcomes, and access to facilities in order to meet liquidity demands in a stress, should surely be at the cornerstone of a client-centric business.

It is important here for banks to think a few steps ahead and have in mind the potential indirect second-round effect of their counterparty management practices – some of which can otherwise come back to hit them.

One other common feature of periods of stress has sometimes been the inadequacy of initial margins required by investment banks over the counter. The spike in nickel markets in March 2022 reminded everyone that progress needs to be made here.

And while CCPs have lessons to learn, so do banks. When they undercook initial margins in benign times, banks give their clients the illusion that some products – for example hedges – are cheaper than they really should be economically. When banks then significantly increase margins at the eleventh hour, as seen recently in commodity markets, clients then have to smell the coffee and scramble around to find the cash.

And to be clear, those clients should not be expected to be able to find such sums at short notice. This is true in any market, not just commodities. Initial margins should be calibrated appropriately in peace time to reflect forward-looking risks.

Archegos, nickel: these episodes left a few banks with bruises (some quite nasty) or just embarrassment, but not much more. However, the window for investment banks to finally learn counterparty risk management lessons properly is closing fast. And next time – in choppier waters – those who still haven't may well not be able to get away with only a few bruises.

It is important that these market and counterparty risk lessons are finally learned, especially for business lines that have grown on the back of the post-crisis macro environment – such as client-supporting financing businesses in liquid products (in businesses such as prime brokerage and client clearing) as well as less liquid activities (for example structured equity autocallable note issuance; or Collateralised Loan Obligations, Asset Backed Securities and mortgage loan warehouses; or private credit markets).

None of us have a crystal ball, but the waters we find ourselves swimming in are certainly more challenging already. It is highly probable there are individual businesses or marginal players that have relied upon the easy conditions of the past decade, who might struggle to adapt when the new tide comes in.

Banks' executive management and boards should challenge themselves and think ahead about what their firm's place is in this new world. You can't stop the waves, but you can learn to swim. Aside from monetary and financial conditions, another change that is already long under way is the technological revolution in banking...

Operational resilience

There is a growing tide of digitalisation in financial services, with greater prominence of digital players and assets, and it is altering the way people and businesses transact. One often thinks about tides as constant, a rise and fall of waters caused by the gravitational pull of the moon and sun.

But actually it is people who are changing tidal flows by structural changes to rivers, wetlands and nature. The same is true for how digitalisation might change the ecosystem in which banks will have to find their new place.

Investment banks have operated in the regulated financial sector for a long time and that gives them an advantage over fintechs, because people got used to trusting their safety as an institution to do business with.

That said, fintechs are competing with banks to develop new, sophisticated, and efficient technology. They are not encumbered by legacy technology infrastructure, and have competitive advantages that have enabled them to innovate quickly.

We are seeing signs that international banks are delving into the digital asset custody services space, with offerings such as structured products and trading in crypto derivative markets. Through distributed ledger technology, blockchain platforms enable banks to offer payments capabilities for settlement through tokenised assets. Crypto assets are rapidly growing, offering decentralised finance.

As recent turmoil in digital asset markets have illustrated, the waters between where we are now and a digitalised world are particularly choppy. Established banks must not let commercial pressure to adopt new technologies or enter digital asset markets get in the way of first ensuring that they can properly understand and manage the associated risks.

I would place particular emphasis on our operational resilience expectations and how banks should use these to inform technology investment decisions. As regulators we are considering the impact of technological developments on the sector and the future of finance, both for new entrants and existing entities. Our operational

resilience expectations help in this regard. But we also want to see firms working together on market disciplines towards operational resilience in the financial sector.

A good example is critical third-party providers, a subject on which HMT published a policy statement[3]. In the new world, relationships with critical third-party suppliers are becoming as important as the relationships with large financial counterparties that international banks had established over many years.

That is a sign of the rising prominence of operational vs. financial matters in that new world – less of an afterthought. So your CEOs may need to start making different types of phone calls.

The financial sector can also work together on the development of extreme and multidimensional systemic stress scenarios, and assessing the impact of shocks from one firm to another.

We are arguably now still in the foothills of this new digital era. Ahead of that, international banks must frontload the implementation of operational resilience policy. Surely a mere sliver of the earnings of the last decade should be more than enough to cover that investment.

And boards must make sure they understand the risks from new technology and that operational resilience becomes part of the fabric of their decision making.

This means, before entering materially into cryptoassets, adopting Artificial Intelligence (AI), introducing the cloud; or entering third-party relationships, international banks active in the UK must complete their operational resilience homework. So that they are prepared for this new tide. Towards waters in which safe havens will probably be quite sought after and attractive – so there is an opportunity here for banks and their franchise.

Climate

The two issues I have discussed so far, namely how the new world might threaten firms' financial and operational resilience, obviously have the potential to crystallise in the very near future. The last issue I will touch on today may appear to some as somewhat longer-term, but it is fast approaching and will change the environment we operate in. That is climate change.

Over the last couple of years markets have exhibited a number of features which arguably give us a foretaste of some of the future consequences of climate change, depending on how the climate transition pans out.

Here, I am thinking of the disruption to world energy and commodities markets, global supply chain problems and, most recently, the threat of food insecurity. It would be easy to attribute each of these issues to specific triggers, such as COVID or the war in Ukraine, and not think about the bigger picture or what they could tell us about the 'new world'.

In the 'new world', these are exactly the sort of disruptions we can expect to become more common and more severe as a result of climate change. They should not be considered as one-offs and are unlikely to just go away.

It is important that firms take action now to learn the lessons from current events and make sure that they are well prepared for when similar events happen more frequently in future, for example bumpy rides in commodities markets.

Thinking back to the example I discussed earlier of making sure that firms consider counterparties' liquidity profiles as well as their capital adequacy in their credit assessments of commodities clients, investment banks should also think about how those counterparties might be exposed to climate risk.

We recognise the challenges firms are currently facing in acquiring good quality data for these purposes but as data becomes more readily available we expect firms to be able to further develop their risk management and scenario analysis capabilities.

The longer-term nature of the threat of climate change is demonstrated by the decades-long time horizons of the scenarios covered by the Bank's recent Climate Biennial Exploratory Scenario, the results of which were published in May.

Although it did not include any international firms, I would like to highlight two of the key lessons from the exercise, which Sam Woods also discussed in his recent speech[4].

The first lesson is that, over time, climate risks will become a persistent drag on firms' profitability, perhaps in the region of 10-15% annually, particularly if they don't manage them effectively.

The second lesson is that how and when we transition makes a big difference to the costs the financial sector will incur. These costs will be substantially lower if firms take early, orderly action.

Taken together, all of this should provide a strong incentive for firms to be ambitious in how they embed the management of climate-related financial risks[5] and meet the PRA's broader expectations set out in Supervisory Statement 3/19[6].

So in that context, investment banks should take recent disruptions in commodities or supply chains as a sign of things to come, and get used to managing those because in the new world they might well become more frequent.

Conclusion

Looking ahead to the open waters, firms must ensure that they are prepared and well-equipped to face the challenges that lurk therein. Have banks fully considered their changing role in this new world defined by changing macroeconomic conditions, increasing digitalisation and climate change?

The better they are able to understand that environment, the better they will be able to adapt. And do not get me wrong, there are some remarkable opportunities for investment banks in that new world. But seizing those will require honest introspection, hard work, and at times completely rethinking their future role in society.

I also want to use this opportunity to emphasise that it is the role of the independent boards to kick those tyres and ask those tough (and sometimes existential) questions. How nimble and flexible is the current business model and cost base of the firm? What is the firm's raison d'être and franchise in the new environment? Is the firm sufficiently prepared to react to different scenarios that might play out?

The future won't accept excuses – now is the time to take action. Because although you might feel you have been doing well in the swimming pool, once you are in open waters you'd better truly be a good swimmer. ■

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Endnotes

1. *Global Banks' $170 Billion Haul Marks Most Profitable Year Ever - Bloomberg*
2. *Dear CEO letter 'International banks active in the UK: 2022 priorities'*
3. *Critical third parties to the finance sector: policy statement*
4. *Climate capital - speech by Sam Woods | Bank of England*
5. *Climate-related financial risk management and the role of capital requirements*
6. *Enhancing banks' and insurers approaches to managing the financial risks from climate change*

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Some lessons from the crypto winter

Jon Cunliffe sets out what he thinks are the lessons from the recent instability and losses in crypto markets – also called the 'crypto winter'

In recent months we have seen a dramatic bout of instability and losses in crypto markets – dubbed by some commentators as the 'crypto-winter'. A widespread collapse of cryptoasset valuations has cascaded through the crypto ecosystem and generated a number of high-profile firm failures. The totemic indicator of the crypto winter is that Bitcoin, the signature cryptoasset, has lost 70% of its value since November.

Regulators, of course, have not been slow to comment. And, true to type, I want to pull out four lessons I think we can draw from this episode:

- Technology does not change the underlying risks in economics and finance;
- Regulators should continue and accelerate their work to put in place effective regulation of the use of crypto technologies in finance;
- This regulation should be constructed on the iron principle of 'same risk, same regulatory outcome';
- Crypto–technologies offer the prospect of substantive innovation and improvement in finance. But to be successful and sustainable innovation has to happen within a framework in which risks are managed: people don't fly for long in unsafe aeroplanes.

Let me elaborate on these in turn. The first lesson is that finance carries inherent risks. Technology can change the way these risks are managed and distributed, but it cannot eliminate them. I will highlight three clear examples.

Most obviously, financial assets with no intrinsic value – that is to say with no real economy assets backing them and no means of generating revenue - are only worth what the next buyer will pay.

They are therefore inherently volatile, very vulnerable to sentiment and prone to collapse.

The majority of cryptoassets in in circulation today fall into this category and are proven to have very erratic swings in value – in both directions - as can be seen from the evidence of the last few months.

Innovators, alongside regulators and other public authorities, have an interest in the development of appropriate regulation and the management of risk. It is only within such a framework, that they can really flourish and that the benefits of technological change can be secured

The proponents of cryptoassets like Bitcoin have argued that their technological design enables them to function as a hedge against economic volatility and inflation – a sort of 'digital gold'. The reality, however, is that they behave as a very speculative, risky asset.

Since November, against the background of a weakening global economy, higher inflation, and tighter monetary policy, gold has lost 7% of its value, the S&P 500 has lost 18% while Bitcoin has lost 70%[1].

History is littered with examples of similar speculative assets that have made a very large amount of money for those that got out in time - and that have cost those who did not an equally large amount. Technology does not make assets with no intrinsic value a safe or a one-way bet.

A second example is the need for a commonly accepted settlement asset or means of transaction – aka 'money' – to have a stable value under stress. If confidence breaks down in the 'money' used as a means of transaction, stress can be transmitted extremely quickly through any system using that form of money.

The settlement asset used in the majority of crypto transactions is a so called 'stablecoin', digitally native cryptoassets that purport to peg their value to a fiat currency, almost always the US dollar. They are used to buy and sell cryptoassets on platforms as they avoid the costly 'off-ramps' and 'on- ramps' from fiat to crypto, can be integrated into smart contract protocols and can be held as a store of value within the crypto ecosystem. The purported peg can be effected in a variety of way – by backing with real economy assets, by backing with cryptoassets or by an algorithm intended to guarantee stable value.

Last year, 75% of all trades on cryptoasset trading platforms involved a stablecoin[2]. They are integral to the functioning of crypto-markets.

In recent months we have seen two of the three largest stablecoins break away from their dollar pegs. One of these, Terra USD, which had a market capitalisation of around $18 billion[3], has collapsed completely. An algorithmic stablecoin, its mechanism for maintaining its value to the dollar was maintained by algorithmic buying and selling of another cryptoasset, Luna and supplemented by a reserve of Bitcoin. When the price of Luna (and Bitcoin) fell sharply, confidence in Terra's ability to maintain the peg eroded, leading to a run on the stablecoin and its complete collapse.

At this point, another familiar amplifier of financial market stress – contagion – entered the picture. The collapse of Terra put a spotlight on the adequacy of the backing of other stablecoins, particularly the adequacy of the real economy reserve assets backing the largest stablecoin, Tether, which suffered significant outflows and, on several crypto exchanges, broke its peg to the dollar – meaning many coinholders were not able to redeem at par.

A further example is the inherent risk that comes with leverage – a familiar one given its role in many financial crises. Leverage is a powerful tool in financial markets, but leveraged positions can greatly amplify losses when asset prices move against investors, driving fire sales of assets and self-reinforcing downward price spirals.

In recent years, we have seen the small but growing development of exchanges and other mechanisms in the crypto world, like DeFi platforms, which have given investors – retail and wholesale – the ability to take very highly leveraged positions.

As cryptoasset prices began to fall, this has led to large margin calls and automatic liquidation mechanisms – a feature of some protocols designed to protect against risk – that further amplified price falls. We have seen a range of crypto funds taken down by these effects; one of the biggest has been in Singapore with Three Arrows Capital filing for bankruptcy at the beginning of July.

I could mention other examples – risks that arise from weak governance for example, or the lack of transparency and understanding of investor rights[4]. But the basic point is the same: new technology does not change old risks.

The second lesson I take from the crypto winter is that regulators need to get on with the job of bringing the use of crypto technologies in finance within the regulatory perimeter.

Or to put it the other way around, the lesson we should not take from this episode is that 'crypto' is somehow 'over' and we do not need to be concerned about it anymore.

I should note at this point that even with the recent collapse cryptoassets and crypto markets have not posed a systemic risk, though I recognise of course that this of is little comfort to those nursing substantial losses.

That is not in itself a surprise; regulators, myself included[5], made clear, when crypto reached its highs last year, that it was not yet large enough or integrated enough into the rest of the financial system to be an immediate systemic risk.

However, we also made clear that given the speed of growth and the growing connections with conventional finance, it could pose such a risk relatively quickly and we needed to get on with the work of bringing it within the regulatory perimeter. Recent events have not, in my view, changed that assessment.

I should stress that when I refer to crypto here, I am talking about crypto technology in finance writ large, such as encrypted tokenisation and distributed ledgers (like blockchain), rather than just the dominant initial use case, which has been the creation of speculative assets such as Bitcoin.

I do not know what the future holds for such assets, other than that they will continue to be volatile and that those that invest in them need to understand that the prices can collapse.

However, while the initial use case for crypto may or may not have a limited future, the technologies that have been developing in the crypto ecosystem and their possible use cases are, I think, likely to be developed further in both the crypto world and in the much larger traditional financial system.

Indeed, I suspect that the boundaries between these worlds will increasingly become blurred. In this we should perhaps be mindful of the 'Dot Com' bust at the beginning of this century. The valuation and revenue generation from the original use cases of early online firms was highly speculative and collapsed. However, the technology did not go away but rather re-emerged in a different form, focussed on the development of platforms which have now come to dominate internet commerce.

So the interesting question for regulators is not what will happen next to the value of cryptoassets, but what do we need to do to ensure that these developments, this prospective innovation about which I shall say a little more later, can happen without giving rise to increasing and potentially systemic risks.

This brings me to my third lesson: the extension of the regulatory framework to encompass the use of crypto technologies must be grounded in the iron principle of 'same risk, same regulatory outcome'. The starting point for regulators should be to apply the same regulation to the risks inherent in the provision of a financial service no matter how it is provided.

But differences in technology may mean that existing regulation may not work in this new context or, indeed, may not effectively manage the risk. Implicit in our regulatory standards and frameworks are the levels of risk mitigation

we have judged necessary. Where we cannot apply regulation in exactly the same way, we must ensure we achieve the same level of risk mitigation – in other words, the 'same regulatory outcome'.

And, if and when for certain crypto related activities this proves not to be possible, where we can find no way to mitigate and manage the risk to the extent necessary, that is to say to the extent such risk is managed in other parts of the financial system, we should not let activities proceed.

Let me give an example of how this approach works in the development of the regulatory standards for stablecoins should they be used as part of systemic payment systems. This is an area in which I have been deeply involved as the Chair of the international Committee on Payments and Market Infrastructure (CPMI) at the Bank for International Settlement.

Together with the International Organization of Securities Commissions (IOSCO), the CPMI is responsible for the international standards for financial market infrastructures, including systemic payment systems. The standards, the Principles for Financial Market Infrastructures (PFMI), were established a decade ago and are intended to be technology neutral.

CPMI-IOSCO has, over the past two years, worked through the details and the risks of stablecoin arrangements used to make payments to determine where the existing standards, the PFMI, can simply be applied to stablecoin arrangements and where, given the novel features of stablecoins, further guidance is needed, for example where technology has made possible structures that were not envisaged when the PFMI were agreed.

The objective of such further guidance is to ensure we achieve for stablecoins the level of risk mitigation we expect of payment systems that are, or are likely quickly to become, of systemic scale.

So, for example, if a stabecoin is being used as a 'settlement asset', in transactions – in other words, as the means of settlement or the 'money' – it must be as safe as the other forms of money – central bank money or commercial bank deposits – that is currently used as the settlement asset in payments systems.

So the guidance makes clear that if used for this purpose, the holders of such stablecoins must have a clear legal claim that enables them to redeem the coin within the day and at par in central or commercial bank money.

To meet the international standard, stablecoin issuers will have to demonstrate they can meet this requirement – in much the same way that commercial banks that issue deposit-based money have to be able to repay depositors at par, in fiat, and on demand.

This in turn will determine the nature – stability of value and liquidity – of the assets backing a stablecoin used for systemic payment systems and the legal, technical and operational arrangements for ensuring the requirement can be met. Needless to say, such a requirement is a long way from the world of Terra and Luna.

There are a number of other, similarly key, requirements in the guidance which I will not detail here – for example the need for a responsible and accountable legal entity behind the operation and for governance arrangements which allow for timely human intervention, ensuring that expert judgement and decision making is available to deal with unforeseen circumstances.

The guidance also provides considerations for what should be considered systemically important in this context, though I should note that all payment systems are encouraged to observe the PFMI. The point is that in this one area of the financial system, systemic payments, we are engaged in the work to deliver 'same risk, same regulatory outcome'.

Stablecoins used primarily for payment are just one element of the crypto ecosystem. For the 'same risk, same regulatory outcome' approach to be effective, it needs to be carried forward across international standards and those standards need to be incorporated into domestic regulatory regimes.

Similar work is also in train in other areas. The Basel Committee on Banking Standards is in the process of issuing guidance on the prudential treatment of cryptoassets held by banks[6]. IOSCO is looking at the application of the standards for investor protection and market integrity across cryptoassets, exchanges and platforms for lending and trading[7].

These international standard setting bodies are working closely together on stablecoins to ensure we understand how we treat similar risks in different regulatory regimes and how the regimes might interact with each other.

All of this work is being closely co-ordinated by the Financial Stability Board (FSB), which, as it set out in the recent statement[8], is working to ensure cryptoassets are subject to robust regulation and consultation.

The FSB will publish a consultation report later this year with recommendations for promoting international consistency in regulatory and supervisory approaches to non-stablecoin cryptoassets, markets and exchanges as well as for strengthening international coordination in this area.

And, putting on my domestic hat, given that the Bank of England is responsible for regulation and supervision of systemic payment systems in the UK, our intention is to apply the 'same risk, same regulatory outcome' approach in the UK.

The Government has announced its intention to legislate in the current session of Parliament to update the powers of the Bank of England and the Financial Conduct Authority to regulate and supervise stablecoins.

We hope to issue a consultation document on the regulatory policy framework later this year. Taken as a whole, the UK authorities have made clear that they are prepared to see stablecoins – issued by either banks or non -banks - operate in the UK, provided they are properly regulated and supervised[9].

This should not, however, be interpreted as any weakening in standards for risk mitigation. I doubt any of the stablecoins currently in operation in other jurisdictions would meet the necessary standards for operation at systemic level in the UK – whether in the crypto world, should that become systemic, or in conventional financial services.

And this brings me to my final lesson – that innovation and regulation are, in the end, friends not enemies. As I said earlier, the initial use cases for the technologies developed in the crypto world, such as speculative cryptoassets, may have a limited future. But we can see that a range of other use cases are being proposed and developed in both the crypto and the non-crypto world.

On the retail side, while Libra/Diem, the most high profile proposal for stablecoins for retail payments, including crossborder, has withdrawn, a number fintechs and established firms are exploring the potential for technology in this area. Similar exploration around tokenisation and DLT is happening in the area of wholesale payments.

A separate but rapidly developing field is the deployment of crypto technologies and smart contracts in the exchange, clearing and settlement of financial securities. Today, in mainstream finance these activities are carried out in sequence by separate entities at significant cost.

However, some of the protocols that have begun to be developed in the crypto world have pointed to the possibility of collapsing these activities into a single entity and automating through the use of smart contracts.

If successfully developed, such technologies could simplify the network of relationships that need to be maintained for trading in shares and bonds and lead to lower costs, greater speed and greater transparency for end investors.

Of course, the automation of activities through a smart contract raises many questions about how firms and regulators ensure appropriate risk management and resilience. In the UK, the authorities are to establish a regulatory 'sandbox' to allow firms to investigate technical feasibility in this area and the regulators to assess related risks and risk management.

It is of course impossible to say how successful and how disruptive these technologies will ultimately prove to be in finance. History has many examples of technologies that promised much but failed to deliver. Given the pace of change and the disruption we have seen in other sectors of the economy it would, as I said be very unwise for financial regulators to ignore these developments.

But it would also be unwise for innovators and the authorities alike to forget that to be successful and sustainable, technologically driven innovation needs regulation. A succession of crypto winters will not, in the end, help the deployment and adoption of these technologies and the reaping of the benefits that they may offer.

History also has examples of technologies that have been put aside/shunned because of dramatic early failures. While the causes of the Hindenberg Zeppelin disaster are still debated, it is very probable that the general development of the use of hydrogen in transport was put aside for decades as a result.

Innovators, alongside regulators and other public authorities, have an interest in the development of appropriate regulation and the management of risk. It is only within such a framework, that they can really flourish and that the benefits of technological change can be secured. ■

Sir Jon Cunliffe is Deputy Governor, Financial Stability, at the Bank of England

Endnotes

1. Bloomberg Data and BoE Staff Calculations.

2. Share of Trade Volume by Pair Denomination, The Block. Exchanges included in calculation: Binance, Poloniex, Bitfinex, Huobi, OKEx, Bittrex, Coinbase, Kraken, Bitstamp.

3. Figures from CoinMarketCap.com

4. This is illustrated by the recent fall in Coinbase's share value, which has been linked, in part, to a statement in its regulatory disclosures that "the crypto assets held in custody on behalf of customers could be subject to bankruptcy proceedings and that such customers could be treated as general unsecured creditors".

5. Speech at SIBOS by Jon Cunliffe - 'Is 'crypto' a financial stability risk?' (13 October 2021)

6. Prudential treatment of cryptoasset exposures - second consultation (30 June 2022)

7. IOSCO Crypto-Asset Roadmap for 2022-2023 (7 July 2022)

8. FSB Statement on International Regulation and Supervision of Crypto-asset Activities (11 July 2022)

9. FPC Record (March 2022) – "On balance, the FPC judges that a systemic stablecoin issued by a non-bank without a resolution regime and deposit guarantee scheme could meet its expectations, provided the Bank applies a regulatory framework that is designed to mitigate these risks to financial stability".

The views expressed here are not necessarily those of the Bank of England or the Financial Policy Committee. I would like to thank Jennifer Enwezor, Bernat Gual-Ricart, Akeel Hansraj, and Cormac Sullivan for their help in preparing the text. I would like to thank Kushal Balluck, Stephen Fishbourne, Amy Lee, Matthew Osbourne and Magda Rutkowska for their helpful comments. This article is based on a speech given at the British High Commission, Singapore, on 12 July 2022.

Cryptoassets and decentralized finance

Recent turbulence has exposed vulnerabilities in the crypto space. Lael Brainard argues that for stability it is important to ensure the regulatory perimeter encompasses crypto finance

Recent volatility has exposed serious vulnerabilities in the crypto financial system[1]. While touted as a fundamental break from traditional finance, the crypto financial system turns out to be susceptible to the same risks that are all too familiar from traditional finance, such as leverage, settlement, opacity, and maturity and liquidity transformation. As we work to future-proof our financial stability agenda, it is important to ensure the regulatory perimeter encompasses crypto finance.

Distinguishing responsible innovation from regulatory evasion

New technology often holds the promise of increasing competition in the financial system, reducing transaction costs and settlement times, and channelling investment to productive new uses.

But early on, new products and platforms are often fraught with risks, including fraud and manipulation, and it is important and sometimes difficult to distinguish between hype and value.

If past innovation cycles are any guide, in order for distributed ledgers, smart contracts, programmability, and digital assets to fulfil their potential to bring competition, efficiency, and speed, it will be essential to address the basic risks that beset all forms of finance.

These risks include runs, fire sales, deleveraging, interconnectedness, and contagion, along with fraud, manipulation, and evasion. In addition, it is important to be on the lookout for the possibility of new forms of risks, since many of the technological innovations underpinning the crypto ecosystem are relatively novel.

Far from stifling innovation, strong regulatory guardrails will help enable investors and developers to build a resilient digital native financial infrastructure. Strong regulatory guardrails will help banks, payments providers, and

financial technology companies (fintechs) improve the customer experience, make settlement faster, reduce costs, and allow for rapid product improvement and customization.

We are closely monitoring recent events where risks in the system have crystallized and many crypto investors have suffered losses. Despite significant investor losses, the crypto financial system does not yet appear to be so large or so interconnected with the traditional financial system as to pose a systemic risk.

It is important that the foundations for sound regulation of the crypto financial system be established now before the crypto ecosystem becomes so large or interconnected that it might pose risks to the stability of the broader financial system

So this is the right time to ensure that like risks are subject to like regulatory outcomes and like disclosure so as to help investors distinguish between genuine, responsible innovation and the false allure of seemingly easy returns that obscures significant risk. This is the right time to establish which crypto activities are permissible for regulated entities and under what constraints so that spillovers to the core financial system remain well contained.

Insights from recent turbulence

Several important insights have emerged from the recent turbulence in the crypto-finance ecosystem. First, volatility in financial markets has provided important information about crypto's performance as an asset class.

It was already clear that cryptoassets are volatile, and we continue to see wild swings in cryptoasset values. The price of Bitcoin has dropped by as much as 75 percent from its all-time high over the past seven months, and it has declined almost 60 percent in the three months from April through June.

Most other prominent cryptoassets have experienced even steeper declines over the same period. Contrary to claims that cryptoassets are a hedge to inflation or an uncorrelated asset class, cryptoassets have plummeted in value and have proven to be highly correlated with riskier equities and with risk appetite more generally[2].

Second, the Terra crash reminds us how quickly an asset that purports to maintain a stable value relative to fiat currency can become subject to a run. The collapse of Terra and the previous failures of several other unbacked algorithmic stablecoins are reminiscent of classic runs throughout history. New technology and financial engineering cannot by themselves convert risky assets into safe ones.

Third, crypto platforms are highly vulnerable to deleveraging, fire sales, and contagion—risks that are well known from traditional finance—as illustrated by the freeze on withdrawals at some crypto lending platforms and

exchanges and the bankruptcy of a prominent crypto hedge fund. Some retail investors have found their accounts frozen and suffered large losses.

Large crypto players that used leverage to boost returns are scrambling to monetize their holdings, missing margin calls, and facing possible insolvency. As their distress intensifies, it has become clear that the crypto ecosystem is tightly interconnected, as many smaller traders, lenders, and DeFi (decentralized finance) protocols have concentrated exposures to these big players.

Finally, we have seen how decentralized lending, which relies on over-collateralization to substitute for intermediation, can serve as a stress amplifier by creating waves of liquidations as prices fall[3].

Same risk, same regulatory outcome

The recent turbulence and losses among retail investors in crypto highlight the urgent need to ensure compliance with existing regulations and to fill any gaps where regulations or enforcement may need to be tailored—for instance, for decentralized protocols and platforms.

As we consider how to address the potential future financial stability risks of the evolving crypto financial system, it is important to start with strong basic regulatory foundations. A good macroprudential framework builds on a solid foundation of microprudential regulation.

Future financial resilience will be greatly enhanced if we ensure the regulatory perimeter encompasses the crypto financial system and reflects the principle of same risk, same disclosure, same regulatory outcome. By extending the perimeter and applying like regulatory outcomes and like transparency to like risks, it will enable regulators to more

effectively address risks within crypto markets and potential risks posed by crypto markets to the broader financial system.

Strong guardrails for safety and soundness, market integrity, and investor and consumer protection will help ensure that new digital finance products, platforms, and activities are based on genuine economic value and not on regulatory evasion, which ultimately leaves investors more exposed than they may appreciate.

Due to the cross-sectoral and crossborder scope of crypto platforms, exchanges, and activities, it is important that regulators work together domestically and internationally to maintain a stable financial system and address regulatory evasion.

The same-risk-same-regulatory-outcome principle guides the Financial Stability Board's work on stablecoins, cryptoassets, and DeFi; the Basel consultation on the prudential treatment of cryptoassets; the work by the International Organization of Securities Commissions' fintech network; the work by federal bank regulatory agencies on the appropriate treatment of crypto activities at US banks; and a host of other international and domestic work[4].

In implementing a same-risk-same-regulatory-outcome principle, we should start by ensuring basic protections are in place for consumers and investors. Retail users should be protected against exploitation, undisclosed conflicts of interest, and market manipulation—risks to which they are particularly vulnerable, according to a host of research[5]. If investors lack these basic protections, these markets will be vulnerable to runs.

Second, since trading platforms play a critical role in cryptoasset markets, it is important to address noncompliance and any gaps that may exist. We have seen crypto-trading platforms and crypto-lending firms not only engage

in activities similar to those in traditional finance without comparable regulatory compliance, but also combine activities that are required to be separated in traditional financial markets.

For example, some platforms combine market infrastructure and client facilitation with risk-taking businesses like asset creation, proprietary trading, venture capital, and lending.

Third, all financial institutions, whether in traditional finance or crypto finance, must comply with the rules designed to combat money laundering and financing of terrorism and to support economic sanctions. Platforms and exchanges should be designed in a manner that facilitates and supports compliance with these laws.

The permissionless exchange of assets and tools that obscure the source of funds not only facilitate evasion, but also increase the risk of theft, hacks, and ransom attacks. These risks are particularly prominent in decentralized exchanges that are designed to avoid the use of intermediaries responsible for know-your-customer identification and that may require adaptations to ensure compliance at this most foundational layer[6].

Finally, it is important to address any regulatory gaps and to adapt existing approaches to novel technologies. While regulatory frameworks clearly apply to DeFi activities no less than to centralized crypto activities and traditional finance, DeFi protocols may present novel challenges that may require adapting existing approaches[7].

The peer-to-peer nature of these activities, their automated nature, the immutability of code once deployed to the blockchain, the exercise of governance functions through tokens in decentralized autonomous organizations, the absence of validated identities, and the dispersion or obfuscation of control may make it challenging to hold intermediaries accountable.

It is not yet clear that digital native approaches, such as building in automated incentives for undertaking governance responsibilities, are adequate alternatives.

Connections to the core financial institutions

There are two specific areas that merit heightened attention because of heightened risks of spillovers to the core financial system: bank involvement in crypto activities and stablecoins. To date, crypto has not become sufficiently interconnected with the core financial system to pose broad systemic risk. But it is likely regulators will continue to face calls for supervised banking institutions to play a role in these markets.

Bank regulators will need to weigh competing considerations in assessing bank involvement in crypto activities ranging from custody to issuance to customer facilitation. Bank involvement provides an interface where regulators have strong sightlines and can help ensure strong protections.

Similarly, regulators are drawn to approaches that effectively subject the crypto intermediaries that resemble complex bank organizations to bank-like regulation. But bringing risks from crypto into the heart of the financial system without the appropriate guardrails could increase the potential for spillovers and has uncertain implications for the stability of the system.

It is important for banks to engage with beneficial innovation and upgrade capabilities in digital finance, but until there is a strong regulatory framework for crypto finance, bank involvement might further entrench a riskier and less compliant ecosystem.

Private digital currencies and central bank digital currencies

Stablecoins represent a second area with a heightened risk of spillovers. Currently, stablecoins are positioned as the

digital native asset that bridges from the crypto financial system to fiat. This role is important because fiat currency is referenced as the unit of account for the crypto financial system[8].

Stablecoins are currently the settlement asset of choice on and across crypto platforms, often serving as collateral for lending and trading activity. As highlighted by large recent outflows from the largest stablecoin, stablecoins pegged to fiat currency are highly vulnerable to runs.

For these reasons, it is vital that stablecoins that purport to be redeemable at par in fiat currency on demand are subject to the types of prudential regulation that limit the risk of runs and payment system vulnerabilities that such private monies have exhibited historically.

Well-regulated stablecoins might bring additional competition to payments, but they introduce other risks. There is a risk of fragmentation of stablecoin networks into walled gardens. Conversely, there is a risk that a single dominant stablecoin might emerge, given the winner-takes-all dynamics in such activities.

Indeed, the market is currently highly concentrated among three dominant stablecoins, and it risks becoming even more concentrated in the future. The top three stablecoins account for almost 90 percent of transactions, and the top two of these account for 80 percent of market capitalization[9].

Given the foundational role of fiat currency, there may be an advantage for future financial stability to having a digital native form of safe central bank money—a central bank digital currency. A digital native form of safe central bank money could enhance stability by providing the neutral trusted settlement layer in the future crypto financial system[10].

A settlement layer with a digital native central bank money could, for instance, facilitate interoperability among well-regulated stablecoins designed for a variety of use cases and enable private-sector provision of decentralized, customized, and automated financial products.

This development would be a natural evolution of the complementarity between the public and private sectors in payments, ensuring strong public trust in the one-for-one redeemability of commercial bank money and stablecoins for safe central bank money[11].

Building in risk management and compliance

Crypto and fintech have introduced competition and put the focus on how innovation can help increase inclusion and address other vexing problems in finance today. Slow and costly payments particularly affect lower-income households with precarious cash flows who rely on remittances or miss bills waiting on paychecks. Many hard-working individuals cannot obtain credit to start businesses or to respond to an emergency.

But while innovation and competition can reduce costs in finance, some costs are necessary to keep the system safe[12]. Intermediaries earn revenues in exchange for safely providing important services.

Someone must bear the costs of evaluating risk, maintaining resources to support those risks through good times and bad, complying with laws that prevent crime and terrorism, and serving less sophisticated customers fairly and without exploitation.

In the current crypto ecosystem, often no one is bearing these costs. So when a service appears cheaper or more efficient, it is important to understand whether this benefit is due to genuine innovation or regulatory noncompliance.

So as these activities evolve, it is worth considering whether there are new ways to achieve regulatory objectives in the context of new technology. Distributed ledgers, smart contracts, and digital identities may allow new forms of risk management that shift the distribution of costs. Perhaps in a more decentralized financial system, new approaches can be designed to make protocol developers and transaction validators accountable for ensuring financial products are safe and compliant.

Conclusion

Innovation has the potential to make financial services faster, cheaper, and more inclusive and to do so in ways that are native to the digital ecosystem. Enabling responsible innovation to flourish will require that the regulatory perimeter encompass the crypto financial system according to the principle of like risk, like regulatory outcome, and that novel risks associated with the new technologies be appropriately addressed.

It is important that the foundations for sound regulation of the crypto financial system be established now before the crypto ecosystem becomes so large or interconnected that it might pose risks to the stability of the broader financial system. ■

Lael Brainard is the Vice Chair of the Board of Governors of the Federal Reserve System

Endnotes

1. I am grateful to Joseph Cox and Molly Mahar of the Federal Reserve Board for their assistance in preparing this text. The views expressed here address broad principles from a financial stability perspective across the financial system and not specific regulations. These views are my own and do not necessarily reflect those of the Federal Reserve Board or the Federal Open Market Committee.

2. See, for example, the discussion in section 2 of Financial Stability Board (2022), Assessment of Risks to Financial Stability from Crypto-assets (PDF) (Basel, Switzerland: FSB, February).

3. Most decentralized lending protocols require loans to remain overcollateralized, with loans that fall below specific thresholds subject to automatic liquidations. These liquidations can have a persistent effect on asset prices, which often triggers further liquidations. See preliminary research in Alfred Lehar and Christine A. Parlour (2022), "Systemic Fragility in Decentralized Markets (PDF)," unpublished paper, June 13.

4. See, for example, Financial Stability Board (2022), Assessment of Risks to Financial Stability from Crypto-assets (Basel, Switzerland: FSB, February); Financial Stability Board (2020), Regulation, Supervision and Oversight of "Global Stablecoin" Arrangements (PDF) (Basel, Switzerland: FSB, October); Basel Committee on Banking Supervision (2022), "Consultative Document: Second Consultation on the Prudential Treatment of Cryptoasset Exposures (PDF)" (Basel, Switzerland: Bank for International Settlements, June); and Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation, and Office of the Comptroller of the Currency (2021), "Joint Statement on Crypto-Asset Policy Sprint Initiative and Next Steps," joint press release, November 23.

5. See, for example, Philip Daian, Steven Goldfeder, Tyler Kell, Yunqi Li, Xueyuan Zhao, Iddo Bentov, Lorenz Breidenbach, and Ari Juels (2019), "Flash Boys 2.0: Frontrunning, Transaction Reordering, and Consensus Instability in Decentralized Exchanges (PDF)," unpublished paper, Cornell University, arXiv, April; Raphael Auer, Jon Frost, and Jose María Vidal Pastor (2022), "Miners as Intermediaries: Extractable Value and Market Manipulation in Crypto and DeFi (PDF)," BIS Bulletin 58 (Basel, Switzerland: Bank for International Settlements, June); Paul Barnes (2018), "Crypto Currency and Its Susceptibility to Speculative Bubbles Manipulation, Scams and Fraud," Journal of Advanced Studies in Finance, vol. 9 (Winter), pp. 60–

77; and Felix Eigelshoven, André Ullrich, and Douglas Parry (2021), "Cryptocurrency Market Manipulation—A Systematic Literature Review," in ICIS 2021 Proceedings on "Building Sustainability and Resilience with IS: A Call for Action" (Austin, Tex.: International Conference on Information Systems, Dec. 12–15).

6. The Russian invasion of Ukraine has raised questions about the use of crypto-asset markets for sanctions evasion. See, for example, comments by Carol House, the director of cybersecurity for the National Security Council: "The scale that the Russian state would need to successfully circumvent all US and partners' financial sanctions would almost certainly render cryptocurrency as an ineffective primary tool for the state" (as quoted in Hannah Lang (2022), "U.S. Lawmakers Push Treasury to Ensure Russia Cannot Use Cryptocurrency to Avoid Sanctions," Reuters, March 2, para. 7).

7. See Board of the International Organization of Securities Commissions (2022), IOSCO Decentralized Finance Report: Public Report (PDF) (Madrid: OICV-IOSCO, March).

8. See Bank for International Settlements (2022), "The Future Monetary System," in Annual Economic Report 2022 (Basel, Switzerland: BIS, June).

9. See The Block (2022), "Share of Trade Volume by Pair Denomination," data as of June from CryptoCompare; Martin Young (2022), "Circle's USDC Stablecoin Gobbles Tether's Market Share with 50B Milestone," Cointelegraph, February 1; and Brian Newar (2022), "USDC's 'Real Volume' Flips Tether on Ethereum as Total Supply Hits 55.9B," Cointelegraph, June 22.

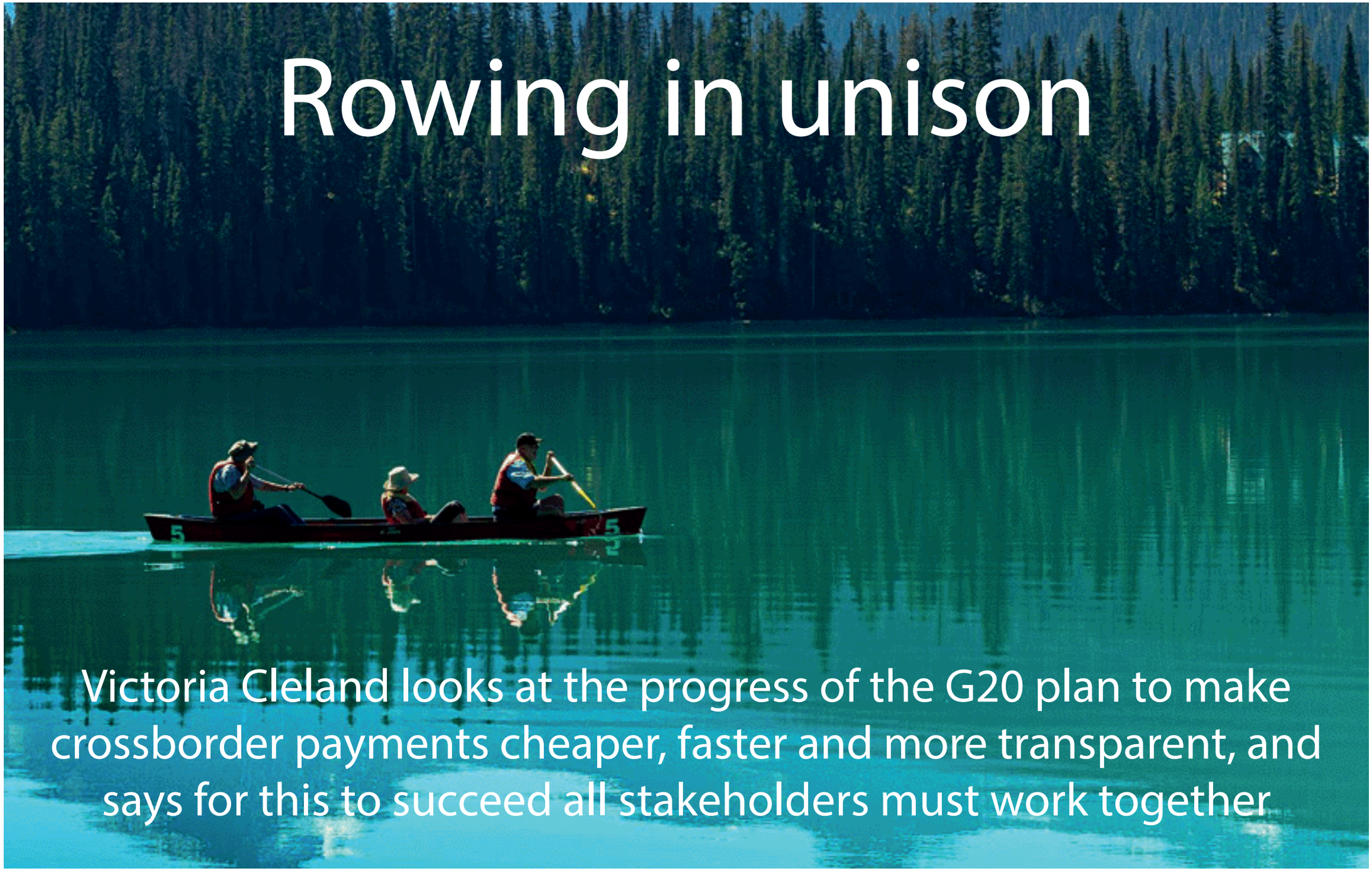
10. See Lael Brainard (2022), "Digital Assets and the Future of Finance: Examining the Benefits and Risks of a U.S. Central Bank Digital Currency," statement before the Committee on Financial Services, US House of Representatives, May 26.

11. With respect to the United States, no decision has been made about whether or not a central bank digital currency will be issued.

12. See Igor Makarov and Antoinette Schoar (2022), "Cryptocurrencies and Decentralized Finance (DeFi) (PDF)," Brookings Papers on Economic Activity, BPEA Conference Draft, March 24–25.

This article is based on a speech delivered at the Bank of England Conference, London, 8 July 2022

Rowing in unison



Victoria Cleland looks at the progress of the G20 plan to make crossborder payments cheaper, faster and more transparent, and says for this to succeed all stakeholders must work together

The importance of crossborder payments

I have previously highlighted the establishment of the G20 roadmap and targets to enhance crossborder payments. I want to update you on some of the tangible progress already made in this area, and to stress the important role that working collaboratively across the public and private sectors to deliver real improvements to the cost, speed, transparency and accessibility of crossborder payments.

Crossborder payments are essential to the global economy. It is estimated that this year the global crossborder payment market will settle $156 trillion[1]. And it is not just the wholesale markets that are impacted: crossborder payments are crucial to businesses, consumers and remittances. In Greece alone remittances reached an all-time high of €338 million in January 2022[2].

And the importance of crossborder payments is due to grow further. Business-to-business crossborder payments grew over 25% over the past two years and reached $34 trillion in 2021[3]. A recent study suggested that 87% of global merchant executives see crossborder sales as their biggest growth potential[4].

But despite their importance, many crossborder payments are still slow, expensive and difficult to track. While some wholesale payments are very effective, there are too many cases, for remittance payments in particular, where payments can take up to 10 days and cost more than 10% of the value of the underlying transfer. And this has a very real impact on businesses and individuals.

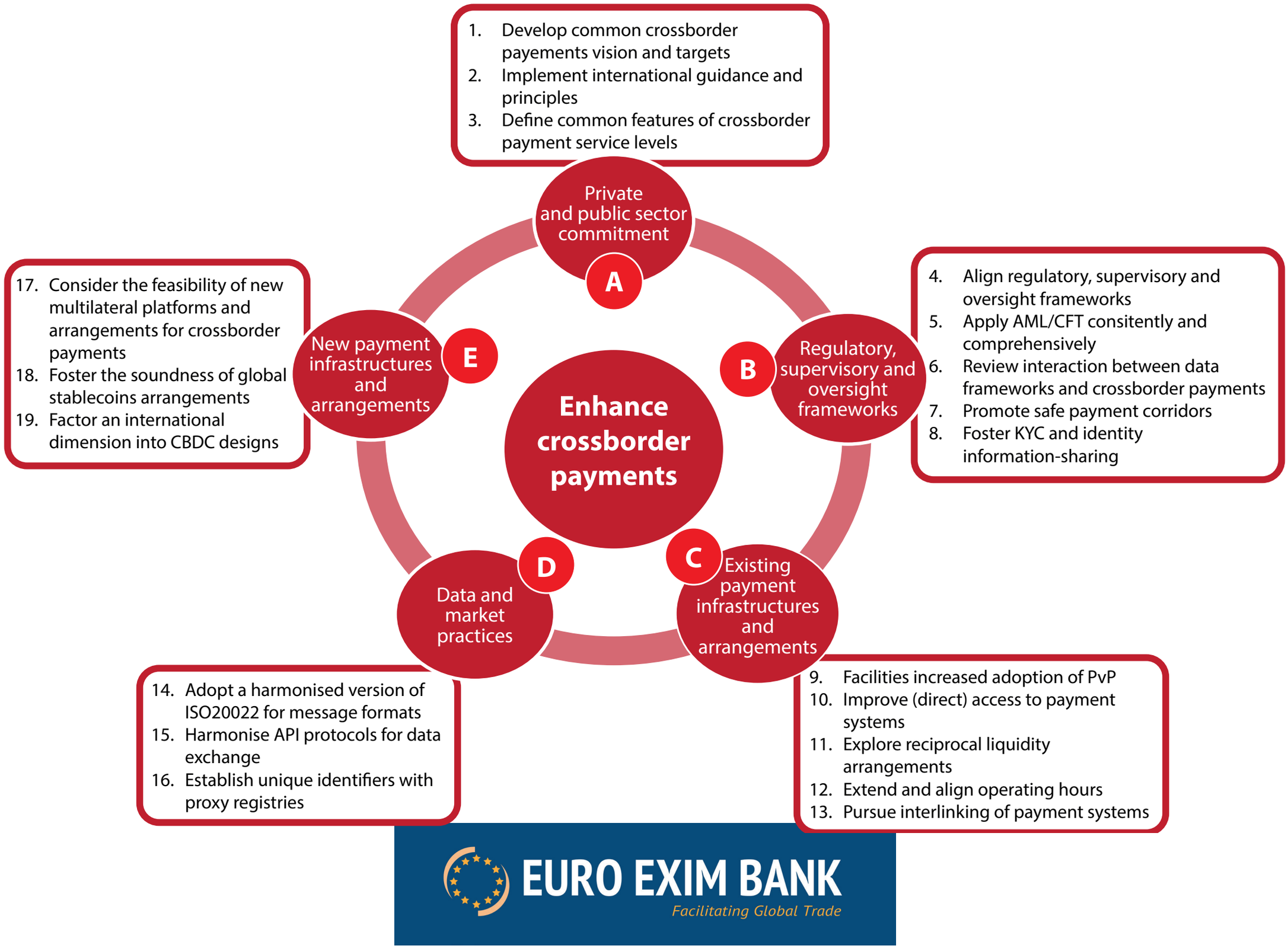
This underlines why enhancing crossborder payments is so critical and why the G20 made it a priority in 2020. To recap briefly, the first step was a Financial Stability Board (FSB), report assessing the frictions and challenges[5]. The Committee on Payments and Market Infrastructures (CPMI) then set out the building blocks that would be instrumental in addressing the challenges[6].

And in October 2020 the FSB coordinating with CPMI and other standard setting bodies, published a roadmap - a high-level plan of the timelines, actions and actors required to progress each building block[7].

The roadmap consists of 19 building blocks that were arranged into 5 focus areas (see Figure 1). The first 4 focus areas seek to enhance the existing payments ecosystem by, for example, coordinating regulatory, supervisory and oversight frameworks; improving existing payment infrastructures; and increasing data quality.

Enhancing crossborder payments is crucial to the global economy; tangible progress is already being made; and to really change the dial we need work collaboratively

Figure 1. The 19 building blocks and 5 focus areas of the G20 roadmap



The fifth focus area is more exploratory and covers emerging payment infrastructures and arrangements including Central Bank Digital Currencies (CBDCs).

In October 2021, following a public consultation, the FSB announced clear quantitative global targets to address the 4 challenges of crossborder payments - cost, speed, access and transparency across 3 market segments – wholesale, retail and remittances – the majority of which will come into effect in 2027[8]. Work is underway to assess how to measure progress against the targets. And crucially work is underway to enable the targets to be met.

To achieve the magnitude of change needed at pace will require collaborative effort.

I wanted to bring collaboration to life with an example from Greece – the Trireme. This famous ship – the fastest in the ancient world[9] - derives its name from its three tiers of oars, and its success has been attributed to the collaborative efforts of these three tiers working together. This ship and its ethos of teamwork provide a key metaphor for how we can successfully bring about change in how crossborder payments work.

In the world of crossborder payments the three key groups are: central banks, industry and public authorities. There is a saying *"If you want to go fast, go alone. If you want to go far, go together."* We need to go far together to reach the FSB targets on cost, speed, access and transparency.

Progress so far

The G20 roadmap on crossborder payments is now well into its second year. Considerable progress has been made meeting the actions and developing a strong understanding of the issues and publishing best practice and guidance.

There has also been tangible progress towards the desired outcomes. I will mention a few examples from the CPMI led building blocks, to whet your appetite, but should stress that this is not an exhaustive list.

- **Building block 9:** The CPMI received multiple responses to its October 2021 call for ideas on expanding payment-versus-payment for FX transactions. These responses have helped inform a consultative report that will be published in the summer.

- **Building block 10:** The Reserve Bank of Australia is working towards expanding access to domestic payment systems for non-bank payment service providers (PSPs)[10]. And the Central Bank of India has reviewed access criteria in 2021 and expanded access to certain categories of non-bank payment system operators[11].

- **Building block 12:** The US Fed has extended Fedwire operating hours in 2021, it is now operational for 22 hours per day, 5 days per week[12]. The European Central Bank is planning to extend operating hours as part of the go-live of the consolidation project in November 2022.

- **Building block 13:** In May 2022 Sveriges Riksbank and TIPS have established a connection with the goal to use TIPS services to settle non-euro currencies in central bank money[13].

- **Building block 14:** The European Central Bank is migrating to ISO in Real-time Gross Settlement (RTGS) payments in November 2022[14], with the Bank of Japan having already migrated to ISO and completing version upgrade in 2025.

To support further progress, in May 2022, the CPMI published reports on expanding access and extending operating hours[15]. These relate to two foundational building blocks that can enable the progress of many other

building blocks of the roadmap. I want to discuss why these two reports are critical and how central banks, industry and public authorities can play a key part in advancing the roadmap.

How improving direct access can enhance crossborder payments

The Building block 10 report assesses the benefits and risks of expanding access to domestic payment systems in particular RTGS systems. Expanded access could enable non-bank PSPs, financial market infrastructures (FMIs) and foreign banks to gain direct access to the payment systems they rely on to provide payment services to end-users, without relying on an intermediary (who maybe also be a competitor).

According to a CPMI survey, approximately 30% of the payment systems allow non-bank PSPs and FMIs direct access[16] and 28% reported have made significant changes to their direct access policies since 2010. And despite the fact that the 61% of payment systems that are considering to expand access within the next 5 years, only 7% have concrete plans to do so.

Expanding access could have some clear benefits for crossborder payments:

1. Shorter transaction chains: Expanding direct access to non-bank PSPs, FMIs and foreign banks will reduce the number of intermediaries involved in a crossborder transaction, thereby making payments quicker and more transparent.

2. Enhanced competition and lower cost: Expanding access can level the playing field between banks and other PSPs and foster greater competition and innovation to give customers a greater choice of services and potentially lower prices.

3. Improved financial stability due to reduced tiering risk: The risk of spillovers of a direct participant's default due to the transactions of indirect participants decreases.

These benefits needs to be balanced against risks such as additional counterparty credit risk and operational risk that central banks needs to be aware of and safeguard against when considering expanding access. The report discusses how these can be mitigated, for example setting minimum standards of resilience and security, and how to overcome potential barriers such as national legislation.

How extending RTGS operating hours across jurisdictions can help improve crossborder payments

The Building block 12 report examines RTGS operating hours. Limited RTGS operating hours across jurisdictions can lead to a delay in crossborder settlement, especially between countries with significant time zone differences.

The report identifies the current 'global settlement window', between 06:00 to 11:00 (UK time) when the highest number of RTGS systems across jurisdictions are concurrently open allowing crossborder transactions to settle across those jurisdictions without delays.

The report highlights three possible end-states for an expansion of operating hours: (i) an incremental increase in operating hours on working days, (ii) an increase to include current non-operating days like weekends or holidays and (iii) extension to full 24/7[17].

Expanding operating hours would have some significant benefits for crossborder payments:

1. Faster crossborder payments: Longer operating hours would extend the window of overlap between systems and lower an operational barrier to completing crossborder payments within the 1hr timeframe specified in the FSB targets.

2. Improved liquidity management: To enable crossborder payments banks need to hold liquidity positions to fund the payment. The longer crossborder payments take the longer these positions need to remain open, trapping liquidity. Greater overlap in operating hours could speed up the transaction.

3. Reduced settlement risk: When the operating hours of payment systems do not overlap final settlement in central bank money cannot happen which leads to the build-up on settlement risk. The longer settlement is delayed due to operating hours the greater the settlement risk becomes. Expanding operating hours will make crossborder payments faster and reduce settlement risk

But, as the report points out, there are also risks and operational and policy implications to assess when reviewing expansion of operating hours. Parties involved in RTGS systems may need to review and enhance existing operational procedures, risk monitoring tools and mitigation measures, and central banks and other authorities, will need to consider issues related to monetary policy, financial stability, and resolution policy for troubled institutions.

Undertaking the assessments of access and operating hours is critical

The reports encourage central banks and authorities to review the benefits, risks and barriers of expanding access and operating hours and set out a framework to do so.

The report on access sets out a holistic framework that central banks and authorities can follow and by providing real-world examples and case studies of jurisdictions that have successfully expanded access.

And the report on expanding operating hours encourages authorities to assess the three end-states and reviewing the opportunities, risks and policy implications for each of them.

While the reports say 'encourage', I would really urge central banks to undertake such reviews – the more that change, the greater our ability to meet the FSB global targets. With building blocks 10 and 12 being foundational for the roadmap, undertaking the assessments and taking action to expand access and operating hours will also have a direct positive impact across many building blocks.

The Bank of England's renewed RTGS service

I want to bring this to life by outlining what the Bank of England will be doing in response to these two reports and how our RTGS Renewal Programme will support this work[18].

The Bank is in the process of a multi-year project to renew RTGS. While changing our domestic infrastructure, this Programme also has an eye to opportunities to enhance crossborder payments.

There are two key milestones approaching: CHAPS payments will migrate to enhanced ISO 20022 messaging in April 2023, followed by the switchover of the core settlement engine in Spring 2024. The new RTGS platform will have the capability to extend operating hours to 22/5, and with further changes, to near 24/7 operation.

And it will be built with the capacity to accommodate a significant increase in account holders. Importantly, it will be a modular design with a strong foundation on which to build additional innovative functionality.

We are currently consulting industry on a menu of features which could be introduced to RTGS beyond 2024[19]. This includes assessing demand for a number of features, including synchronised payments that seek to bring not only domestic benefits, but help to improve crossborder payments. The consultation closes in June 2022 and we expect to issue a response document around the end of this year.

In 2017, the Bank became one of the first central banks to expand access to non-bank PSPs. But we want to keep pace with the fast-changing payments landscape.

By spring 2023 line with roadmap timelines, we plan to review access arrangements by conducting a gap analysis to understand if we have expanded access to the three key groups identified in the report, and consider if we can do more to expand access.

And to a similar timeline we plan to undertake operational, risk and policy analysis to arrive on a way forward on operating hours.

Towards an international effort – central banks, industry and public authorities rowing in unison

In a highly connected and networked industry such as payments, we can only make a real difference if we work together in a coordinated way. We need to row together in unison to reach our destination of faster, cheaper, more transparent and more inclusive crossborder payment services. So what are the concrete actions that each of the groups – central banks, industry and public authorities - need to take?

The role of central banks

Central banks, both as operators and supervisors, of payment infrastructure, we have a key role to play. We build infrastructure, add new functionality and set standards and policies to underpin safe and efficient economic and social activity.

Central banks need to start changing policies and enhancing core payment systems in line with the best practices, assessments and analysis that are developed as part of the work on the 19 building blocks. To do so effectively, we

need to listen to and collaborate with industry, involving them in outreach and consultations and updating them on latest developments.

And we also need to share our learnings and experiences with our peers, and beyond. This could be done through the establishment of communities of practice, through which central banks can discuss challenges and barriers with peers and find ways to overcome them.

The role of industry

The payments industry is another key, and wide range group including correspondent banks, FMIs and the non-bank fintech. Industry uses payment systems to provide payment services to customers, to innovate and develop new products for users. And industry can help central banks in undertaking the assessments of access and operating hours by collaborating, sharing insights and feeding into consultations and dialogue.

To meet the FSB targets there is also a practical role for the industry to respond to the building block actions and reports, with some requiring direct action. This might include:

(i) investing in new technologies,

(ii) preparing for changing operational procedures and

(iii) adapting business models.

The role of public authorities

And there is a crucial role for the wider public authorities. Central banks changing systems and policies and industry

investing in changing operational procedures are just two pieces of the puzzle. There are also important regulatory, legislative and other barriers that overcome on a national and international level.

For example, finance ministries will need to prepare legislative change to deliver the benefits of the roadmap (eg. on AML/CFT standards, data frameworks and settlement finality protections). And international standard setting bodies will need to ensure that these standards are aligned on a global level.

The financial system is global, with many of the most important issues requiring the involvement of international public authorities. The FSB, CPMI, the BIS Innovation Hubs, and a range of other standard setting bodies will have a continued important role to play to reach the quantitative targets for cost, speed, access and transparency of crossborder payments.

They will need to enable best practice sharing between different jurisdictions, monitor the progress achieved on the roadmap and set out clearly what industry needs to do, and to explore what structures could achieve real change. The IMF and World Bank could also help by encouraging involvement and collaboration of non-CPMI countries and offering technical assistance.

Conclusion

I want to leave you with three key messages: enhancing crossborder payments is crucial to the global economy; tangible progress is already being made; and to really change the dial we need work collaboratively.

And 'we' means the three groups of stakeholders - central banks, industry and public authorities – working towards a common vision. The one difference to the Trireme is that there may be different starting points reflecting the nature of individual jurisdictions.

I look forward to continuing to work with you all on this important mission to enhance crossborder payments: collaboration will be the key to our success. ■

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Endnotes

1. *Cross-border Payments Outlook 2022: Trends, Challenges, and Opportunities*
2. *Trading Economics: Remittances in Greece*
3. *Juniper Research: Cross-border payments*
4. *Visa Global Merchant eCommerce Study*
5. *Enhancing Cross-border Payments - Stage 1 Report to the G20 (FSB Report 2020)*
6. *Enhancing Cross-border Payments - Stage 2 Report to the G20 - Building Blocks of a Global Roadmap (FSB Report 2020)*
7. *Enhancing Cross-border Payments - Stage 3 Roadmap (FSB Report 2020)*
8. *Targets for Addressing the Four Challenges of Cross-Border Payments (FSB Report October 2021)*
9. *Trireme - DK findout!*
10. *Speech: Real-time payments in Australia*
11. *RBI to give some non-banks access to payments systems*
12. *Expansion of operating hours and associated changes for the Fedwire and Fedwire Funds Service*
13. *Sweden completes first phase of migration to TIPS*
14. *TARGET consolidation: Timeline*

15. Extending and aligning payment system operating hours for cross-border payments (CPMI Report May 2022) and Improving access to payment systems for cross-border payments: best-practices for self-assessments (CPMI Report May 2022)
16. Improving access to payment systems for cross-border payments: best-practices for self-assessments (CPMI Report May 2022)
17. Extending and aligning payment system operating hours for cross-border payments (CPMI Report May 2022)
18. RTGS Renewal Programme | Bank of England
19. Roadmap for Real-Time Gross Settlement Service Beyond 2024

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