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Benjamin Zeeb discusses the lessons Europe can learn from the formation of the United States

Leonard et al consider the geopolitical consequences of the European Green Deal

A new Bretton Woods initiative is needed for the 21st century, argue Giovanni Tria and Angelo Federico Arcelli

THE GLOBAL TRADE AND FINANCE PLATFORM

Strange times

There is a belief today that globalisation is not working, and that despite the huge wealth creation of the last thirty years that has lifted hundreds of millions out of abject poverty, the West – acting through organisations such as the International Monetary Fund and the World Trade Organization – has mismanaged the global economy.

That may be so, and no one can deny that these institutions need reform. The question is reform to what? These very institutions (and others like the UN and WTO) represent the political elite of the West. This elite represents, to be charitable, no more than 50% of the electorate of the West and does not represent the developing world or most of the world's population.

We have a new US administration that is committed to many policies that could well reduce growth. We have the same old European Union run by autocrats, committed to these very same policies. We have China that says, on the one hand, it is for these policies, but on the other it is intent on regaining what they believe is the Middle Kingdoms rightful place at the heart of the global economy. And we have an 'independent' United Kingdom, run by a government that seemingly is conservative in name only, but is in favour of the corporatist leftist agenda espoused by American and European 'democrats', to use the term loosely.

A lot of 'baggage' global agendas, a mishmash of idealistic ideas that do no good for the poor of the world in Africa, Asia and South America (or indeed the poor of the developed world), policies that were born in the crucible of the 1960s and 1970s, when the world was locked in the power struggle between the West and Communism.

Add in the mix of oil power and the economic crisis in the 70s, the explosion of 'rights' issues, and you get a situation where the rich developed countries are consumed by guilt over the wealth they have appropriated in the 200 or so years since the industrial revolution.

Take the clock back a few hundred years and you will see the wealth existed in the Far East. Take it back further, and despite the Greek and Roman empires, the wealth was largely in the East.

The global economy has always moved in cycles, and we are now entering an unusual situation where the political leadership in the West are endeavouring to go against the grain and deliberately make the developed world poorer. In the past this happened because of plagues, wars, corruption and, indeed, climate change.

Will the 21^{st} century be the century when the nations of Africa and Asia, and the sleeping giant of India, take their place in the developed world? And where the current developed countries become the developing world? ■

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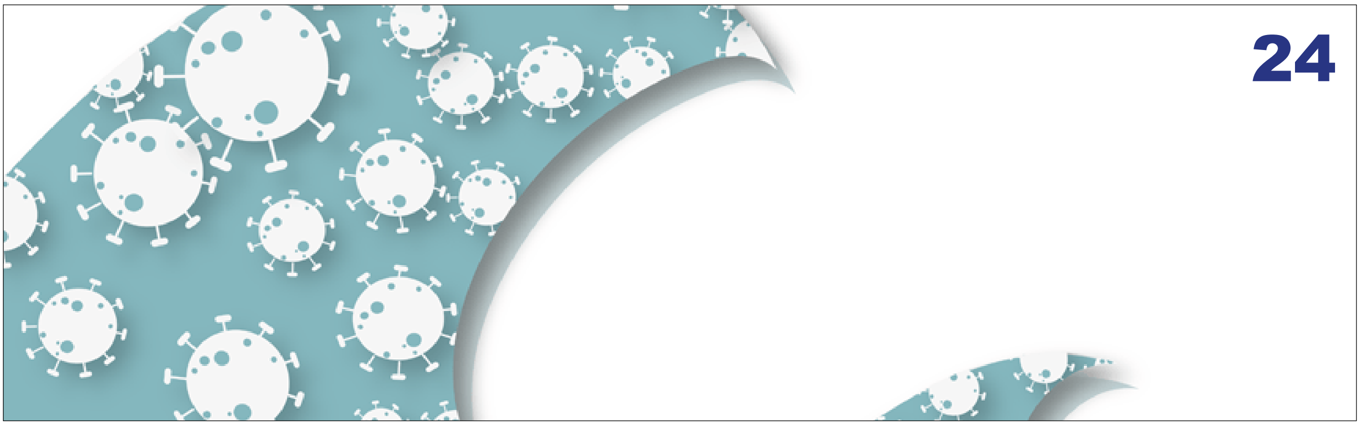

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Time to reset?

Giovanni Tria is a Distinguished Fellow, and Angelo Federico Arcelli a Senior Fellow, at the Centre for International Governance Innovation

The long depression after the 1929 crisis had already shaken from the very foundations the multilateral scheme based on gold exchange standard, but, after it was suspended in the years of World War II, it became evident that the aftermath would have required a new world economic order.

It was then during wartime, in 1944, that the conference held at the Mount Washington Hotel in Bretton Woods (New Hampshire, United States) paved the way for a new architecture of the monetary system to come. British economist John Maynard Keynes proposed a new global, supranational, reserve currency (the 'Bancor'), but this idea never got momentum.

Rather, leveraging the new balance of powers amongst allies, the US representative, Harry Dexter White, pushed for the return to a gold exchange standard scheme, based on a central role for the US dollar, as the main international reserve currency. Given the new role of the US as leading economy in the World, such idea was adopted, and this new system resisted for over 25 years.

It would have rather proven his flaws and limits in the following two decades, as trade imbalances caused tensions on the other currencies parities against the US dollar, forcing twice (1963, 1968) a realignment, and, finally, the generalized abandoning of the system by 1973, after the US de-pledged their currency from gold (August 13th,1971).

This was mainly caused by the growing pressure on the US Fed to return gold against dollars to compensate for continuing trade unbalances, allowed by the system that had enabled the US to maintain permanent current account deficits for long time (but finally arriving to a non-sustainable point, as Robert Triffin's analysis of the 'dilemma' pointed out).

In 1965, Jacques Rueff, president De Gaulle's economic adviser, criticized the Bretton Woods international monetary system with the famous allegory of the tailor: he imagined a customer who had an agreement with his tailor that whatever money he would pay him, the tailor will return it to him, on the very same day, as a loan; such customer would have continued ordering suits from his tailor indefinitely.

On this example, Rueff based his argument that the Bretton Woods system hindered commercial disequilibrium adjustments, as the country supplying the currency convertible into gold, the US, could finance its trade deficits without limits.

Differing from the gold standard, which Rueff supported, the gold exchange standard allowed the central banks of countries with a current account surplus to increase money supply on the basis of reserves held in gold, dollar and dollar-denominated assets.

As a consequence, because countries with a current account surplus that purchased dollar-denominated assets maintained their own reserves in the US central bank as dollars, the outflow of dollars from the US, caused by its trade deficit, did not actually determine - at least until the point when the credibility of the issuer became at stake - an outflow of gold.

Nevertheless, also after 1971, the US dollar remained the main international currency, also as a consequence of the US-Saudi

Arabia deal on oil to be traded exclusively in US dollars, and even gained a broader role, as the 'exorbitant privilege' for the Fed being the issuer of the international reserve currency without any pledge or constraint and, rather, full freedom of managing an independent monetary policy.

This role lasted unchallenged until current days and has never been put seriously at stake neither by new 'strong' currencies (the euro), nor by the emerging relevance of new powers (China).

Whilst Western European countries were also forced to give up the gold convertibility of their currencies, and exchange rates started to float freely, in Europe, exposed to financial stability risks in the 70s, also due to oil crises, the reaction was oriented to find a new stability mechanism, based on price stability and with the D-mark as its centre (given Bundesbank pledge on inflation as a economic policy goal).

This path main landmark points are the 'Werner plan' (1973), the EMS scheme (1979) - developing also a new figurative currency, the ECU - the Delors plan, until, despite the crisis of September 1992, the creation of the euro (1998 and 2001 as a paper currency).

After the accession of China to the WTO in 2001, there has been talks about a 'renewed' or 'second' Bretton Woods, with some of the principal Asian currencies, in particular the Chinese renminbi, in addition to Latin America's currencies, pegged to the dollar alongside with controls on international capital flows between these countries and the US.

The story of this 'second' Bretton Woods, and the global imbalances associated to it, is instructive. The rapid Chinese economic growth coincided with its accelerated integration in the global economy. Its double-digit growth in trade with foreign countries, compared with the overall growth in global trade, generated increased and persistent trade balance and current account surpluses.

"We now need to rethink a new scheme for the years to come, which entails a new Bretton Woods initiative"

Until 2005, by maintaining a fixed exchange rate with the dollar and controls on financial capital outflows, China had, for many years, avoided adjusting its trade imbalances, also by accumulating official foreign reserves, which in 2011 accounted for 25% of registered central banks' global foreign reserves.

The illusion about a new stable system and of a potential for continuing economic growth worldwide had a sudden end in the wake of the 2008 crisis. Given the failure of monetary response (QE) in the following years and given the global response to the current pandemic crisis in terms of a new, semi-unlimited monetary expansion, a debate about the adequacy of the international monetary system has gained momentum.

Current continuing trade imbalances (particularly amongst China and US) are leading to a permanent tension on the monetary system. But, notwithstanding all this, the US dollars remains even today – and the 2008 crisis has demonstrated it - the main 'safe asset' for international relations and represents three quarters of the currency reserves of all central banks.

The Chinese central banks' governor, Zhou Xiaochuan, published on March 23rd 2009, a paper on the journal of the Bank for International Settlements, evidencing the problem of the impossibility to deal with global macroeconomic imbalances and assure financial stability without confronting the unsolved issue of the international monetary system, namely the absence of an international reserve currency pegged to a stable value.

Zhou reintroduced Triffin's arguments on the flaws of a system where a national currency serves, de facto, as a global reserve currency and declares himself in favour to a supranational international reserve currency, explicitly recalling the 'Bancor', the international currency unit, proposed in 1944 at Bretton Woods by Keynes.

Zhou's proposal was to immediately reconsider the Special Drawing Rights (SDRs) role, which, created by the IMF in 1969, were intended to be an asset held in foreign exchange reserves under the Bretton Woods system of fixed exchange rates.

In particular, it was proposed to foster the use of the SDRs as a medium of exchange not only between the commercial and financial transactions of governments and financial institutions. Moreover, part of every country's official reserves should have been managed and held by the IMF so that market stability would be strengthened.

On 17th and 18th July 2019, the finance ministers and central bank governors of the G7 countries, meeting in Chantilly, France, discussed with ill-concealed concern the Facebook plan to launch the Libra, a stablecoin presented as a simple means of payment but pegged to a basket of stable currencies.

The topic was not underestimated. Not because of any danger in the specific project, as its probability of success was low, but because it was immediately understood as representing the first real potential challenge launched at what remains of the international monetary system established at Bretton Woods (and, what is more, such challenge was to be launched by a pool of private companies).

Presented as a mere cross border means of payment directed on drastically cutting the cost and time of transnational payments and to include large sectors of the population that, especially in developing countries, are effectively excluded from payment methods based on banking systems, this new cryptocurrency project with global ambitions paved the way for a larger challenge.

The only efficiency gains, given by the transition to digital currencies, do not appear huge today if we consider that new technologies have already activated widespread payment systems tied to private platforms without the need to adopt, as a unit of account or store of value, a cryptocurrency.

After one month, one of the participants of the G7 meeting in July, the governor of the Bank of England Mark Carney, speaking in front of an audience made up of bankers and economists at the Jackson Hole annual meeting in Wyoming, suggested that the world dependence on the US dollar is not sustainable anymore and invited the IMF to take the lead on designing a new international monetary and financial system based on multiple currencies.

Carney pointed out that currently global growth is strongly affected by the impact of economic events and by US monetary policies, leaving countries exposed to the volatility of the dollar. Mark Carney's conclusion, as that of other economists, is that this multipolar system could be based either on several international currencies or a single global currency, which could take the form of a global electronic currency.

However, the transition to a new international reserve currency is a complex issue that follows not only an economic decline of the issuer country, but also the diffusion of the new currency as a medium of exchange, which, therefore, must be efficient and convenient in the international payments.

Technology can help on this by, using Mark Carney's definition, creating an 'hegemonic synthetic currency' through a network of central bank's digital currencies. But behind this digital scheme one needs a credible group of states.

Those who argue against a new global currency recall data showing evidence about the persistent dominant role of the dollar, demonstrating that the strength of the dollar as a safe asset does not simply result from the current network effect.

As recently claimed by Henry M Paulson Jr, Secretary of the Treasury during the George Bush administration, *"the privilege conferred on the US Dollar as the global reserve currency was hardly preordained."*

The globalization process as we saw in the last years has arrived at a landmark moment. The pandemic crisis has suddenly put an obstacle to a seemingly unstoppable process, which led to growing production and financial hyper-connectivity for practically all countries around the world, and also brought to the fast movement, not only of goods and persons, but, increasingly, of ideas, knowledge, uncertainties and fears. But, today, 'globalization' is challenged as a long-lasting process.

The economic consequences of the COVID-19 will depend on the expansion and the length of this pandemic event, and by the subsequent length of the interruption of the productive and consumption chains that the measures, motivated by the need to halt the epidemic, have determined.

Over seventy-five years after the debate amongst John M Keynes and Harry D White about the eventual need for the international system of a global and supranational reserve currency (not controlled by any state), it may be the moment to reconsider a new international deal to ensure stability and prosperity to the international economy.

The task is not to rebuild an international order from the ground up: many prevailing institutional structures are sound. But do they all meet twenty-first century needs? Past examples, such as the interwar period, demonstrate how instability can have a lasting impact on the international monetary system.

Only a coordinated effort about the reconstruction, in a new deal, of the monetary system worldwide, could be the way to avoid a very costly 'financial war'.

We now need to rethink a new scheme for the years to come, which entails a new Bretton Woods initiative, jointly promoted by all main economies, including the new emerging ones. Possibly, the first step should be a renewed EU-US Transatlantic pact. ■

ABOUT THE AUTHORS

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A longer version of this piece has been published by the Centre for International Governance Innovation.

The case for an open financial system

Andrew Bailey is Governor of the Bank of England

As we look forward – and for so many reasons we must look forward – it is important to focus on the future of financial services, and the important role they play in our economy and internationally. This will be my focus today.

I am going to look forward with the benefit of history and context and set out why open financial markets are in the interests of all – home and abroad – and something we should always strive for. I want to start with the Bretton Woods agreement towards the end of the Second World War.

This was a fundamental and decisive commitment to an open world economy. This commitment did not come free at the time – the adjustment was hard for this country – and of course the more formal Bretton Woods system broke down in the 1970s.

But that breakdown did not compromise the commitment shared broadly across nations to an open world economy. There have been times when the commitment has been sorely tested, but it has not been abandoned.

What followed the breakdown was a shift of emphasis, not a free for all. The shift was towards managing the consequences of greater openness with much more emphasis on the stability of the financial system and its ability otherwise to do harm, both domestically and internationally. What was needed was not just openness, but safe openness.

This emphasis was never more evident than during and after the global financial crisis. There was a moment at the height of the financial crisis when it might have been natural to consider forfeiting the commitment to an open financial system in the face of damaging international linkages.

That did not happen to our great relief – the G20 nations stood firm to the principles of Bretton Woods and committed to significantly reforming the international financial system and its regulation, by raising global standards for regulating the system and reinforcing the institutional structure.

The COVID crisis has been the first big test of those reforms – and it has been a big test. The scorecard to date is encouraging – by no means perfect, but the core of the system has stood up well, which is needless to say a huge relief.

In order to preserve this public good of an open world economy and now also an open financial system, has required a commitment to institution building both internationally and domestically. Bretton Woods created the IMF and World Bank, and slightly less directly the GATT and then WTO.

Out of the financial crisis came the importance of the global Financial Stability Board with a mandate to promote international financial stability underpinned by strong regulation, supervisory and other financial sector policies, reinforcing thereby the importance of G20 nations.

The FSB works closely with, and is supported by, the four standard setting bodies of the international financial system – the Basel Committee for banks, IOSCO for markets, the IAIS for insurance, and the CPMI for payment and markets infrastructure.

And, just to underline the importance we see in these bodies, it is with pride that I can say that the Bank of England chairs two of the four – Jon Cunliffe for CPMI and Victoria Saporta for IAIS.

"We have an opportunity to move forward and rebuild our economies, post COVID, supported by our financial systems. Now is not the time to have a regional argument"

These bodies are where the critical standards for governing the financial system get hammered out, where safe openness is put into practice. They are very clearly global in reach, necessarily so. They are not regional, they are global. We cannot participate in these bodies, and they cannot function as they do, unless we are all prepared to enter into the process and listen to and accept ideas from others.

It requires us to give up some control over our standards and rules, because the alternative of a narrow domestic control is illusory – it would jeopardise achieving the very things we want, safe open markets, and likewise open economies. Above all, these bodies enable us to build the trust that enable our financial systems to stay open.

But, we do not for a moment believe that we can maintain the arrangements we have without change. As the world around us changes, so too do we have to adapt how we achieve these public goods. Also, we do not participate in these global institutions with the intention to water them down, misguidedly because we think this would preserve some

notion of our competitiveness as a nation. The UK could not be a global financial centre for long if we did.

Let me reiterate again, the public goods of open economies, an open financial system and the stability of that system are global, not regional, in nature. The UK is one of the world's largest global financial centres, and its financial stability – as the IMF have reminded us – is therefore a global public good.

We are deeply committed to financial stability and given that the success of our financial centre. That is not because we are mercantilist in our outlook.

As the City's long history shows, that has never been the outlook of people in the City; rather it has been to trade freely and compete and grow new markets, to face outwards. We see that today for instance in the embrace of fintech.

The UK's financial markets and its financial system are therefore open for trade to all who will abide by our laws and act consistent with our public policy objectives. The question then arises of what sorts of safeguards and rules should apply to that trade?

I mentioned earlier that one of the offspring of Bretton Woods was the GATT, subsequently the WTO. The focus of activity was for some considerable time on trade in goods, not trade in services. Both goods and services trade depend on robust standards and the regulation of those standards, but trade in services is almost entirely about such standards.

This trade has been substantially supported by the global standards to which I referred earlier, and which has allowed countries to defer to each other in terms of the prevailing rules and regulations.

This means deferring to the rules of others to protect our citizens or firms when they choose to do business there. There is no doubt in my mind that the work done on global standards since the financial crisis has made this process easier to support and safer and improved the level of trust we have in each other.

The European Union has pursued the approach of so-called equivalence, which on the face of it allows for deferring to other authorities where appropriate. The EU's framework of equivalence in financial services is a patchwork across many different pieces of financial services legislation, taking different forms in different sub-sectors, and in some not present at all. Nor do the equivalence measures prescribe how the judgement should be made.

As is well known, the post-Brexit equivalence process between the UK and EU has not been straightforward. It is, of course, two distinct processes – one for the UK to recognise the EU as equivalent to the UK, and one for vice versa. The UK has granted equivalence to the EU in some areas, but the EU has not done likewise to the UK.

In a few areas – involving central clearing and settlement – there has been agreement by the EU to extend temporary equivalence to the UK, recognising, I think, the clear risks to financial stability that would have arisen had this not been done at the outset.

It would be reasonable to think that a common framework of global standards combined with the common basis of the rules – since the UK transposed EU rules from the outset – would be enough to base equivalence on global standards.

Less than this was enough when Canada, the US, Australia, Hong Kong and Brazil were all deemed equivalent. Continuing with the example of central clearing, the EU has recently made the US SEC equivalent for CCPs, subject to certain conditions.

These conditions are already met by UK CCPs as they are a legal requirement in the onshored legislation, but equivalence beyond the temporary extension remains uncertain.

The EU has argued it must better understand how the UK intends to amend or alter the rules going forwards. This is a standard that the EU holds no other country to and would, I suspect, not agree to be held to itself. It is hard to see beyond one of two ways of interpreting this statement, neither of which stands up to much scrutiny.

The first interpretation is that the rules should not change in the future, and to do so would be unwelcome. This is unrealistic, dangerous and inconsistent with practice. As the world around us changes, so must the rules to accommodate these changes.

As evidence of this, look at what the authorities have had to do in response to COVID and the shock that created for financial markets. The EU is almost constantly revising, or contemplating revising its own rules, and that's a good thing. So, I dismiss this argument.

The second argument is that UK rules should not change independently of those in the EU. I am being careful to phrase this point. It's not that UK rules might change independently – the equivalence process provides for re-assessment of such decisions, so this should not be a problem.

So, it must be the stronger form that they should not change independently. But that is rule-taking pure and simple. It is not acceptable when UK rules govern a system 10 times the size of the UK GDP and is not the test up to now to assess equivalence.

It's worth considering why we would choose to change the rules. First, it would be rare to say the least if such rules turn out always to work perfectly first time and thus need no amendment. As an example of this, the EU itself is looking to amend MiFID2 to iron out areas that need further work.

Second, as the world moves on, so the rules need to adapt. If they do not, we will be heading for trouble. The key point here is that good practice means that authorities should be transparent at the time in explaining rule changes, and those changes should be consistent with international standards where appropriate.

Let me give three examples of areas of rule changes we in the UK are looking at, two involving banks and one life insurance. First, the Basel regime for banks has, from the outset in the 1980s, applied to so-called 'internationally active banks'. The EU has chosen to apply it to all banks and relevant deposit takers. That was a matter of choice.

But the Basel regime is heavy duty and complicated when applied to small banks (I know many big banks will say the same, but sorry that's life). So, we want to see if we can apply a strong but simple framework of rules for small banks that are not internationally active. This is a sensible step in my view and not out of line with the principles and practice of equivalence.

Indeed, there are other countries, such as the US and Switzerland, that have regimes for small banks and have been determined equivalent to the EU in many areas.

Second, the EU changes its rules in December to allow software assets to count as bank capital. The Basel Standards do not include intangible assets in bank capital, which would include software assets in the UK. We have not identified any evidence to support the notion that software assets have value in stress.

On that basis, including them in bank capital would give a false picture of a bank's loss absorbing capacity. We are therefore intending to consult on plans to amend this on-shored EU rule in order to maintain the previous requirements of excluding software assets from bank capital. This is in line with global standards and will enhance the safety and soundness of UK firms.

The insurance case rests on a different argument. Solvency 2 is an all-embracing rulebook covering both general/non-life and life insurance. In practice, it probably works better for the non-life world, because the risks and activities are more common across different national markets. Non-life insurance is a broad and diverse sector, but each GI product occurs in different national markets in a more similar form.

But, I have never been convinced that the EU had a commonality of forms of life insurance across its national markets. They are in some cases at least quite distinct markets and products. Certainly that is the case in the UK, where annuity business is a quite specific activity.

Some specific elements of Solvency 2 have not proved to work for that market as well as hoped, so it is right that we should review it. There may also be reason to make changes that span both life and non-life, but that is not the point I want to emphasise here.

Let me be clear, none of this means that the UK should or will create a low regulation, high risk, anything goes financial centre and system. We have an overwhelming body of evidence that such an approach is not in our own interests, let alone anyone else's.

That said, I believe we have a very bright future competing in global financial markets underpinned by strong and effective common global regulatory standards.

I want to finish with one further important area, that is, how the rules are applied – supervision as we call it – and how we can be sure that this application of rules is effective across borders, and particularly between the UK and the EU. It is of course critical that rules are applied effectively, and that there is co-operation between the authorities in different countries.

With this in mind, we already have 36 MoUs agreed between the Bank of England/PRA and supervisors across Europe. They ensure supervisory co-operation will be deeply engrained in the relationship. And let me welcome the content of the joint declaration on financial services that was contained in the UK-EU trade agreement.

It provides for structural regulatory co-operation on financial services, with the aim of establishing a durable and stable relationship between autonomous jurisdictions based on a shared comment to preserve financial stability, market integrity and the protection of investors and consumers.

This co-operation will be supported by a Memorandum of Understanding to be agreed by March, and this will enable discussions on how to move forwards on equivalence determinations *"without prejudice to the unilateral and autonomous decision-making process of each side."*

To conclude, there is no doubt in my mind that an open world economy supported by an open financial system that respects the public interest objective of financial stability will bring the greatest benefits all round. It needs to be supported by effective institutions and strong international standards. But this must be a global, not a regional, regime to be effective.

And that is why we spend so much time and effort on the work of the global standard setting and oversight bodies. What follows from that is much more a matter of implementation and how we each put these standards into practice consistently.

We have an opportunity to move forward and rebuild our economies, post COVID, supported by our financial systems. Now is not the time to have a regional argument. ■

This article is based on a speech delivered at the Financial and Professional Services Address, Mansion House

Leveraging synergies

Ina Sandler is a Policy Advisor at Business at OECD

A growing interest in the interlinkages

2021 marks the 10th anniversary of the United Nations' Guiding Principles on Business and Human Rights (UNGPs). The UNGPs constitute an, if not the most, important globally recognised framework for preventing and addressing the risk of adverse impacts on human rights linked to business activity.

The UNGPs implement the 'Protect, Respect and Remedy' Framework, according to which states have the duty to protect human rights, whereas companies have the responsibility to respect human rights.

Closely aligned with the UNGPs is the human rights chapter of the *OECD Guidelines for Multinational Enterprises* (*OECD MNE Guidelines*), constituting the most comprehensive, government-backed instrument for promoting responsible business conduct, covering all major areas of business ethics.

The *OECD Guidelines for Multinational Enterprises* are recommendations addressed by governments to multinational enterprises operating in or from adhering countries. Adhering governments within and beyond the OECD have committed to promote Guidelines globally.

Over the last decade, when the UNGPs came into being, there has been substantive progress on the human rights front. Businesses around the world have gained considerable experience in the implementation of human rights due diligence, and Responsible Business Conduct (RBC)/Corporate Social Responsibility (CSR) practices more broadly, as expectations with regards to business are rising, not least in the context of the current COVID-19 crisis.

Even more so, there is a growing interest in understanding how human rights relate to anti-corruption efforts. Research on this issue is expanding, as demonstrated most recently by a new report of the UN Working Group on business and human rights.

The interest in the interlinkages between the two agendas is not surprising. The anti-corruption and human rights agendas have much in common. Corruption can generate economic damage, hamper the provision of essential public services, undermine the rule of law and erode peoples' trust in institutions.

It thereby affects people's standard of living and their equal opportunities, while having a disproportionate impact on the poor and most vulnerable. Importantly, corruption can also create an environment that is permissive of human rights abuses.

Unsafe working conditions, for instance, are often linked to bribery and other corrupt practices. Another example is illegal logging for the extraction of palm-oil facilitated by corruption, causing significant damage to local communities in addition to reinforcing environmental degradation, deforestation and threatening endangered species.

Corrupt practices and human rights abuses further share many of the same root causes and frequently occur in areas in which there is poor governance and a weak rule of law. A stronger coordination of the two agendas may hence be warranted in order to advance on both fronts.

Yet, a closer examination of the two fields also reveals a number of important difference between the human rights and anti-corruption agendas, which need to be taken into account when considering potential approaches for coordination.

A corporate approach to corruption and human rights

Looking at this issue from a corporate perspective, looking for synergies between human rights and anti-corruption efforts may also bring tangible benefits. Corruption and human rights pose similar reputational, financial, legal and operational risks to companies.

Yet, the two agendas tend to exist in parallel, involving different actors, laws, regulatory considerations, business standards and practices and driving different (and often siloed) corporate approaches.

Breaking down these policy silos allows companies to leverage existing synergies by building on existing structures and addressing corporate risk in a more holistic manner.

A more coordinated approach can enable constructive information sharing that prevents duplication of efforts and can support the development of a broader notion of business integrity and ethics that goes mere legal compliance.

The BIAC-IOE guide

We developed, jointly with the International Organization of Employers (IOE), and in close cooperation with business experts from around the world, a first practical BIAC-IOE guide on connecting the human rights and anti-corruption agendas[1] at the enterprise level.

The guide aims to provide companies with a tool to better understand the overlaps and differences between the fields of anti-corruption and human rights.

It also provides an overview of the resources that exist in the two fields and, most importantly, supports respective experts with practical tips and strategies on how to implement a more coordinated approach, where desirable and appropriate, across a number of areas (including initial risk assessments, corporate culture, compliance programs, due diligence assessments, training, internal and external reporting, and multi-stakeholder cooperation and collective action).

This is supplemented with a number of practical case studies showcasing examples of companies, which have already implemented a more coordinated approach in their operations.

The intention is thereby neither to prescribe certain actions or create an extensive checklist for companies, nor to provide a basis for any legislative initiative or binding legislation.

On the contrary, recognising that there is no one size fits all as companies of different sizes, sectors and organisational structure may be facing distinct challenges, the guide intends to equip businesses with a flexible approach by offering a set of questions for self-assessment.

The guide also respects the distinct nature of anti-corruption and human rights processes. While anti-corruption programs focus on criminalisation, putting an emphasis on the perpetrators, human rights efforts are taking a more victim-centred perspective.

Relatedly, the anti-corruption agenda is based on clear laws and standards that are being processed and managed in companies by legal compliance departments, whereas the corporate human rights agenda is anchored in the 'responsibility to respect' (see UNGPs) overseen by sustainability, corporate responsibility, supply chains and/or labour teams.

Another critical distinction lies in the scope of the concepts. While corruption can be limited to a number of clearly defined acts, such as bribery, extortion, nepotism, embezzlement and fraud, human rights impacts may be related to a vast number of corporate practices and business relationships.

It is for this reason that companies are encouraged to coordinate but not to consolidate their anti-corruption and human rights efforts. Such coordinated approach furthermore also acknowledges that dedicated formation programs and follow-up by human rights and anti-corruption experts in case of transgressions remain critical and necessary.

"... looking for synergies between human rights and anti-corruption efforts may also bring tangible benefits. Corruption and human rights pose similar reputational, financial, legal and operational risks to companies"

The guide, ever since its publication in September, has received considerable attention as it underlines the progress business is making on the human rights and anti-corruption front.

While we consider the guide as a living document, which has scope to grow through the incorporation of novel ideas and case studies, complementary action by governments is needed to sustain the current momentum.

The fundamental role of government efforts

The public sector, too, could consider strengthening integrity and implementing holistic approaches in its state-owned enterprises. Going beyond individual conduct, reaching the macro-level, governments can work to address the two interlinked challenges of corruption and human rights abuses by improving regulatory environments, strengthening the rule of law and fostering the implementation of human rights instruments as well as globally agreed standards such as the UNGPs and the *OECD MNE Guidelines*, which address both human rights and corruption.

In effect, while business action can be powerful, it can only complement but never replace government efforts to establish and implement a sound policy framework for the protection of human rights. Even more so, the efficiency of business actions depends also on the degree to which states live up to their obligation to protect human rights.

Governments, individually and jointly, should also work to address the root causes of corruption and human rights violations by fostering education and reducing poverty.

This will not only help to prevent abuse but also support the overall business environment, attracting additional trade and investment, which in turn can help to further raise income levels and promote innovative business practices including RBC/CSR, thus inducing a virtuous circle of development. ■

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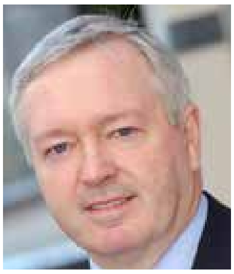

Much ado about nothing?

Fraser Cameron is a Senior Advisor to the European Policy Centre

Introduction

Rarely has a deal aroused so much controversy as the EU-China comprehensive agreement on investment (CAI) that was signed on 30 December 2020. Its defenders argue that it was the culmination of seven years of tough negotiations and achieved the EU's main objectives, further opening the fast-growing Chinese market to EU companies and strengthening commitments on labour rights and sustainable development.

They also point out that the EU had little real leverage as its economy was already much more open than the Chinese market. But what was important was a rebalancing of market access.

The deal has been strongly supported by EU leaders and business. Critics of the deal, including many in the European Parliament, argue that it should have included more stringent conditions on labour rights and that the timing was wrong, coming after China's crackdown in Hong Kong and Xinjiang, and just a few weeks before the start of the Biden presidency.

There are also those who suggested that Merkel pushed the CAI through under strong domestic business pressure, especially the automobile sector, and to have another achievement under the German EU presidency.

Many critics wrongly described the CAI as akin to a free trade agreement (FTA) which it is not. The EU has made clear that an FTA with China will not be on the agenda for years to come. Brussels argues that if the CAI works well for a number of years, then one could consider a scoping exercise for an eventual FTA.

But that process would take at least a decade and would depend on China sticking to its commitments and further substantial changes to the Chinese economy.

The political and economic context

It is important to set the CAI against the overall geopolitical context as well as the EU's own tripartite strategy towards China. On the geopolitical front the main trend is towards increased US-China rivalry which was most apparent in the US tariff war on China and President Trump's sharp criticism of China over the COVID-19 pandemic.

While the Biden administration is currently formulating its policy towards China, initial statements suggest that it will also pursue a tough line regarding Beijing more as a threat than a partner.

As Merkel and Macron have made clear, the EU does not wish to be involved in any new Cold War between the US and China. The EU regards China as a partner, a competitor and a rival according to different issues. It thus has an array of different policies and instruments in dealing with China.

These include new mechanisms for screening FDI and state subsidies, autonomous trade defence instruments (anti-dumping), and projected new instruments dealing with procurement and human rights.

The EU argues that the CAI is not the right place to deal with human rights but is rather a *sui generis* agreement with the aim being to rebalance the economic relationship which is taken as increasing market access and improving the conditions for a level playing field.

China, it is argued, will now be bound by rules that it did not previously accept. The EU also defends the deal on the grounds that it is seeking the same concessions granted to the US in the China-US first phase agreement of January 2020, a deal it is argued, detrimental to the interests of the EU.

The EU further rejects the argument that it should have waited to consult the Biden administration as it had no idea how long it would take the new administration to formulate its overall trade policy, especially towards the WTO and China.

The EU argues it needed to bank the concessions offered by China rather than wait. It also argues that CAI is a stepping-stone to discuss China and WTO reform with the US. In contrast to the US-China first phase deal, which was a bilateral accord, the EU secured concessions open to all under MFN rules.

It also believes that acceptance of greater transparency and information sharing were important advances.

China has welcomed the CAI as a major step to strengthen EU-China relations and the multilateral system. It wanted to seal the deal before the new US administration came into office and some Chinese commentators applauded the deal as an indication of the EU taking a different approach from that of the US.

It also wanted to ensure that the EU would not restrict Chinese investment in Europe as some politicians had demanded. It was also a natural progression after the signature of the RCEP and Chinese efforts to conclude a trilateral trade deal with Japan and South Korea.

On the geoeconomics side, the EU recognises the huge importance of the Chinese economy to its own growth prospects. China was the only major country to achieve growth in 2020, despite the COVID-19 disruption, and its prospects for 2021 are far ahead of the projections for the EU or US.

"Any assessment of the deal will probably have to wait for the first few year's implementation and whether or not China sticks to its promises and whether or not EU businesses see a significant increase in their access to the Chinese market"

According to Eurostat, in 2020 exports of EU goods to China increased by 2.2% and imports went up 5.6%, while EU trade with the rest of the world dramatically dropped (down 9.4% in exports, and down 11.6% in imports compared with 2019).

The pandemic severely hit transatlantic trade, with exports of European goods to the US falling by 8.2% and imports down 13.2%. As a result, the US is no longer the bloc's top trade partner in goods and has been replaced by China. EU exports to China in 2020 amounted to €202.5 billion while imports reached €383.5 billion.

China also attracted more FDI in 2020 than any other country in the world. The cumulative FDI flows from the EU to China over the last 20 years have reached more than €140 billion. But this figure is relatively modest with respect to the size and the potential of the Chinese economy.

For Chinese FDI into the EU, the figure is almost €120 billion. Many European countries continue to seek Chinese investment in their economies despite restrictions in some areas such as 5G.

The IMF and World Bank predict that within the next few years China will have the world's largest economy and if current growth rates continue then within two decades its economy will be bigger than the US and EU combined.

It is thus not surprising that despite the criticism over China's human rights record, European business is unwilling to forego the opportunities of the Chinese market.

In a January survey of business sentiment, the EU chamber of commerce in China found that 75% of respondents expected to increase their investments in China during 2021 and only 4% were considering leaving.

Reacting to the uncertainty induced by the threat of decoupling and disruptions caused by COVID-19 pandemic, over half of EU companies are localizing their China operations in order to increase their supply chain resilience and adapting their core technologies to Chinese standards.

It is a similar story with US business. Instead of decoupling financially, the US and China now have one of the largest and fastest-growing bilateral investment relationships in the world. American investors held $1.1 trillion in equity issued by Chinese companies at the end of 2020.

The importance of FDI to China was emphasised by its performance last year, when it attracted $163 billion in inflows and eclipsed the $134 billion attracted by the pandemic-hit US to become the world's largest recipient of foreign inflows for the first time. Japan FDI into China is also increasing at a fast pace.

Benefits of CAI

The EU argues that the main value of CAI is improved market access for European businesses, especially by removing obstacles for investments such as the forced transfer of technology, establishment of joint ventures and IP rights.

There are also provisions on increasing regulatory transparency and non-discriminatory treatment of foreign investors, in particular regarding licensing, standards and subsidies.

Sectors most likely to benefit include manufacturing, new energy vehicles, financial services, healthcare (private hospitals), R&D (biological resources), telecommunications/cloud services, IT services, international maritime and air transport, business, environmental and construction services.

The EU also plays up the commitments regarding state-owned enterprises (SOEs) which play an important role in China's economy. The text states that SOEs 'shall act in accordance with commercial considerations' in their purchases or sales of goods or service and shall treat European enterprises no less favourable than domestic ones.

The EU argues that it secured further commitments on sustainability, climate and the environment, CSR and labour rights. It means that the CAI also exceeds what China committed to in RCEP and the US-China first phase trade deal. The EU notes that these concessions are available to all countries under the MFN process.

It also argues that the CAI will also help in the US-EU-Japan trilateral process pressing China to limit steel output, something it appears to accept in its latest five-year plan.

Criticisms

Critics of the deal argue that China has largely repackaged existing market access openings eg. financial services, automotive sector, abolition of joint venture requirements, etc. and that many of its market access obligations are partially restricted or conditional.

The EU-China comprehensive agreement on investment (CAI) was signed on 30 December 2020

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President Michel
Macron
President von der Leyen

For example, in the telecommunications and cloud services sectors, EU investors still have a 50% maximum participation limit. Investments in private hospitals are limited to eight cities and the island of Hainan.

In the aviation sector, China will open some areas (computer reservation systems, ground handling and marketing services), but aviation rights will not be included and foreign holdings in public air services will not exceed 25% of the total market share.

Another criticism is that the provisions contained in the agreement on the obligation to disclose information about subsidies are limited to subsidies in certain service sectors.

It seems that the CAI will also favour larger EU companies rather than SMEs as the levels of investment required in the sectors covered are substantial.

Critics also allege that the provisions on CSR are weak with China simply recognising 'the important contribution of corporate social responsibility … in enhancing the positive role of investment for sustainable growth.' Reference is also made to the voluntary CSR codes of the UN and the OECD.

Interestingly the CAI foresees specific panels of experts monitoring these provisions and even allows a limited role for NGOs to participate in the proceedings, eg. by submitting amicus curiae briefs.

Mr Butikhofer, MEP, has questioned what these Chinese commitments mean 'in a country where there are no trade unions and where there is no freedom of expression and organization?'The same critic has damned the agreement for the weak commitments on the labour front. China has only agreed to undertake 'on its own initiative, continuous and sustained efforts' to ratify the ILO conventions (C29 and C105) on forced labour.

There is no fixed timetable for ratification. The language on sustainable development is essentially a reiteration of previous commitments under the Paris climate change agreements.

On the EU side, the CAI grants Chinese companies greater access in the areas of energy and renewable energies but there remain restrictions on the sensitive areas of agriculture, fishing, audiovisual, public services, etc.

Dispute settlement

The actual text of the CAI is relatively short, less than 50 pages, reflecting the fact that the agreement does not contain any investment protection standards, such as fair and equitable treatment nor any investor-state dispute settlement provisions.

The EU has said that both parties need more time to agree on these issues, including the creation of a possible multilateral investment court, and will make best endeavours to complete a further agreement within two years.

The agreement provides for arbitration tribunals, composed of persons nominated by the parties, to resolve disputes within 180 days, taking account of WTO rules. If one party fails to accept the decisions of the tribunal, the other party can retaliate by suspending benefits equal to the losses sustained.

Until there is an agreement on investment protection and ISDS, the current bilateral investment treaties between EU member states and China remain in force thus providing on-going legal certainty for both sides.

Institutional framework

A high-level Investment Committee, co-chaired by a European Commissioner and a Chinese Vice-Premier will meet annually to monitor the implementation of the CAI. Decisions are to be taken by consensus and shall be binding on the parties.

Essentially, this Committee will be the main forum for the parties to discuss any major issues and develop the agreement further.

Next steps

The agreement is currently undergoing legal scrubbing before being sent to the Council (qualified majority) and European Parliament (simple majority) for approval. A schedule for the ratification is not yet known, but most likely the CAI will be voted on in autumn 2021.

The legal service of the European Commission indicated that the CAI will be a pure EU agreement without ratification by the national parliaments of the EU. The market access offer will only be agreed in March after further consultations with member states.

Conclusion

The political fallout resulting from the conclusion of the CAI will rumble on during most of 2021. It should not be overblown as EU FDI into the US is ten times more than EU FDI into China. But it is the potential of the huge Chinese market that attracts EU business and financial companies.

Most EU governments and European business circles support the deal. The leading cheerleader is Chancellor Merkel but she is scheduled to retire in September.

Her likely successor, Armin Laschet, is equally committed to the deal but if the CDU has to form a coalition with the Green party which is strongly critical of the CAI, then there may be problems with the ratification.

Many MEPs will also maintain a critical stance towards the deal but in the end the economic arguments relating to increased employment prospects are likely to carry the day. Assuming the CAI is ratified, then the proof of the pudding will be in the eating.

Any assessment of the deal will probably have to wait for the first few year's implementation and whether or not China sticks to its promises and whether or not EU businesses see a significant increase in their access to the Chinese market. ■

Digital assets and Africa: opportunities for wealth creation

Elise Donovan is Chief Executive Officer at BVI Finance

The African continent's impressive economic growth in the last decade is well documented with countries like Ethiopia, Nigeria and Kenya consistently ranking among the world's fastest growing economies. According to World Bank estimates[1], sub-Saharan Africa had a collective GDP of just over $1.7 trillion in 2019, which is expected to rise in the coming years.

COVID-19 has disrupted export markets, supply chains, tourism and remittances, nevertheless, the long-term economic outlook for the region is positive and there are compelling opportunities to capitalise on the enormous potential across the continent.

A key opportunity is the rise of digital assets which is transforming the continent and is set to impact the global economy. This does not come as a surprise. We have seen first-hand how the region has effectively leapfrogged the world in mobile money adoption, with 481 million registered mobile money accounts according to industry experts GSMA, which estimated[2] that mobile money processed almost $6.1 billion in international remittances in Africa in 2020.

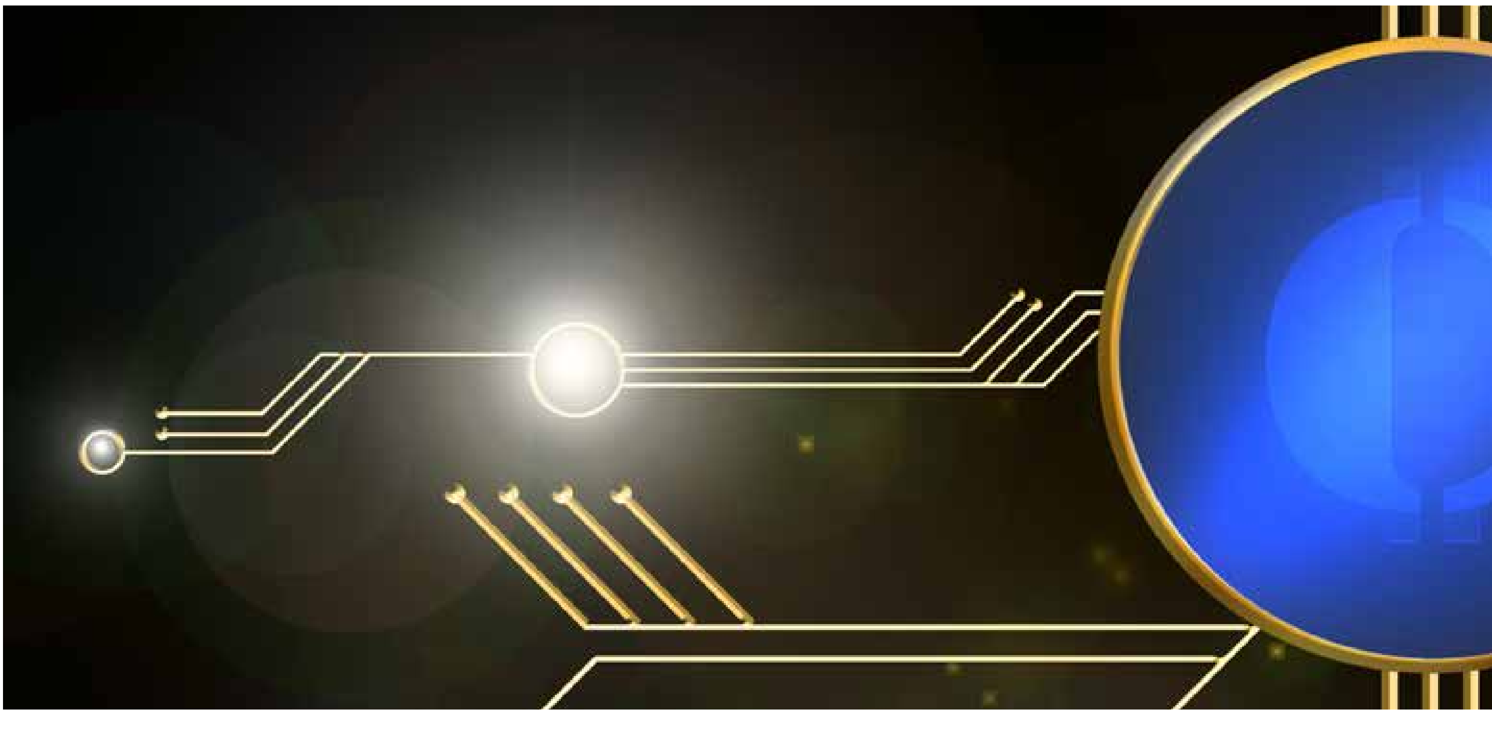
As well as expanding financial access to previously unbanked communities and fostering inclusive economic growth, the sector is also creating employment opportunities.

For example, Safaricom's M-Pesa[3] was introduced in Kenya in 2007 as a digital system to settle payments, but has since expanded to neighbouring countries and rapidly evolved to include other services. This includes facilitating savings and helping users to build a credit history and access loans.

Elsewhere, other sophisticated platforms are springing up, including Kuda[4], a Nigerian mobile finance platform, which last year[5] raised $10 million in a seed round.

Digital assets

The region is a well-known key hub[6] for fintech innovations and these are radically transforming the delivery of financial services. Now, key markets in Africa are making major inroads in embracing digital assets, which, as defined by the Financial Action Task Force (FATF), are *"a digital representation of value that can be digitally traded or transferred and can be used for payment or investment purposes."*



Appetite for this technology is growing with a recent survey[7] by statistics firm Statista showing that in 2020 Nigeria was the leading country per capita for bitcoin and cryptocurrency adoption. According to their research nearly one in three survey respondents said they used or owned crypto assets last year.

The appeal of digital assets is obvious. They have all the advantages of regular assets but also benefit from being fully digital and hosted on blockchain or other distributed ledger technologies. These have the potential to facilitate trade both peer-to-peer but also across borders, quickly and securely without incurring high fees.

Although some digital assets like bitcoin are volatile, there are alternatives like asset-backed digital tokens or stable coin which are pegged to other currencies like the euro or the dollar and provide more stability. The demand and uptake of these innovative technologies has been high and in the absence of legacy systems, innovations, entrepreneurialism, and adoption of fintech has been high in the region.

Family offices

The rising wealth in Africa has also swelled the ranks of an increasingly affluent middle class as well as high net worth individuals, leading to the creation of a robust family office sector, where digital assets present an opportunity to transform business models.

Whether it is to consolidate wealth or diversify into a new asset class, digital assets present an attractive alternative to fiat currencies, offering lower transaction costs as well as more stability especially in regions vulnerable to economic shocks or sharp inflation.

Family offices can access this market through industry specialists who have the expertise and track record to

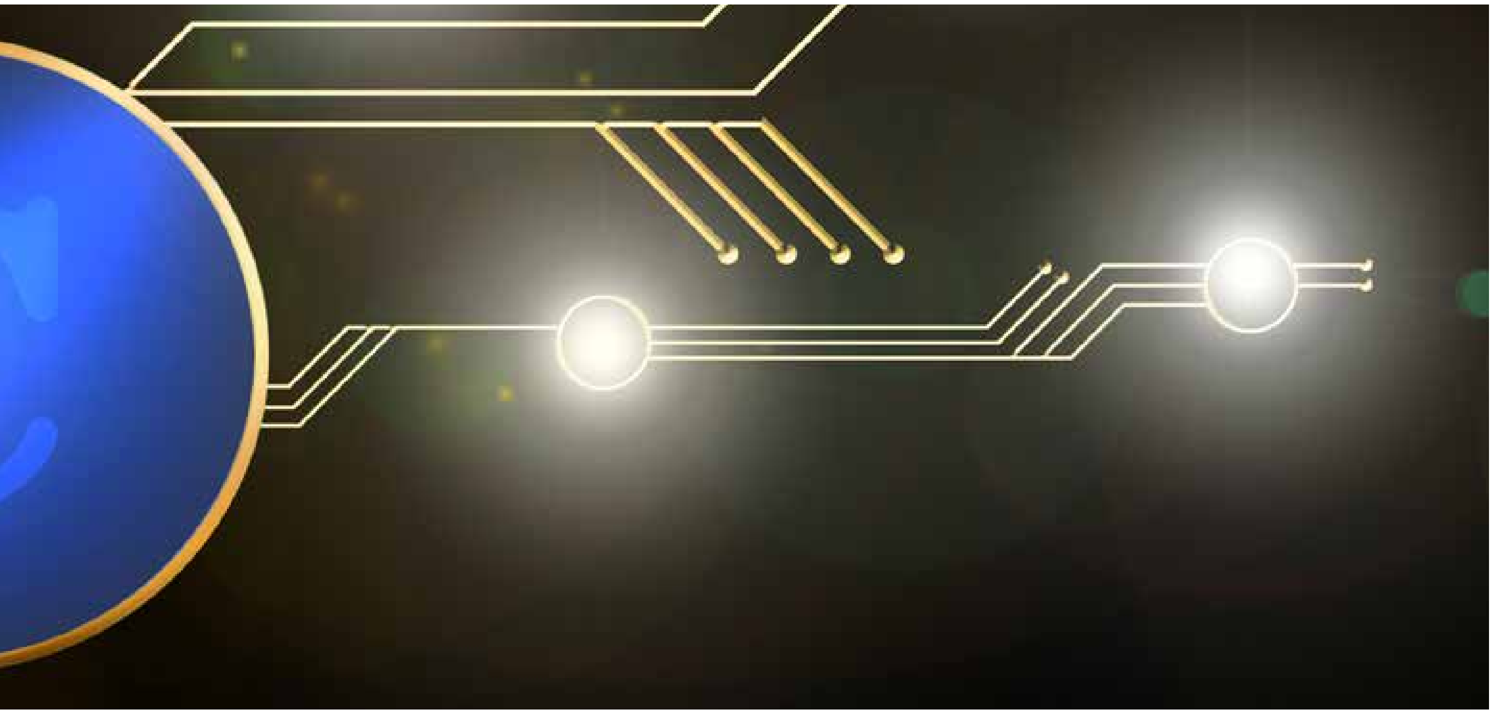
"In the coming years, the digital asset space will only mature, growing in sophistication, backed by secure technological hardware and integrating with mainstream financial institutions"

mitigate risk. International financial centres, like the BVI, have emerged as leaders in this space, with a network of specialists, robust digital capabilities and bespoke corporate vehicles well-suited for crypto assets.

For example, as well as a number of digital asset exchanges, the BVI's anti-money laundering rules have been amended and now permit digital ID verification and the receipt of electronic copies of documents, so businesses are able to use a blockchain provider to double check identities. Furthermore, the BVI, along with other key financial centres, is a jurisdiction of choice for Initial Coin Offerings globally.

Aside from this, the BVI's status as a stable jurisdiction with progressive corporate laws provide important advantages. Factors such expert professional services, robust common law, arbitration and – perhaps crucially – compliance with international law enforcement authorities makes it an ideal destination for family offices.

Structuring investment vehicles in established jurisdictions like the BVI provides stability as well as economic incentives. This was recently highlighted in a report by the Overseas Development Institute (ODI), on international financial centres and development finance, which looked at the valuable role



IFCs play in development finance and found that offshore centres like the BVI are excellent conduits for foreign direct investment into emerging markets.

The road ahead

As widely noted, fintech regulation has not always followed the same pace of rapid change and evolution as digital assets. This has led to legitimate concerns that customers may be exposed to risk or that crypto assets are especially vulnerable to money laundering and financial crime.

After all, a system with total anonymity and lack of regulation are not exactly ideal combinations. For some this is understandably a barrier for mainstream adoption. The Central Bank of Nigeria's (CNB) recent decision to close all accounts with cryptocurrency links is one such example.

Given that the country has the biggest digital currency market in Africa with millions of people who rely on it, the CNB's decision illustrates just how urgent it is to develop robust regulations and create a system that is financially competitive while providing consumer protection and satisfying law enforcement.

In the coming years, the digital asset space will only mature, growing in sophistication, backed by secure technological hardware and integrating with mainstream financial institutions.

In order to capitalise on this and fully benefit from the opportunities it presents, it is essential that key stakeholders from across the board collaborate to help set international standards.

In the BVI, we are taking a prudent approach focused on upskilling and building deep expertise in the area and working closely with our private sector to assess new technologies for benefits and the right way to regulate them. ■

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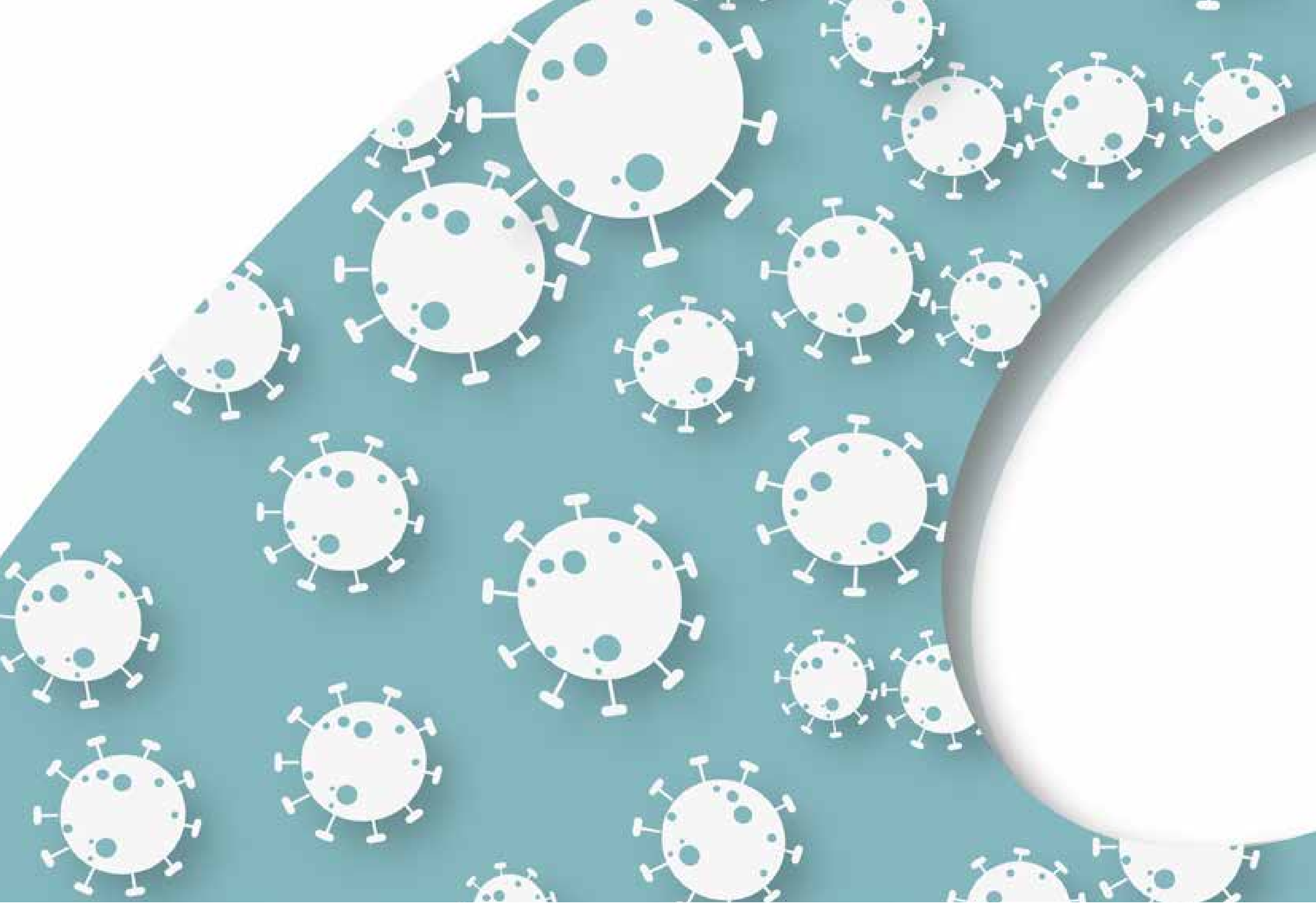


Bracing for the second wave

Cyril Prinsloo is a Senior Researcher at the South African Institute of International Affairs (SAIIA) and Yulea Roopai is a KAS Scholar at SAIIA

The synchronised, sudden stop in the global economy, together with radically reduced income sources fundamental to African countries (remittances, tourism, transport, trade and natural resources, among others), have had a severe negative impact on Africa.

Existing economic challenges will be further compounded by a predicted 'second wave' of negative economic impacts resulting from the coronavirus pandemic. But African governments, along with major global bodies, can play a decisive role through targeted policy interventions towards a sustainable post-pandemic recovery.

The severity of the pandemic and its long-term effects will largely be shaped by a key factor in Africa's vulnerability – limited fiscal space. It is estimated that Africa could lose up to 20–30% of its fiscal revenue[1], which could result in an inability to service debt or even trigger a default. In November 2020, Zambia was the first African country to default on its loans[2].

While wealthier economies have the luxury of historically low borrowing costs, most developing nations will find it extremely difficult and expensive to create the fiscal space necessary to fund health system expenditure, revenue losses and economic stimulus packages.

This fiscal shortcoming presents a difficult moral trade-off between lives, livelihoods and debt – something that most African states are grappling with as the virus continues to spread.

The second wave

Left with no other options, African governments will turn to international markets, which may increase countries' debt levels. A third of African countries are already, or are about to be, at high risk of being debt-distressed (>60% debt to GDP), owing to recent sharp increases in their debt levels (Figure 1). Debt should be used for productive investment.

However, given current circumstances, African countries need external sources of finance to support their weak healthcare systems and to prevent socioeconomic fallout.

Major global credit ratings agencies will have a decisive influence on COVID-19's impact on African countries. Many states have already witnessed their ratings being lowered and further downgrades could average declines of three investment grades for weaker economies and one investment grade for countries with strong fundamentals[3].

From a debt sustainability perspective, the downgrades are the result of an immediate economic contraction, the initial debt-to-GDP ratio, the accumulation of new debt (which widens current fiscal deficits) and the real interest repayment on debt.

If economies follow a V-shaped recovery path, the number of actual downgrades could be small. However, in the event of a protracted economic decline, more downgrades could still materialise[4].

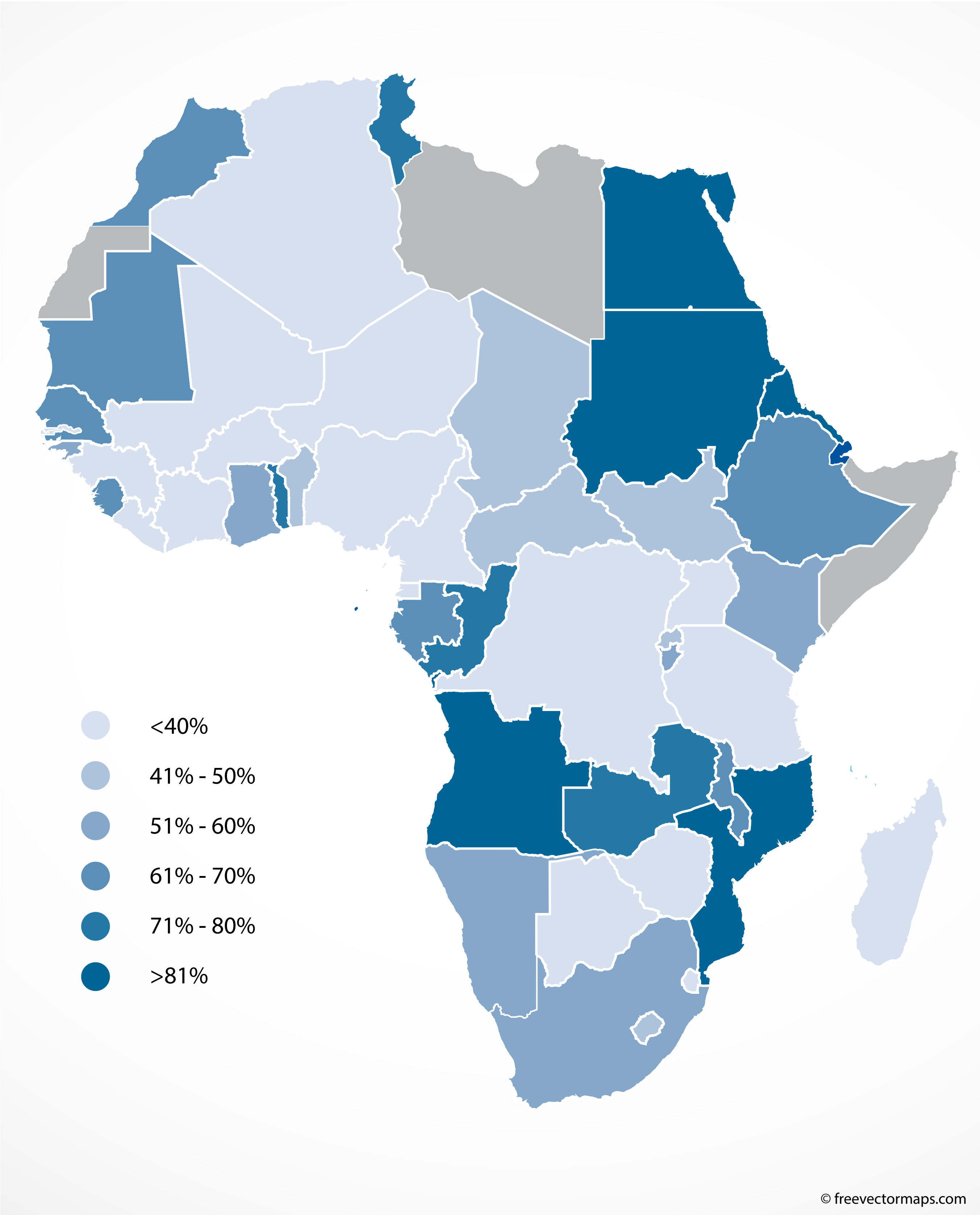
Since March 2020, COVID-19 has already triggered rating downgrades in seven of the 19 rated sub-Saharan African countries, including in some of Africa's biggest economies[5]. S&P and Moody's downgraded Ghana's economic outlook to negative, with the latter affirming the country's long-term local and foreign-currency issuer and foreign-currency senior unsecured bond ratings at B3. Ghana is vulnerable to shocks because of its high reliance on external financing, both in local and foreign currency, and very weak debt affordability.

Moody's and Fitch downgraded Angola to B- with a stable outlook, reflecting the impact of lower oil production and lower oil prices, together with a sharp depreciation of the Kwanza (which has increased debt levels and debt servicing costs, while reducing international reserves).

S&P revised Nigeria's outlook to negative, citing the size of the country's debt and falling reserves, among other factors. Fitch downgraded Nigeria's long-term foreign-currency issuer default rating (IDR) to B (with a negative outlook) and Zambia's IDR to CCC[6].

These downgrades are attributed to rising risks associated with COVID-19 and these governments' inability to find

Figure 1. General government gross debt (2018, % of GDP)



Source: IMF, 'World Economic Outlook database: October 2020', https://www.imf.org/en/Publications/WEO/weo-database/2020/October/download-entire-database, accessed 27 November 2020 funding to cushion their economies while continuing to service their current debts.

One avenue for recourse for African economies would be for credit ratings agencies to suspend their assessments for developing countries until global production and supply chains return to pre-COVID-19 levels.

Other global roleplayers, such as the UN's $2 billion fund to help the world's poorest countries fight the pandemic, or the G20's Debt Service Suspension Initiative will also aid African countries in bridging their current financing gap.

"African policymakers, together with key global financial actors and partners, are not without options to steer their economies towards a sustainable recovery"

Containing the impact – government policy options

African governments also have a decisive role to play in the post-pandemic recovery. The introduction of aggressive stimulus packages by advanced and emerging economies' central banks[7] - far exceeding conventional interest rate cuts - has resulted in synchronised actions that have helped generate the monetary space needed by developing economies. This increased space will enable them to use monetary policy instruments and macroprudential policy to respond to domestic cyclical conditions.

African central banks also have a vital role to play in managing the economic fallout from the pandemic. Central banks are the only institutions in developing countries that have balance sheets strong enough to prevent the collapse of the private sector, using monetised deficit-financed interventions. In instances where they are financed through standard government debt, interest rates would have to rise sharply[8].

Furthermore, in the interests of promoting financial stability, macroprudential authorities would do well to encourage banks to allow distressed borrowers to renegotiate their loan terms, while absorbing the costs of such restructuring by drawing on their capital buffers. Banks must continue to lend to illiquid but still-solvent small and medium enterprises.

In parallel, authorities should tightly monitor the banking sector's asset quality to determine the amount of fiscal support – for example, equity injections – that will be required should the effects of the downturn persist.

The COVID-19 pandemic has been a major economic disruptor across the globe and more so in African countries where it has exposed structural economic deficiencies. Yet, African policymakers, together with key global financial actors and partners, are not without options to steer their economies towards a sustainable recovery. ■

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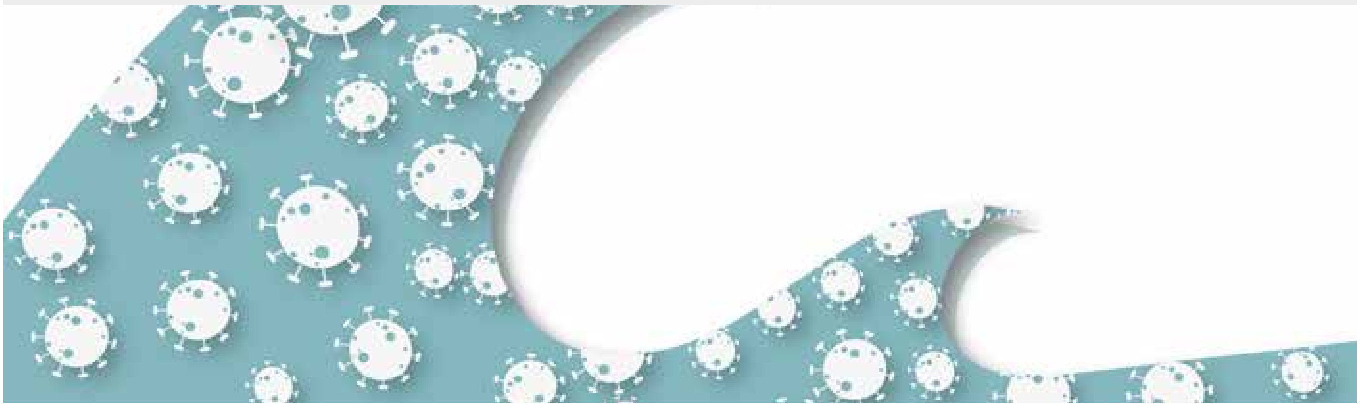
This article draws on a research brief undertaken as part of the COVID-19 Macroeconomic Policy Research in Africa (CoMPRA) project. See www.COMPRAfrica.org for related research.



Reinventing work

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Labour markets in Europe and around the globe face a triple transition triggered by three interlinked factors. First, labour markets will still need some time to recover from and adapt to the sudden and deep recession caused by the COVID-19 pandemic and the restrictive public health measures to contain the virus.

This has disrupted global value chains, put a halt on the structural increase in tourism and travel, and accelerated the move towards online-based services, particularly in retail, and remote work.

Second, the COVID-19 shock has accelerated the ongoing digital change in many areas. One of the most obvious applications is digital technology that facilitates personal interaction and service delivery during the pandemic.

But the general shift away from routine work that tends to be increasingly automatable to non-routine work that is creative, analytical, interactive or manual, will continue to shape the face of human labour ever more in the future.

Jobs which combine tasks that can only be done by humans will constitute a growing share of employment in the labour market of the future.

Given continuous progress in automation technology or so-called artificial intelligence, the frontier where human labour can be substituted by machines will move. This will continue to affect the way we work in the years to come.

Third, the post-COVID labour market will also be characterised by a move away from carbon-heavy production and business models in industry and services as we face the challenge of climate change.

Taken together, these three main factors will reshuffle employment fundamentally. For example, in terms of economic sectors, the most likely medium-term scenario would imply a further decline of local retail, a fundamental change in the automotive sector, including suppliers, but also in the wider energy and mobility sectors, business and air travel, as well as conferencing.

While high-skilled workers and professionals will generally tend to be less at risk, automation and artificial intelligence will also threaten some white-collar jobs. Many clerical workers, and even jobs at higher educational levels, will be forced to adapt to the new environment.

In some sectors a full recovery from the pandemic back to the 'old normal' cannot be taken for granted. A return to pre-crisis employment structures may not even be desirable in sectors that are, under current conditions, carbon-intensive and not environmentally sustainable.

Furthermore, there is the existence of highly vulnerable and precarious types of work and calls for efforts to make workers less exploitable and less dependent on such jobs by enabling transition to better jobs.

Where the disruptive effect of the pandemic has been very strong, however, governments have tried to stabilise as many jobs as possible using subsidised short-time work or job retention subsidies. Yet, a marginal adjustment will not be sufficient as some firms will only survive if they reinvent their business and employment models.

In some sectors, recovery will only mean that employment will somewhat stabilise again, but not return to pre-crisis levels.

On the other hand, transitions and crises are also characterised by the emergence of new jobs and accelerated growth in some sectors such as health and care, renewable energy production and equipment, online retail and delivery, digital collaboration, and the like.

In fact, governmental recovery programs also tend to accelerate the green transition which has already begun. This is a critical departure from supporting traditional industries such as conventional car making.

We will likely see a deeper structural change in employment, exacerbated by the effects of the pandemic, which will put existing firms, jobs and employment models under pressure. This was shown in a recent study by the McKinsey Global Institute (2021).

It will therefore become increasingly important to help workers make successful transitions, either within firms – as firms reorient and reorganise their business – or by changing their employer, sector or occupation if their existing job does not survive.

Facilitating the emergence of future-proof jobs becomes a main societal and economic priority. Supporting workers to get access to such jobs and fully reap the benefits of new employment opportunities is essential for individual wellbeing, economic productivity and the sustainability of public finances. Yet, the reality of skill formation in adult life is not up to this challenge.

First, we have to acknowledge that short-time work is hardly connected to job search and reskilling. This has not been the case in the past, and despite some attempts to create incentives to provide training during phases with reduced working hours, training of short-time workers remains very limited even in the current crisis.

Further, maintaining the existing employment relationship during short-time work limits investment in training that would facilitate a transition to a new job.

Second, training funded and initiated by employers tends to be driven by current and expected skill demand identified by the firms. In many cases, this is effective in maintaining a productive and competitive workforce that adapts to changing work and production models within a firm.

However, if a firm or an established sector is affected by a massive decline or restructuring, this type of training may not be sufficient to develop individuals' broader employability that allows for mobility on the labour market when moves to new employers or to a different occupation are inevitable.

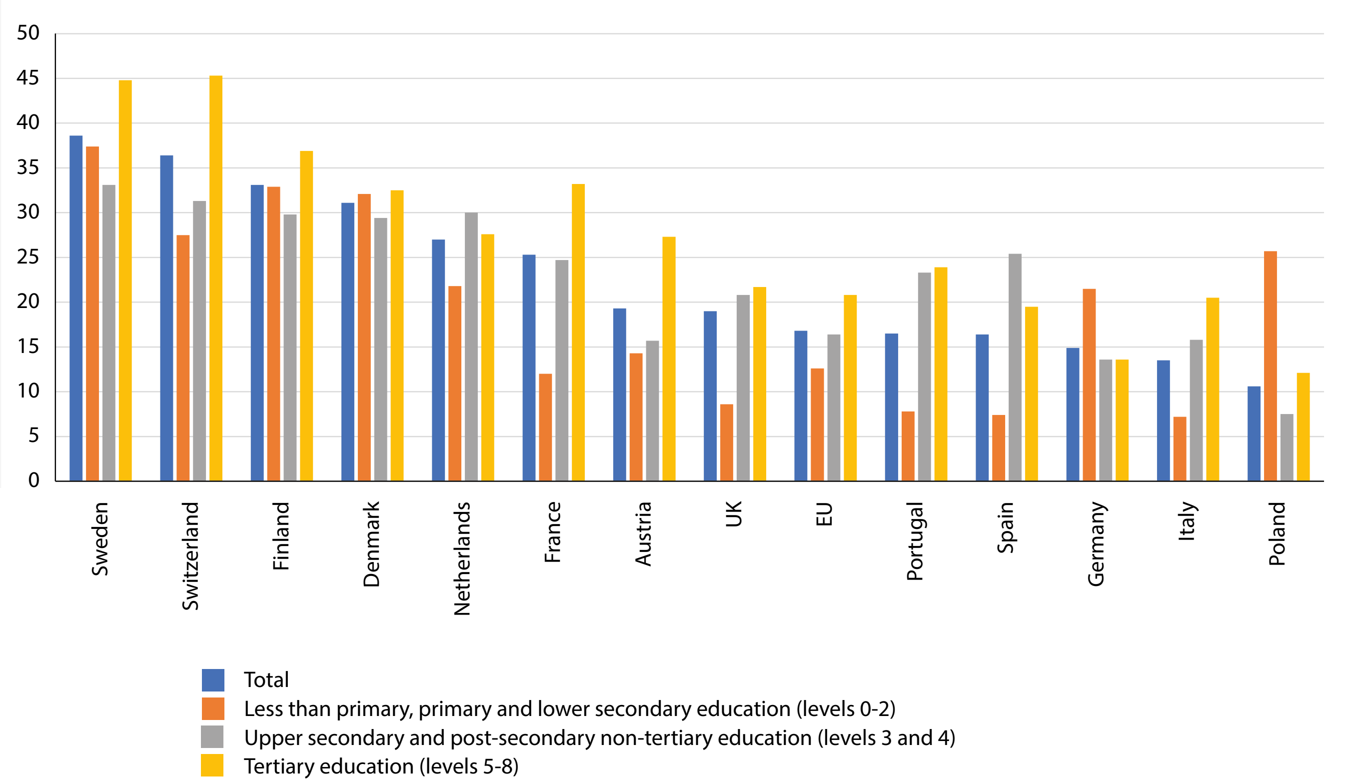
"Jobs which combine tasks that can only be done by humans will constitute a growing share of employment in the labour market of the future"

In other words, firm-based training tends to be too narrow and short-term oriented if firms do not or cannot make a transition. Firm-initiated training also tends to neglect those workers that are not key staff as seen from the employer's perspective.

Third, traditional training provided in the framework of active labour market policies tends to come too late, when individuals are already at risk of unemployment or have become unemployed. In this context, many training measures target a quick reintegration into employment that is readily available rather than invest in more long-term reskilling that would facilitate access to stable and better paid jobs.

Fourth, collective bargaining is more or less restricted to some firms and aligned with sectoral boundaries. Training organised along the lines set in collective agreements can make training less selective and more forward-looking relative to purely employer-initiated training.

Figure 1. Participation rate in education and training (last 4 weeks), 2019



Source: EUROSTAT, Participation rate in education and training (last 4 weeks) by sex, age and educational attainment level [TRNG_LFS_02].

However, examples show shortcomings with respect to the practical take-up of training organised through collective arrangements.

Adult learning has been a recurrent topic, which as a general principle receives a lot of support. But the reality is still patchier and does not seem to rise up to the requirements of today's labour market and business dynamics.

This calls for a more systematic, integrated strategy to update the way skill formation is organised and delivered for workers at different stages of their working life.

And yet, not all changes are fundamental and disruptive. Jobs do not just disappear overnight. So there is some time to develop more effective skill formation systems. The ultimate task these systems must be able to complete is to identify pathways for individuals to move and be mobile within the labour market.

These pathways should neither be too narrow and constraining, nor too wide and general. But how to select viable pathways for individual skill adjustment or development – and how to tailor them to individuals? This requires a broad initiative of monitoring the supply and demand of skills, and policies to bridge gaps in order to facilitate transitions (cf. WEF 2020).

First, regarding the supply side, we need to get a better grasp of the skills profiles of workers in terms of what they do and can do. A regular monitoring of acquired skills, based on formal and informal learning, certified and non-certified training and day-to day practices and experiences is important for a reliable and complete assessment of skills.

Of course, many firms do this on a regular basis as it is in their own interest, but skill assessment is not only needed from a firm perspective or in line with collective agreements, but most broadly for all. In terms of skills, this should also include knowledge and experiences from outside the current job, once learned formally, but not used currently, or from private interests and capabilities that could help develop professional alternatives.

As for the demand side, we need an equally reliable overview of skills that are currently in demand and expected to be crucial in the near future. More and better tools are being developed to achieve this, using different data sources such as occupational statistics, employer surveys, forecasting, online job postings or expert assessments, or combinations of the above to cross-check and validate the findings.

Typically, skill demand will be characterised by a combination of overarching, transferable skills and occupation-specific

knowledge. Here, it is important to follow ongoing changes in the structure of skill demand closely and understand, to the best extent possible, the most likely scenarios for the short- and medium-term future in terms of occupational profiles that grow, emerge or change.

But despite all efforts, a full and detailed forecast will not be a realistic target as the situation changes dynamically and humans react to forecasts.

To match workers and jobs now and in the future, viable and desirable pathways need to be identified. This may be done using statistical models of closely related and rather similar job profiles regarding skills and tasks within broader clouds or families of occupations, and by way of an empirical analysis of 'successful' transitions made by workers in the (recent) past.

Here, viable and desirable transitions based on the combination of existing and new skills should lead to stable and decently paid jobs in a growing segment of the labour market, not just to any job that is easily available now.

However, the more rapid or disruptive sectoral and occupational change becomes, the fewer moves within a cluster of adjacent and rather similar jobs will be sufficient, and longer transitional pathways may be needed.

Of course, pathways should not be too rigid but allow for deviations and detours later on, strengthening the capacity of individuals to seize opportunities and choose between different options as they arise.

Ideally, pathways should also open up a general potential for long-term development as we cannot know exactly what the labour market will look like in ten years from now.

Finally, appropriate learning modules will be needed to bridge skill gaps and enable transitions to more sustainable jobs in the nearer and more distant future. We need training that works in practice and is accessible to all, using different methods, in-person classes, practical applications, and online courses.

Of course, the more existing jobs are at risk and the less current skills match the profiles of potential future jobs, the longer and more cumbersome the individual pathways get, requiring a more intense and comprehensive reskilling.

Regarding governance, a reasonable skill development approach can only work if it is seen as a shared, joint responsibility borne by all, governments, unemployment insurance funds, employers and their associations, workers and unions, to varying degrees. This also implies a sharing of costs that mirrors the benefits of training.

In particular, there is a prominent role of public policies and framework conditions in enabling access to training for those at risk of unemployment and de facto excluded from firm-based or own-initiative training.

A crucial factor is to reach all members of the labour force, not just certain categories of workers that are already in a privileged position and would be even more advantaged by training. Just like with the distribution of a scarce vaccine, those most at risk deserve preferential treatment and quick intervention, ie. efforts should concentrate on people in jobs that are most at risk of extinction.

This requires a provision of appropriate paid training leave schemes and coverage of training costs. Despite all efforts to systematize and mobilize skill adjustment, the whole setup will only work if it is not designed as a technocratic superstructure, but as a flexible and accessible system that is accepted by individuals and employers.

This also means that skill assessment, pathways and training delivery require a meaningful dialogue with the individuals and sufficient leeway in terms of choice and openness. After all, it is about developing individual capabilities that go beyond narrowly defined skill sets. ■

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What the British government needs to do to get Brexit done post-COVID

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The chorus of ex-Remainers who dominate the UK civil service and its outriders like the Office of Budget Responsibility (OBR) has begun its ululations over the need for the upcoming Budget to 'pay off the COVID debt'; and in so doing, abort the recovery process. Their damaging advice must be resisted.

Of course it is true that the COVID debt is immense. In 2020 government spending related to the coronavirus crisis rose by a mouth-watering £280 billion, 17% of GDP, pushing the ratio of spending (excluding debt interest) to a falling GDP up to 56% from the normal 38% that had prevailed in 2019.

Government receipts were also badly hit, falling to 37% of GDP again from a normal 38% in 2019; with GDP itself falling 11% in 2020, this meant that receipts fell by about 14%, or about £106 billion. The PSBR consequently soared from £43 billion in 2019-20 to a probable £400 billion approximately in 2020-21- a huge, unprecedented number.

But of course it was an unprecedented shock and we should not be marched into ill-judged policy reactions; the UK's situation is not unlike that of the US and other developed economies, and so it is of some general interest to look at the UK's figures close up.

The starting point for analysing future public budgets must be a judgement on how spending and taxes will behave as the effects of the virus and the associated temporary measures fall away.

There is still uncertainty about the speed with which this will happen; the most recent report from the Bank of England forecasts that the economy will be back to pre-pandemic levels by the end of 2021, given the rapid rollout of the vaccine. This seems to be a reasonable current assessment.

Then we can expect catching-up with two years lost normal growth of (jobs and) GDP of say 5% over the course of 2022 and 2023, on top of what would have occurred anyway.

These developments should mean that by financial year 2022/23 the economy should have returned to normal spending and receipts relative to GDP. Excluding debt interest that would mean spending of 38% of GDP; and a very similar revenue/GDP ratio. This situation of 'primary balance' in net spending ('primary' meaning 'with the exclusion of debt interest) was what prevailed before the COVID crisis in 2019.

This seems to be a reasonable 'normal base case' assumption, bearing in mind that the COVID recession drove not only GDP but also the spending and tax reaction to it. Withdraw that recession created by the disease and especially the lockdown reaction to it, and the best estimate of the restored situation is the previous one.

However, the OBR projects future spending (excluding debt interest) by 2022 at 41% of GDP. It is hard to see where this comes from. It appears to have simply pushed up its estimates of departmental spending. In fact it says (para 372, November Report) that spending plans have been lowered but as a % of GDP have gone up as GDP has fallen:

> *"From 2022–23 to 2025–25, TME [total spending] is materially lower than we forecast in March — by £18 billion a year on average — a difference that is more than explained by departmental spending being cut relative to March totals and by much lower debt interest spending. But thanks to the weaker outlook for nominal GDP, despite lower cash spending, the ratio of TME to GDP is actually higher than we forecast in March, settling at around 42%."*

However, this logic really implies that as GDP picks up rapidly, as now looks likely, the ratio of spending to GDP will fall back. So it is that, in the absence of government commitments at this point to such a high spending ratio to GDP, we assume a return to normality. From that we can judge the scope for higher spending growth or tax cuts.

So just as the fall in GDP produced the huge rise in spending and fall in tax, so its reversal should reverse those two variables as well. In my Liverpool Group's forecast we follow the Bank in its latest much stronger recovery projection, and on spending we project a return to the normal spending ratio.

Our projections of the PSBR on this basis give us £18 billion in 2023/4, 0.7% of GDP. The debt ratio by 2024/5 would be about 90% of GDP, down from around 100% today; debt before the crisis was £1.7 trillion, and the extra debt by then would be another £0.7 trillion, making £2.4 trillion in all, or against GDP by then of £2.7 trillion, 88% of GDP. With nominal GDP growth of 5% pa, and the PSBR running below 1% of GDP, the debt to GDP ratio would reach 60% in a decade from then. But the important point is that the UK is in a totally solvent situation.

Long-term solvency is consistent with a bold fiscal policy pursuing supply-side reform while supporting demand

The key issue is that of long-term solvency; solvency is or should be the objective of any fiscal rules the UK's HM Treasury should pursue after such a major shock as COVID, which has forced a massive fiscal response.

Facile talk of short run rules of thumb such as balancing the current account or only financing investment spending by borrowing, do not face up to the long-term issue of how best to deal with the large COVID-created debt without wrecking the economy. Let us spell out how this arithmetic works.

Solvency implies that the Treasury will always be able to obtain sufficient tax revenues to pay for its spending plans and also pay the promised interest on its debt. This is equivalent to saying that the market value of the debt is equal to the present discounted value of future taxes minus that of future spending excluding debt interest; in other words the present value of future primary surpluses is 'backing the debt' in much the same way that the market value of a company's equity is backed by and equal to the present value of its future profits.

A rough and ready way of checking this is to project the finances forwards, as we have done in Table 1, and check that in the long term there are primary surpluses, as indeed is implied by our projections for the PSBR from 2024, which is by then below debt interest payments.

As long as there are continuing surpluses indefinitely in excess of interest payments, it is implied that future taxes will pay for both spending and debt interest and then also pay off debt steadily, so ensuring that the Treasury could if it wished pay off all its debts in the long run.

"... the government has considerable fiscal flexibility owing to very low interest rates. It can without any threat to its solvency both cut tax rates and raise spending to support growth, trade opening and deregulation post-Brexit/COVID"

However, of course this very fact also that it does not need to, and can simply roll it over in the market at going market prices based on its assumed solvency.

In considering solvency it is necessary to ask how tax and spending respond to prices and output, or nominal GDP. On the one hand spending is negotiated by the Treasury with departments in nominal terms, so that rising GDP should have little effect on them; their present value is this nominal commitment discounted by the interest rate.

On the other hand, tax revenues respond more than proportionally to nominal GDP because they are progressive. In principle the tax bands are indexed to prices, but this can be and often is in practice overridden or delayed so that this reaction then applies to prices as well as real GDP.

This implies that when the long run interest rate is low as now (it is around 1% pa) and nominal GDP growth is resurgent as now, the projected growth in revenues is bigger than the discount factor, implying that the present value of revenues becomes infinite.

This situation is one where 'the solvency constraint does not bind', in the sense that there is a projected (indefinite) excess of future taxes to pay for interest and spending.

Table 1. Summary of Forecast by Liverpool Macro Research

	2018	2019	2020	2021	2022	2023	2024
GDP Growth[1]	1.3	1.4	-11.2	5.2	11.0	5.1	4.0
Inflation CPI	2.4	1.8	0.9	1.6	2.1	2.0	2.0
Wage growth	3.0	3.5	1.0	2.6	2.7	3.3	3.2
Survey unemployment	4.1	3.8	4.6	6.8	5.8	3.9	2.8
Exchange rate[2]	78.6	78.3	78.0	78.3	78.4	78.5	78.6
3 month interest rate	0.4	0.8	0.2	0.1	1.5	4.5	5.0
5 year interest rate	1.0	0.6	0.2	0.4	1.7	4.7	5.0
Current balance (£ billion)	-82.9	89.1	-42.6	-48.4	-42.3	-37.6	-14.4
PSBR (£ billion)	39.3	49.1	351.8	177.3	84.8	57.6	17.5

1. Expenditure estimate at factor cost
2. Sterling effective exchange rate, Bank of England Index (2005 = 100)

This is the situation HM Treasury finds itself in today; and this explains why it has great freedom of action in dealing with the economy's critical re-entry into the post- COVID and post-Brexit world. It is vital that every means is used to support the economy both on the demand and supply side to ensure solid growth continuing and strengthening beyond the immediate recovery period.

Enormous policy opportunities are opened up by Brexit, as reviewed below; and it is vital that they are not neglected owing to irrational short run penny-pinching accountancy.

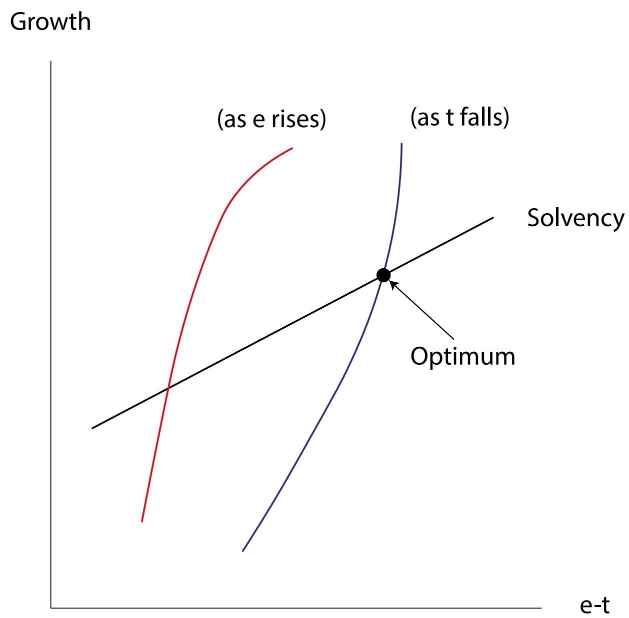
It is not simply that taxes can be cut and spending raised without endangering solvency, given the outlook for recovering GDP. Given the long lists of spending needs and the dangers to business confidence from tax threats, the government will need to spend more, and lower key tax rates that damage business incentives, as a minimum response to the situation.

It can afford to do so anyway. But the further key strategic point is that policies that boost growth further loosen the solvency condition. The solvency constraint depends on growth. 1% pa higher growth implies that consistent with today's debt the tax rate (t) can fall by 10% of GDP with the same spending rate (e), or spending rise by 14% of GDP with the same tax rate.

This effect becomes bigger with yet more growth; thus 2% more growth pa produces a further potential fall in taxes of 20% of GDP, with spending constant at today's level.

What this means is that if tax cuts or spending increases can raise growth, they are consistent with solvency. While they are financed they create more debt but this is offset by the higher net revenues created.

Figure 1. Illustration of growth possibilities



The situation is illustrated in Figure 1. It shows in the 'Solvency' line that as growth rises e-t (net primary spending/GDP) can rise consistently with long run solvency because growth raises net revenues; then both rising e and falling t cause growth to rise, as shown in their two lines, with tax cuts having the bigger impact as they rise, compared with spending whose beneficial effects face diminishing returns. Fiscal policy needs to move to the optimum where tax cuts are generating maximum growth.

What this means is that bold reform policies that cost money in the short run and raise growth in the long run are eminently affordable.

This applies to tax reforms aiming to reduce marginal tax rates to boost incentives for entrepreneurs, to collaborative government spending aimed at innovation such as the COVID-vaccine government-pharma collaboration, and generally across spending or tax changes that raise growth but cost short run money.

These can be financed by borrowing with no threat to solvency. What we find from our research on growth is that both national and northern growth are boosted by tax cuts through their effects on incentives and competitiveness, while the effect of extra spending on eg. infrastructure is limited by the size of the (eg. Northern) economy.

Hence once spending reaches a certain level its effectiveness on growth declines compared with extra tax cuts. So while growth permits rising net spending consistently with solvency, it is most beneficial to cut taxes after initially higher spending, as illustrated in Figure 1. In what follows we look at key areas where action is needed.

Key supply-side policy changes in the new era and their fiscal implications[1] - trade, regulation and tax reform

Fiscal policy is bound up with all aspects of supply-side policy, for a very simple reason: in order to gain consent to policies that free up markets and put pressures on vested interests, the government often must grease the process with transitional help to those interested parties: that comes at fiscal cost.

We live in a democracy where veto power is widespread; to overcome it people and firms often need help to make the transitions required. Indeed, many of the economic distortions in the EU come from it having no fiscal power to raise taxes and spend money at will in this way.

Instead, the course of least resistance to vested interest demands is to award protection, either through trade barriers or through regulation. The EU environment is heavily encrusted with such distortions as a result.

Trade after Brexit

At the heart of the powers the EU wielded over the UK as a member was the control of commercial policy, that is tariffs and non-tariff barriers, including standards set so as to exclude supplies from certain other countries, notably the US, also anti-dumping duties and quotas on supplies from particular countries.

EU commercial policy is designed to create large trade barriers against non-EU competitors, both in agriculture and manufacturing. In services such as financial, which are not such important EU industries, EU commercial policy is fairly liberal, though national governments remain highly restrictive of foreign competition, including from the rest of the EU; it is only recently that the single EU market has been extended to some services, so restraining national protection against the rest of the EU.

UK service industries operate worldwide and so are little affected by this mainly national protectionism. UK service prices are therefore set by international competition at world prices; this has not changed now we have left the EU.

However, UK goods prices are still currently dominated by EU prices, which are higher than world prices by the percentage of trade barriers, which are estimated in our research and elsewhere at around 20% for both food and manufactures.

Now we have left the EU, we need to negotiate wide Free Trade Agreements (FTAs) with non-EU suppliers so that they gain free access to our markets. This will bring UK prices down 20% to world levels- equivalent in these effects to unilateral free trade.

According to the GTAP model from Purdue University, Indiana, now used by the Treasury for its calculations, this will bring gains of 4% of GDP, through better prices to consumers and competition-led rises in productivity by UK producers.

According to Cardiff research the gain would be double, while simply abolishing half the EU protection would bring in the same gain. Notice however, that any reduction of barriers will meet a hailstorm of business opposition, which largely accounts for the near-total opposition of UK business to Brexit.

The government will need to meet this hailstorm with offers of transitional help, smoothing the business path to higher productivity. A well-known example is electric cars, where the government has pledged support.

Regulation

Regulation is the second major area controlled by the EU, through its powers to regulate the Single Market. It exercises these powers according to a 'social market' philosophy. A nation state has the power to tax/subsidise, and it can use this power to redistribute income to the less well-off.

However, as already noted, the EU has no tax powers because national governments have been unwilling to pass them over to it, even partially. Therefore, to achieve social objectives of a redistributive nature the EU uses regulation; examples are labour market 'rights' which are essentially subsidies to workers paid for by implicit employment taxes on firms.

Then in order to compensate firms, it awards them protection either through trade barriers or favourable product regulation of standards- effectively creating non-tariff barriers against world producers who meet wider international standards.

Thus one finds that labour market regulation is a series of subsidies to workers and trade unions, paid for by firms. The effects on the economy can be assessed according to the labour tax equivalent, plus the direct implied transfer to worker-households.

It was largely to carry out this assessment that my research team built the 'Liverpool Model' of the UK economy; this was the first macro-model of the UK to have a full 'supply-side', designed to compute the effects of tax and regulation on the economy's potential output.

The EU's regulation extends beyond the labour market, to three main other areas. The first is general product market standard setting, which as we have seen is related to setting non-tariff trade barriers. The general aim of standards is to benefit the main producer industries of the EU.

Thus, these industry lobbies essentially have had the power to legislate what suited them. As Adam Smith noted centuries ago, such power in the hands of business is likely to be anti-competitive; one notices that the EU Competition Directorate takes its most stringent actions against foreign, often US, companies - such as Apple, Google and Facebook.

One can in principle assess this producer regulation as the equivalent of endowed monopoly power, like a consumer tax. In practice, estimates of this are hard to make, other than via the direct effect of the trade barrier; this barrier also puts an effective limit on the extent to which home industries can raise prices. So we have not estimated any additional effect of regulation as such via this route.

The second area beyond labour is finance, a service where the EU has shown a strong desire to control activity, though, or perhaps because the biggest EU finance industry has been in the UK. It has intervened with highly prescriptive regulations in this major UK industry, in a way extremely unpopular among its practitioners- supposedly to protect consumers.

These regulations have given rise to an army of 'compliance' executives; but while this has raised costs substantially, gains to consumers have been unclear; in other major markets, such as the US, similar interventionism has been avoided.

We can leave on one side here the new regulations on banks associated with the financial crisis, which relate to monetary policy and in the UK were mostly self-inflicted.

Finally, there is the rest of the economy; the environment and climate where the EU has regulated strongly to force the adoption of non-fossil-based energy; and the regulation of technology, especially in agriculture and pharmaceuticals, where the EU has given primacy to the precautionary principle, and held back technological innovation.

The main effect in the first has been to raise energy costs substantially, instead of primarily focusing on developing new technology, which would be most effective in the long term and least costly in the short term. In technology, EU regulation has held back innovation.

In all these areas we have proposed estimates of the cost to the UK economy. Overall, we suggest a cost of 6% of GDP, of which we suggest 2% can be rolled back now we have left. In a parallel piece of analysis of the Thatcher reform programme we find comparable gains, suggesting this order of magnitude is indeed feasible.

Bringing in this deregulative agenda will not be costless to the Treasury since the beneficiaries of regulation, including middle-class consumers, are vocal defenders of it. To help get agreement there may well need to be transitional subsidies.

Tax reform

The UK needs a tax system for the 21st century, that delivers large and stable revenues without penalising either savings or incentives for successful people. This can be done by rebasing the income tax system on consumption, and cutting marginal tax rates in the process.

Such a reform has been endlessly put off, because it requires a largescale legislative effort, and could also have involved difficulties of EU agreement through its invocation of state aid rules. Post-Brexit, and the need to improve UK competitiveness to maximise growth and recovery, there is a strong case for going ahead.

A good tax system is one that creates the minimum damage to everyone's incentives to work and save– the 'Ramsey Principle' – consistently with financing government spending and achieving the necessary income redistribution.

This is achieved by taxes that are 'flat' (ie. the same proportional rate) across people of all incomes (the popularly known 'flat tax'); that are flat across commodities of all sorts ('tax neutrality'); and that are flat across time. This last means that the tax rate is constant over present and future consumption; it implies both that tax should be levied on consumption and that the tax rate should be planned to be constant under forecast conditions ('tax smoothing').

Taxes can be cut without being balanced by simultaneous cuts in spending because extra work and less avoidance create an offsetting recovery in revenue (the Laffer effects); and because higher growth generates more future revenue, as we saw above. This is an important implication of tax smoothing.

A UK flat tax on consumption would bring the imputed rent on owner-occupied housing into the tax base and would allow the standard rate of income tax to be cut cautiously to a 15% flat tax rate on consumption, thereafter being cut further in stages as the growth effect rolled in.

Such tax reforms can be brought in with no losers, no cutback in public spending programmes and the key gains from higher growth. From a political economy viewpoint there is therefore a strong case for pressing ahead now, after many years of deferral.

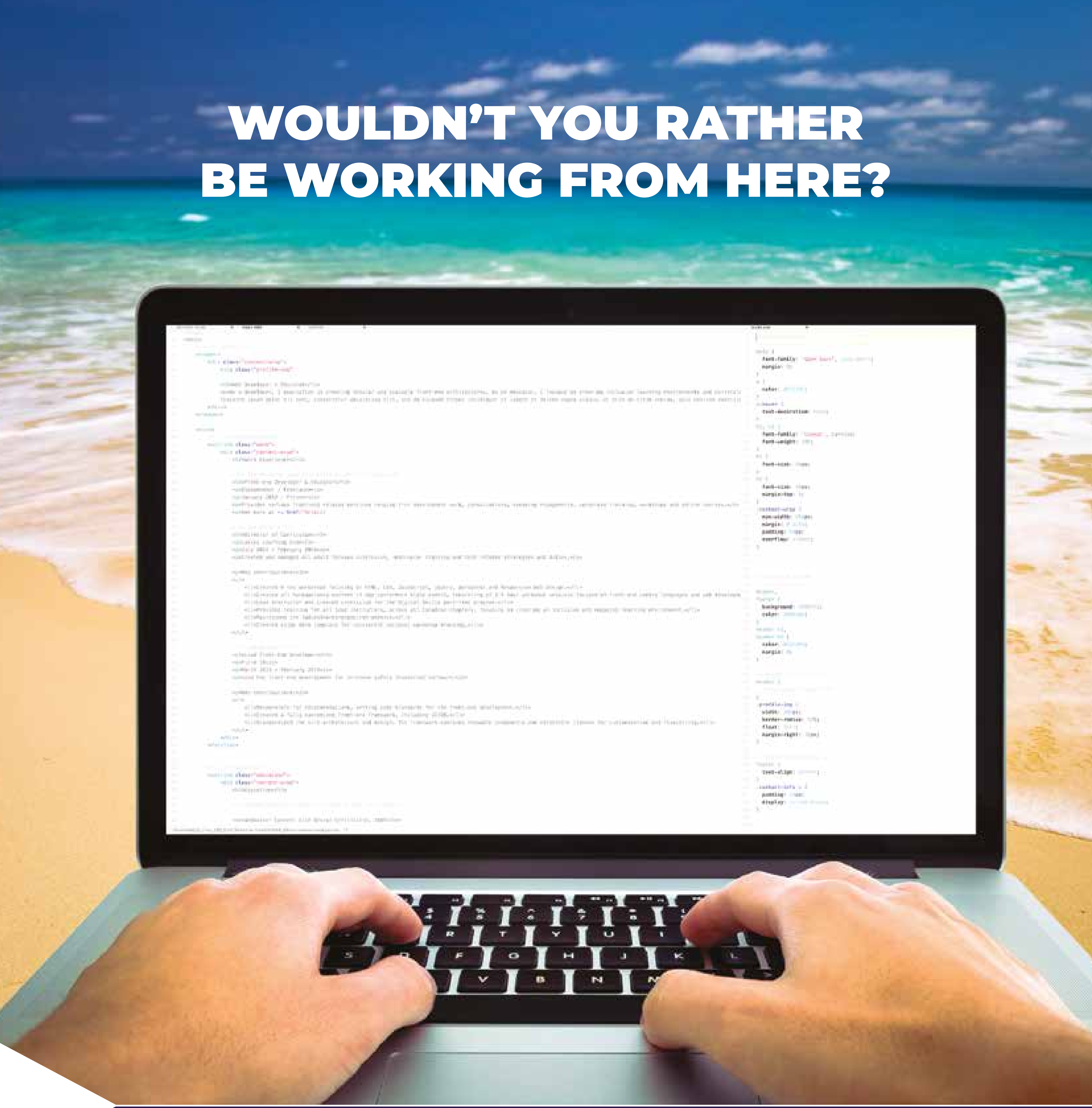
Conclusions: the way ahead for UK policy

Translating all this into practical politics, we can summarise the situation as one in which the government has considerable fiscal flexibility owing to very low interest rates. It can without any threat to its solvency both cut tax rates and raise spending to support growth, trade opening and deregulation post-Brexit/COVID.

The key priority is therefore to boost growth through effective supply-side policy. Fiscal policy should also support demand at the same time as this supply-side policy, both to keep the recovery going and to push interest rates up towards monetary normality. ■

Endnote

1. These issues are discussed at greater length in Patrick Minford (with David Meenagh)' After Brexit- what next? Trade Regulation, and economic growth'- Edward Elgar, December 2020


WOULDN'T YOU RATHER
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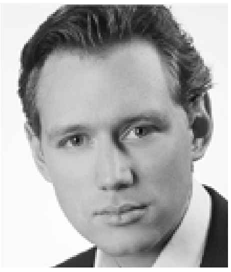

The end of the beginning

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1876

When Lady Liberty first arrived in New York City, the US Civil War had been over for a decade. She had crossed the Atlantic in a storm-battered and perilous journey, just like many hopeful Europeans had done before her, and would continue to do in the decades to come.

Many would spend a good deal of their crossing below deck, destitute and sickly in the disease-ridden bellies of giant steamers, until the ordeal finally came to an end with a view towards Ellis Island and the sight of the torch at the end of her outstretched arm.

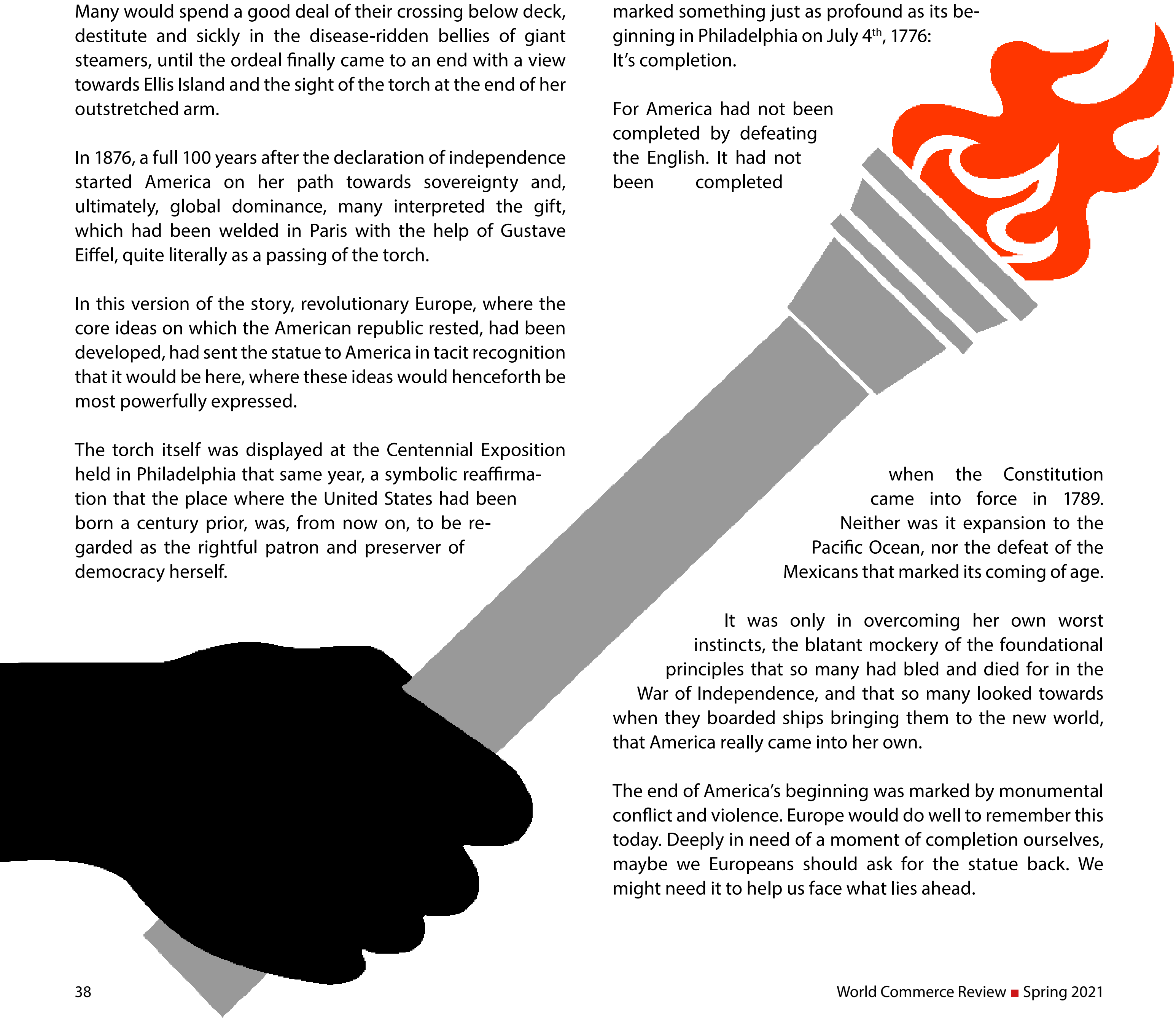
In 1876, a full 100 years after the declaration of independence started America on her path towards sovereignty and, ultimately, global dominance, many interpreted the gift, which had been welded in Paris with the help of Gustave Eiffel, quite literally as a passing of the torch.

In this version of the story, revolutionary Europe, where the core ideas on which the American republic rested, had been developed, had sent the statue to America in tacit recognition that it would be here, where these ideas would henceforth be most powerfully expressed.

The torch itself was displayed at the Centennial Exposition held in Philadelphia that same year, a symbolic reaffirmation that the place where the United States had been born a century prior, was, from now on, to be regarded as the rightful patron and preserver of democracy herself.

In retrospect, 1876 should not just be remembered as a mere centennial. The Statue of Liberty did not arrive at a moment that lends itself as a lens through which to look back at the days of the republic's inception. Rather coincidentally, the Statue of Liberty took its place within the public imagination and iconography of the United States at a time that marked something just as profound as its beginning in Philadelphia on July 4th, 1776: It's completion.

For America had not been completed by defeating the English. It had not been completed when the Constitution came into force in 1789. Neither was it expansion to the Pacific Ocean, nor the defeat of the Mexicans that marked its coming of age.



It was only in overcoming her own worst instincts, the blatant mockery of the foundational principles that so many had bled and died for in the War of Independence, and that so many looked towards when they boarded ships bringing them to the new world, that America really came into her own.

The end of America's beginning was marked by monumental conflict and violence. Europe would do well to remember this today. Deeply in need of a moment of completion ourselves, maybe we Europeans should ask for the statue back. We might need it to help us face what lies ahead.

America was forged in a war against herself

The America that the Statue of Liberty would go on to symbolize was forged in a war against herself. By 1876, the US Civil War had been won, the better angels of human nature had prevailed, the historic injustice of slavery had been abolished, and America graduated into something more substantive.

Setting the United States on a consistent, if uneven and painfully slow, trajectory towards ever greater social justice, had required a monumental struggle. It had pitted all that was noble about its founding idea against all that is petty and cruel and fearful and vain in the human character.

Not until the Second World War, Europe's own foundational struggle, would a more significant contest be fought and won by the forces of liberty, democracy, and justice.

The Reconstruction era quickly revealed that victory was not absolute. No victories ever are. But the new United States allowed for progress to make its slow way into the present and hopefully to continue beyond.

In 1876 this American progress, a key feature of its coming dominance, was to be seen everywhere. The World Fair was held in the US for the second time, Alexander Graham Bell patented the first telephone and Mark Twain published *Tom Sawyer* to ring in a new age of US literary relevance.

Similarly, many of America's present faults, were already present upon the nation's completion in 1876. Be it political corruption, which has been all but legalized in this, our second American gilded age, the stratification of wealth, adverse effects of industrialization and urbanization, or immigration as a political wedge issue.

By going through an experience of tremendous pain and trauma, by looking inside and taking the battle to all that was brewing there, by deciding to confront inequality and injustice head on, America had, for better and for worse, become recognizable to our modern eyes.

Where America has open wounds, we have broken bones

Europe has yet to face this confrontation. We may look upon America's internal division with contempt and shake our heads in righteous disbelief at every new manifestation of a political culture coming apart, and yet, the truth is that on this side of the Atlantic, we have not even approached a comparable state of completion.

Masked by national borders, language differences, and celebrations of diversity, our deep divisions remain hidden. Where America has open wounds, we have broken bones. We have only just begun to articulate our conflicting visions of future Europe's shape and direction of travel.

Decades after the war that ended up giving Europeans freedom, democracy, and a pathway towards justice, the internal struggle for the future of the continent is still yet to be decided. It will not go down without a fight.

"The end of our beginning will be marked by monumental conflict. May the union be won peacefully. May it be won"

Democratic Europe has come under pressure from external and internal adversaries that attempt to pry apart a structure that leaves ample weak points and obvious targets of attack. With neo-fascism on the rise, a future of liberty, democracy and justice is far from certain for future generations facing constant probing by a resurgent Russia, a tremendous systemic challenge from a rising and authoritarian China, and the continuing fallout of America's abdication as the guarantor of global order.

Conflict, completion, and reconstruction

Many of those who advocate for European sovereignty and power look to the American experience and see revolution, foundation, and constitution, when really the operative parallel is much less glamorous than that.

While Europe's way of arriving at its destination need not mirror the path of the United States, nor repeat the mistakes made along the way, we should be looking towards a different sequence of events that unfolded a good hundred years after the War of Independence: conflict, completion, and reconstruction.

When it comes to defining goals, there is no need to reinvent the wheel. We already have our torch. We already know what works. We already know justice. We already know the Europe we want. It is essentially made up of the four freedoms articulated by President Franklin Delano Roosevelt in 1942 at the very moment when America, in her completed form, served its most noble purpose by voluntarily returning to the very struggle that had once made her.

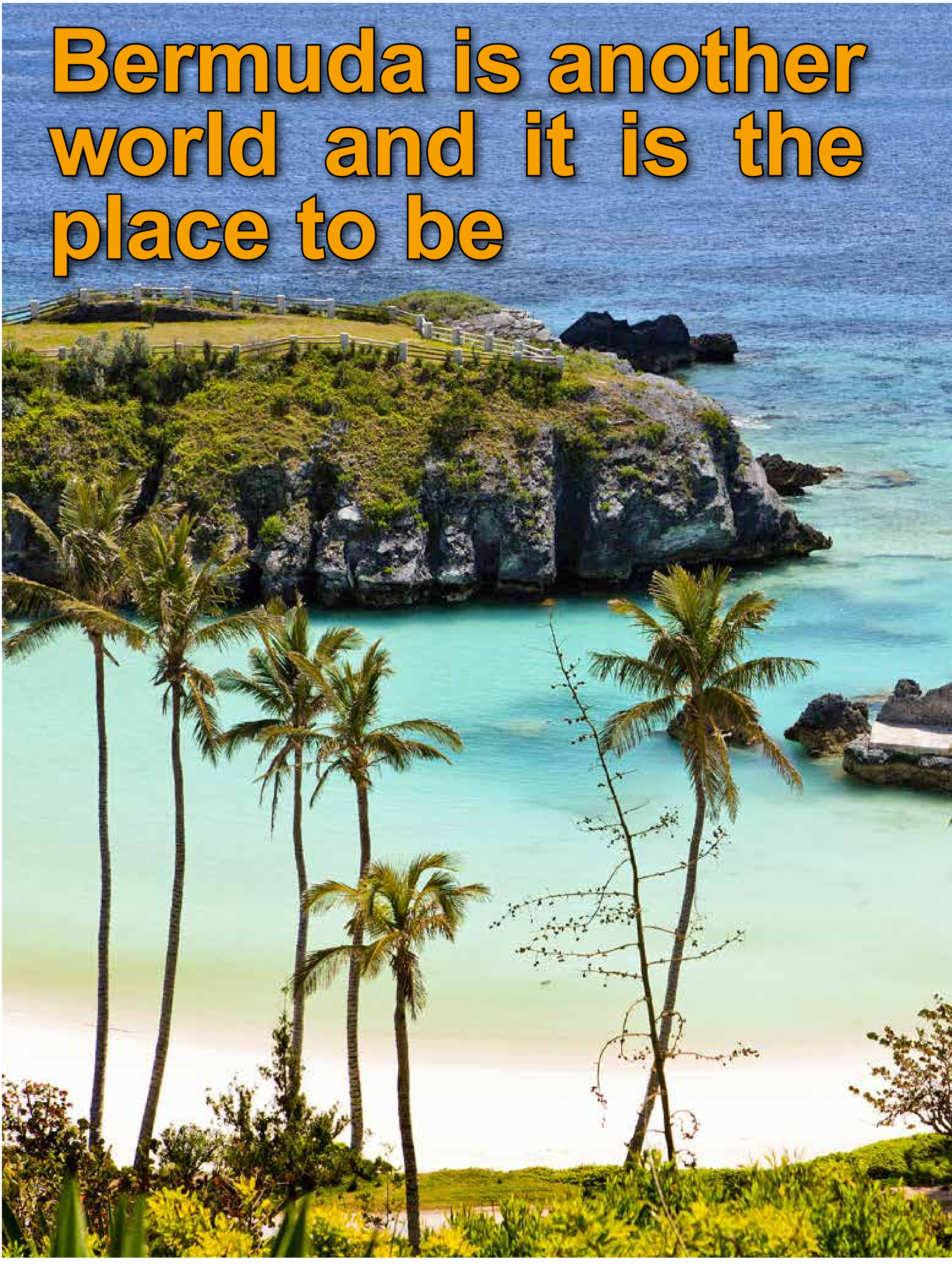
Freedom of speech, freedom of worship, freedom from want, and freedom from fear. It is upon us now to forge alliances to defend these four freedoms by transcending petty nationalism and enabling a new kind of cooperation for Europe that can safeguard the rights of all Europeans present and future.

For Europe was not completed by defeating the Nazis. It was not completed when the Lisbon Treaty came into force in 2009. Neither was it Eastern expansion, nor the introduction of the common currency which marked its coming of age.

It will only be in overcoming our own worst instincts, the most blatant mockery of the very foundational principles that so many have bled and died for in the Second World War, and that so many look towards when they board tiny ships bringing them to the a new world in a perilous journey, that Europe will really come into her own.

The end of our beginning will be marked by monumental conflict. May the union be won peacefully. May it be won. ■

Bermuda is another world and it is the place to be



"Bermuda is another world" is one of the Island's favourite folk songs. It speaks to the way of life and the history of the picturesque Atlantic island. It is also aptly describes how Bermuda has responded to the COVID-19 pandemic and used it to drive economic growth.

It is now common knowledge that COVID-19 has completely changed how we live, work and play. It has caused companies to rethink their business models and, often, to pivot. Due to nationwide restrictions and various quarantines, staff everywhere have taken to working remotely where possible.

Many have reordered their priorities, changed their goals, spent more time with their loved ones and looked at their habits and health with renewed focus. But the pandemic has not changed the need for countries to continue to function, generate revenue and provide services.

Bermuda has been a leader in the fight against COVID-19, providing an example to the world of what is possible when a government is proactive and strikes a balance between being firm and fair.

Bermuda implemented such a robust testing policy that it is now the sixth-most tested country on the planet[1]. As a result, it has maintained a low R rate[2] and controlled the spread of the virus.

Bermuda has therefore become an ideal place for digital nomads, many of whom have seized the opportunity to work from the near-idyllic location, moving to Bermuda in significant numbers.

Teamwork makes the dream work

As a leading offshore centre for insurance, reinsurance, corporate and financial services, Bermuda is a reputable, blue chip jurisdiction with a progressive regulatory framework that works with industry to stay ahead of the curve. Bermuda is a world leader in transparency standards and strives to be the centre of legitimate global commerce.

Building on the success of its forays into fintech, the Bermuda government has expanded its strategy, actively targeting economic development in various sectors.

In 2020, it created the Economic Development Department (EDD) and gave it the ambitious directive to lead the jurisdiction's post-pandemic economic recovery. The EDD has the mandate of growing the local economy, attracting more business to Bermuda, generating incremental revenue, boosting foreign direct investment, increasing the size of the workforce, creating jobs, and building an economy that would compel not just digital nomads of all nationalities, but also Bermudians living and working overseas, to come home.

In addition to its legislative and business development divisions, the EDD's concierge arm has enhanced the time-efficiency of government processes. As a result, services that are key to foreign investors - such as applications for work permits, company incorporations and tax accounts - are often expedited.

> If you're looking for an innovative, well-respected, transparent jurisdiction with a cooperative government and regulators who *"get it"* and can react quickly to your needs and to changes in the global landscape, Bermuda is the destination for you and your business

Bermuda has also adopted a team approach to marketing itself as a business and visitor-friendly jurisdiction. If you're looking for an innovative, well-respected, transparent jurisdiction with a cooperative government and regulators who *"get it"* and can react quickly to your needs and to changes in the global landscape, Bermuda is the destination for you and your business.

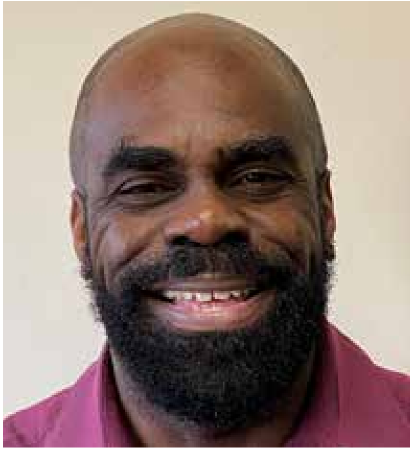
Several entities cooperate to attract companies and leisure travellers to the Island. In addition to the EDD, the Bermuda Tourism Authority (BTA), the Bermuda Business Development Agency (BDA), the Bermuda Monetary Authority (BMA) and the Bermuda Economic Development Corporation (BEDC) all play key roles in the effort.

The BTA promotes the country to the world while the BDA attracts businesses that are looking for a sophisticated, progressive, safe and well-regulated country in which to base their operations.

The BMA is one of the most highly regarded regulators in the world but also one of the most progressive, as it often meets with clients to provide feedback during the license application process.

The BEDC supports local entrepreneurs, teaching homegrown innovators how to successfully build and launch their businesses and creating conditions for them to be sustainable in the long run.

Recognising that small businesses, new businesses and entrepreneurs are significant job creators, the BEDC has the full support of the government in creating opportunities for them.



World Commerce Review interviews Ray Jones, Director of Bermuda's Department of Economic Development.

What are your top-most priorities as you take on the leadership of the Department of Economic Development?

The EDD's mission is simple: *"to advance the sustainable growth, development and diversification of Bermuda's economy."* My team and I are therefore ready to take on the challenge, keeping our eyes on the prize: the dual priority of job creation and revenue generation.

In more practical terms, the EDD is working on achieving the Island's economic development and diversification goals by prioritising the competitiveness of the Island globally and by ensuring its attractiveness internationally as the place to move to individually and organisationally.

In relation to the pandemic, as the world turns the proverbial corner, governments worldwide will be able to focus their attention to local and international post-COVID recovery. In Bermuda, we will do that by making sure the jurisdiction continues to build on its solid foundation with respect to innovation, the tech economy, and unrelenting support for small and medium-sized enterprises.

Economic diversification is a key element of economic development. How is Bermuda advancing in that area?

If anyone did not know this before, the pandemic has proven to all that a lack of economic diversification can fast cause heightened vulnerability to environmental shocks, which would jeopardise a jurisdiction's long-term economic growth and sustainability.

In Bermuda, we are building on a long history of innovation and adaptation to internal and external factors and taking a wider perspective when it comes to economic diversification. Not only is the EDD considering shifts towards more varied domestic production, we are also deliberately placing self-sufficiency and self-sustaining growth as the true north for our compass.

This is leading us to explore diversification in many forms: (1) encouraging the creation, development, trade, and export of new goods and services, (2) shifting/using existing goods and services to new markets, and (3) upgrading existing goods and services in innovative ways.

What is Bermuda's strategy in those areas?

Bermuda has been successful in defining its strengths and opportunities and appreciates, as economies worldwide have, that it must now, and incrementally, move away from merely making more of the same thing.

Rather, the Government is working with the private sector to identify niche areas where it can capitalise on previous successes as it builds new sectors. It is also working closely with foreign investors that recognise the Island's strong suits and wish to partner in order to develop them further.

What is drawing foreign investors to partner with Bermuda?

Bermuda is not just a beautiful Island. It also wants to be the home of innovation, the Silicon Valley of the Atlantic Ocean, the Davos of the deep blue sea.

As of 2020, digital nomads are taking advantage of the jurisdiction's one-year residency visa, which presents significantly favourable terms and renewal options.

Companies are also domiciling and building a footprint of essence in the jurisdiction and benefiting from several arms of the local economy that strive to make their transition on-Island seamless and advantageous.

Corporate service providers are giving foreign investors timely and relevant strategic and tactical advice, regulators are helping clients along the way, and the Government is ensuring that on-coming organisations have a technology and start-up friendly government that is befitting their ambitions while remaining in line with best-in-class international standards of fiscal transparency. ■

Endnotes
1. https://www.worldometers.info/coronavirus/
2. R, the reproduction number, equals the average number of people each person with a disease goes on to infect.

The geopolitics of the European Green Deal

Mark Leonard, Jean Pisani-Ferry, Jeremy Shapiro, Simone Tagliapietra and Guntram Wolff consider the geopolitical consequences of the European Green Deal

Executive summary

The European Green Deal is a plan to decarbonise the EU economy by 2050, revolutionise the EU's energy system, profoundly transform the economy and inspire efforts to combat climate change. But the plan will also have profound geopolitical repercussions.

The Green Deal will affect geopolitics through its impact on the EU energy balance and global markets; on oil and gas-producing countries in the EU neighbourhood; on European energy security; and on global trade patterns, notably via the carbon border adjustment mechanism. At least some of these changes are likely to impact partner countries adversely.

The EU needs to wake up to the consequences abroad of its domestic decisions. It should prepare to help manage the geopolitical aspects of the European Green Deal. Relationships with important neighbourhood countries such as Russia and Algeria, and with global players including the United States, China and Saudi Arabia, are central to this effort, which can be structured around seven actions:

1. Help neighbouring oil and gas-exporting countries manage the repercussions of the European Green Deal. The EU should engage with these countries to foster their economic diversification, including into renewable energy and green hydrogen that could in the future be exported to Europe.

2. Improve the security of critical raw materials supply and limit dependence, first and foremost on China. Essential measures include greater supply diversification, increased recycling volumes and substitution of critical materials.

3. Work with the US and other partners to establish a 'climate club' whose members will apply similar carbon border adjustment measures. All countries, including China, would be welcome to join if they commit to abide by the club's objectives and rules.

4. Become a global standard-setter for the energy transition, particularly in hydrogen and green bonds. Requiring compliance with strict environmental regulations as a condition to access the EU market will be strong encouragement to go green for all countries.

5. Internationalise the European Green Deal by mobilising the EU budget, the EU Recovery and Resilience Fund, and EU development policy.

6. Promote global coalitions for climate change mitigation, for example through a global coalition for the permafrost, which would fund measures to contain the permafrost thaw.

7. Promote a global platform on the new economics of climate action to share lessons learned and best practices.

Introduction: the Green Deal is foreign policy

In December 2019, the European Commission introduced the European Green Deal, an ambitious policy package intended to make the European Union's economy environmentally sustainable.

The goal is to reach climate neutrality by 2050, and to turn the transition into an economic and industrial opportunity for Europe. The deal is made up of a wide array of policy measures and subsidies aimed at cutting pollution while increasing research and investment in environmentally friendly technologies.

The Green Deal is at root an effort to transform the European economy and European consumption patterns. But because it entails a fundamental overhaul of the European energy system and because it ranks so high on the EU policy agenda, it will also change the relationships between the EU and its neighbourhood and it will redefine Europe's global policy priorities. As such, it is a foreign policy development with profound geopolitical consequences.

First, such a sweeping structural change will alter European trade and investment patterns. The EU imported more than €320 billion worth of energy products in 2019 and more than 60 percent of EU imports from Russia were energy products[1].

A massive reduction in this flow will restructure EU relationships with key energy suppliers. Countries including Russia, Algeria and Norway will ultimately be deprived of their main export market.

Inevitably, Europe's exit from fossil-fuel dependency will adversely affect a number of regional partners, and may even destabilise them economically and politically.

Second, Europe accounts for around 20 percent of global crude oil imports. The fall in oil demand resulting from Europe's transition to renewables will impact the global oil market by depressing prices and the reducing the income of the main exporters, even if they do not trade much with the EU.

Third, a greener Europe will be more dependent on imports of products and raw materials that serve as inputs for clean energy and clean technologies. For example, rare-earth elements, of which China is the largest producer, are essential for battery production. Moreover, Europe could remain a major net importer of energy but that energy will need to be green, such as green hydrogen produced in sun-rich parts of the world.

Fourth, the Green Deal will impact Europe's international competitiveness. If European firms take on regulation-related costs that their foreign competitors do not bear, they will become less competitive both domestically and abroad. And if the EU attempts to limit this loss and avoid carbon leakage by imposing tariffs on carbon-rich imports, it risks being accused of distorting international trade.

That might lead to friction with major trading partners, particularly carbon-intensive ones, if they view a carbon border adjustment mechanism as an illegal trade barrier.

But most fundamentally, the Green Deal is foreign policy because climate change is a global problem. A transition away from carbon that would only focus on Europe would not do much to mitigate global warming, as Europe represents less than 10 percent of global greenhouse-gas emission.

Worse, if the Green Deal simply displaces Europe's greenhouse gas emissions to its trading partners, it will have no impact at all on climate change.

If only for this reason, the EU is likely to push very hard for ambitious enforceable multilateral agreements on containing global warming and will subordinate some of its other objectives to this overriding priority.

Already, the European Commission has recognised that it will either need to export its standards or create a border adjustment mechanism to maintain European competitiveness and prevent carbon leakage.

All these factors imply the EU will need to develop new trade and investment agreements, new models of financial and technical assistance and, more generally, a new approach to international diplomacy that will encourage sustainable investment and development.

This international activism will necessarily spill over into relationships with the United States and China, which have their own views on how to promote sustainable development and manage international climate negotiations. Relationships with other countries, including the Gulf states and Russia, whose export interests will be directly affected, will also be transformed.

All these foreign policy efforts will provoke a geopolitical response from the EU's international partners. Responses will range from cooperation in implementing complementary climate policies, to competitive efforts to redirect trade and investment flows, to downright hostile efforts to counter the effects of the Green Deal.

"The Green Deal will redefine Europe's global policy priorities; as such, it is a foreign policy development with profound geopolitical consequences"

In this paper we map out the geopolitical implications of the Green Deal. We look not only at the effects of purposeful efforts to export climate policy, but also at the unintended side-effects.

The second section focuses principally on the effects on Europe's energy trade patterns, its development policy, its approach to climate negotiations and, most controversially, the proposed carbon border adjustment mechanism.

The third section examines how other countries (with case studies of the US, China, Russia, Algeria and Saudi Arabia) might understand the Green Deal and how they are likely to respond.

The final section proposes an external action plan as an integral part of EU climate strategy. To succeed, the EU must address head-on the difficulties the Green Deal is likely to create with economic partners and neighbours.

Only a pro-active EU attitude will help turn potential frictions into opportunities for renewed international partnerships. We therefore suggest a series of EU foreign policies to buttress the Green Deal. To succeed in implementing the Green Deal, the EU and its members will need to mobilise all their instruments of foreign policy in support of that agenda.

Mapping the geopolitical implications of the Green Deal

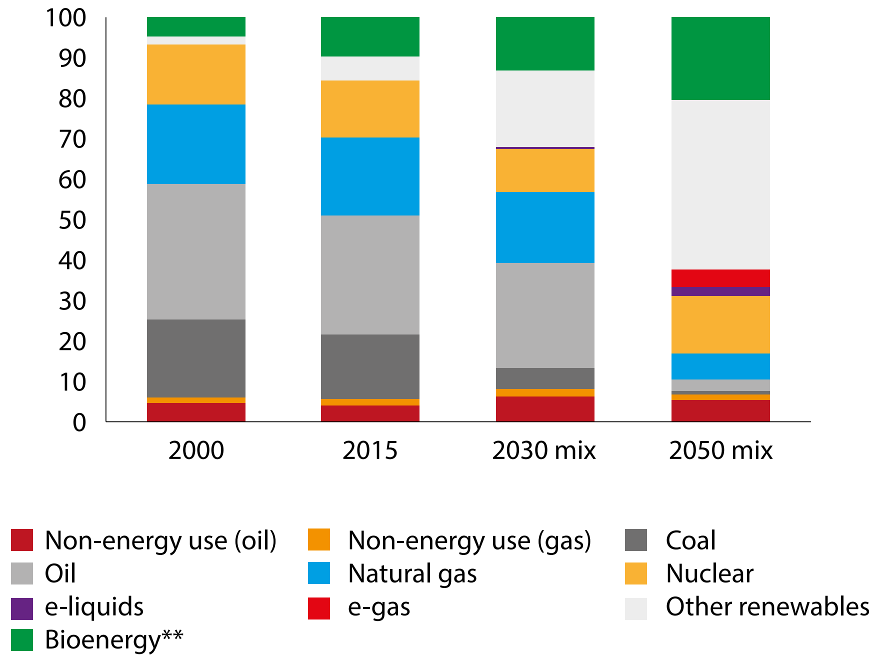
To make Europe climate neutral by 2050, the European Green Deal must pursue one main goal: to reshape the way energy is produced and consumed in the EU. The production and use of energy across the economy account for more than 75 percent of the EU's greenhouse-gas emissions (IEA, 2020).

Almost three-quarters of the EU energy system relies on fossil fuels. Oil dominates the EU energy mix (with a share of 34.8 percent), followed by natural gas (23.8 percent) and coal (13.6 percent). Renewables are growing in share but their role remains limited (13.9 percent), similarly to nuclear (12.6 percent) (Eurostat, 2019).

This situation will change completely by 2050, if the European Green Deal is successful. But change will be incremental. According to European Commission projections, fossil fuels will still provide about half of the EU's energy in 2030.

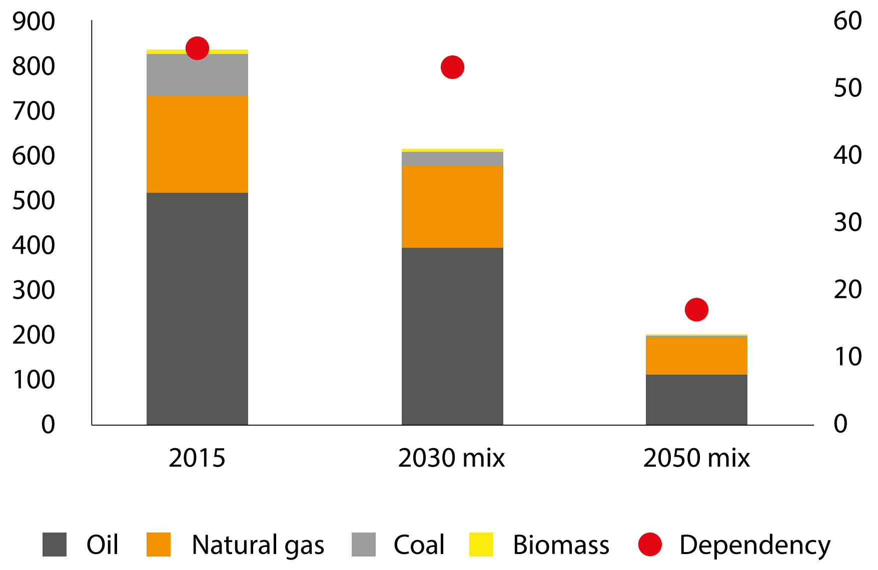
But fossil fuels differ in their pollution intensity. Use of coal – the most polluting element in the energy mix – has to be substantially reduced by 2030, while oil and, especially, natural gas can be phased out later.

Figure 1. EU energy mix evolution (55 percent lower emissions in 2030 compared to 1990 and climate neutrality in 2050)



Note: among the various scenarios consistent with EU climate targets used by the European Commission, we picked the MIX scenario. E-liquids and e-gas are synthetic fuels, resulting from the combination of green hydrogen produced by electrolysis of water with renewable electricity and CO_2 captured either from a concentrated source or from the air. Bioenergy includes solid biomass, liquid biofuels, biogas, waste.
Source: Bruegel/ECFR based on European Commission (2020).

Figure 2. Evolution of EU energy imports (55 percent lower emissions in 2030 compared to 1990 and climate neutrality in 2050)



Source: Bruegel/ECFR based on European Commission (2020) MIX scenario.

Most of the change for oil and gas will happen between 2030 and 2050. Within this timeframe, oil is expected to be almost entirely phased-out, while natural gas would contribute just a tenth of EU energy in 2050 (Figure 1)..

Depending on the exact scenario, EU imports of coal would drop by 71-77 percent between 2015 and 2030, while oil imports will drop by 23-25 percent and imports of natural gas by 13-19 percent.

After 2030, oil and natural gas imports are expected to shrink dramatically, with oil imports down 78-79 percent and natural gas imports down 58-67 percent compared to 2015 (Figure 2).

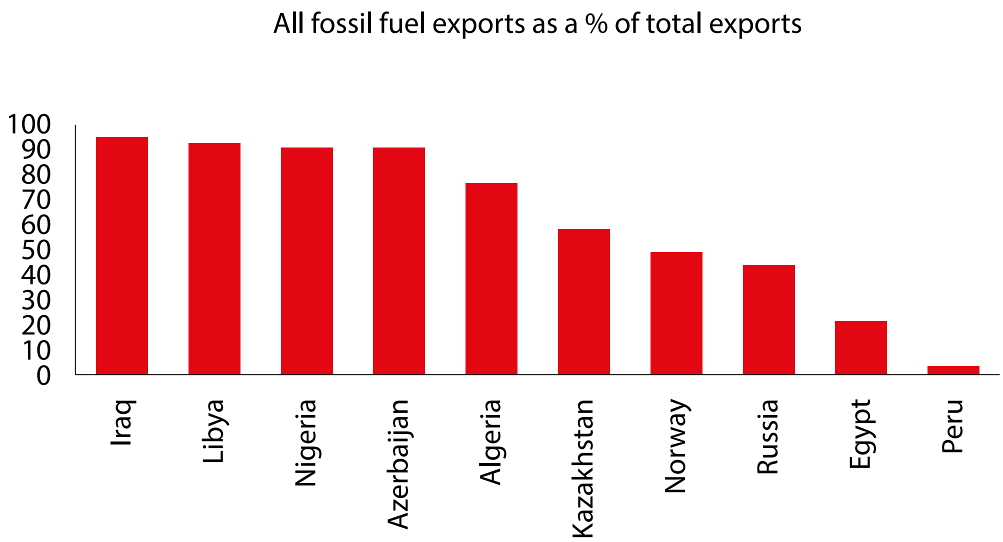
This profound transformation of the EU energy system will have a wide variety of geopolitical repercussions. These can be grouped into four categories: i) repercussions for oil and gas-producing countries in the EU neighbourhood; ii) repercussions on global energy markets; iii) repercussions for European energy security; and iv) repercussions for global trade, notably via carbon border adjustment measures.

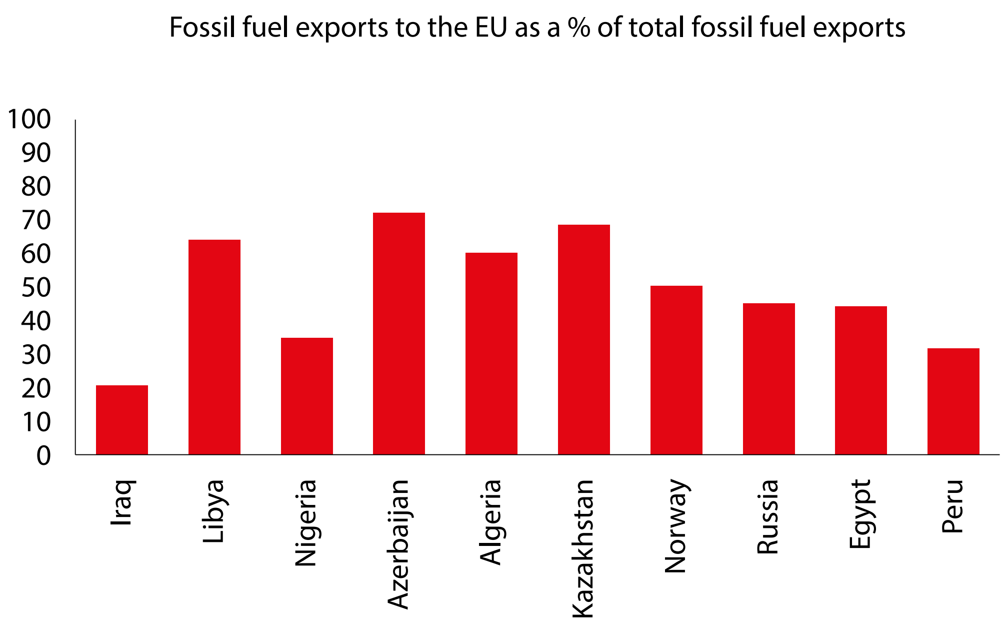
Repercussions for oil and gas producing countries in the EU neighbourhood

Discussions on the potential repercussions from global decarbonisation naturally focus on the impacts that reduced need for oil and gas in large markets could have on producing countries (IRENA, 2019).

For Europe, this is notably the case for its major gas supplier, Russia, but also for other suppliers, from the Middle East and North Africa, the Caspian and Central Asia, which base their

Figure 3. Fossil fuel exports to EU as % of total exports, selected countries





Note: Trade values taken from 2018, as reported global and EU27 imports from each country presented. Fossil fuels are the sum of 2701, 2709, 2711.
Source: Bruegel/ECFR based on UN Comtrade.

economies on the fossil fuels rents, and mostly export their fossil fuels to Europe (Figure 3).

The anticipated decline in EU imports of oil and gas will have an almost immediate effect by reducing investment in new fossil fuel infrastructure and even reducing maintenance efforts for existing infrastructure.

This will happen even though, as noted above, the EU is expected to keep importing oil and natural gas at more or less unchanged volumes for at least another decade.

It is important to note that for gas, in the 2030 timeframe, Europe's main energy supplier, Russia, could even benefit from the European Green Deal, as a coal-to-gas switch is necessary to quickly curb EU energy sector emissions. The role of natural gas as a transition fuel in the EU is likely to mean increased imports.

It is also important to highlight another potential, long-term impact of the European Green Deal on the EU's neighbourhood: a possible surge in trade in green electricity and green hydrogen.

One of the major drivers to deliver the European Green Deal will be electrification. To meet its increasing need for renewable electricity, Europe might well rely over the next decades on imports of solar and wind electricity from neighbouring regions.

The Middle East and North Africa, in particular, benefits from some of the best solar irradiation in the world[2], and from world-class wind energy locations[3]. While these renewable resources will primarily be exploited to meet Middle East and North African countries' own rapidly growing energy demand, there might be a case for future exports to Europe.

Decreasing generation and transport technology costs might allow economies of scale that have so far prevented the implementation of such cooperation schemes[4].

While renewable electricity is expected to decarbonise a large share of the EU energy system by 2050, hydrogen is increasingly seen as a way to decarbonise parts of the energy system electricity cannot reach[5]. This is why the European Green Deal includes a hydrogen strategy (European Commission, 2020a), aimed at installing 40 gigawatts (GW) of renewable hydrogen electrolysers by 2030.

Considering North Africa's renewable energy potential and geographic proximity to Europe, the region is being considered as a potential supplier of cost-competitive renewable hydrogen to Europe. Germany, for example, has partnered with Morocco to develop Africa's first industrial plant for green hydrogen, with intention of future exports to Germany[6].

Future imports of renewable electricity and green hydrogen from the Middle East and North Africa (or other neighbours, such as Ukraine) could raise new energy security concerns, which will have to be mitigated with proper diversification.

Repercussions for global energy markets

Given the size of the European economy, the European Green Deal is also likely to have repercussions for global energy markets. Currently, Europe is the world's second largest net importer of oil after Asia Pacific (Figure 4).

The fall in global oil demand resulting from Europe's transition to clean energy will have an impact on the global oil market, notably by depressing prices. The extent of the price decline will, of course, also depend on other countries' decarbonisation trajectories.

Should Europe be alone in significantly cutting oil consumption, while other economies continue to rely on fossil fuels in their growth, markets and demand in Asia, Latin America and Africa might partially – and temporarily – counterbalance Europe's withdrawal.

But overall, Europe's global share of oil imports is so significant that general equilibrium effects are likely to lead to a sizeable reduction in the value of oil assets.

Oil producers will be affected differently depending on how concentrated they are on oil exports, as well as their break-even oil price.

For instance, Saudi Arabia and Iraq can produce oil relatively cheaply, covering costs with a price of about $30/barrel or less, while countries including Russia, Venezuela and Nigeria need higher prices to break even (Figure 5).

Low-cost oil producers, such as Saudi Arabia, are thus better positioned to deal with declining global oil prices resulting from the European Green Deal. In the medium term, they might even increase their market shares, as high-cost producers will be kicked off the market.

However, even low-cost oil producers will feel the impact of declining prices. Already, at the current oil price of $40/barrel, Saudi Arabia's budget deficit is at 12% of GDP. This implies that economic diversification away from the oil rent is a must for all oil-exporting countries, though to different degrees.

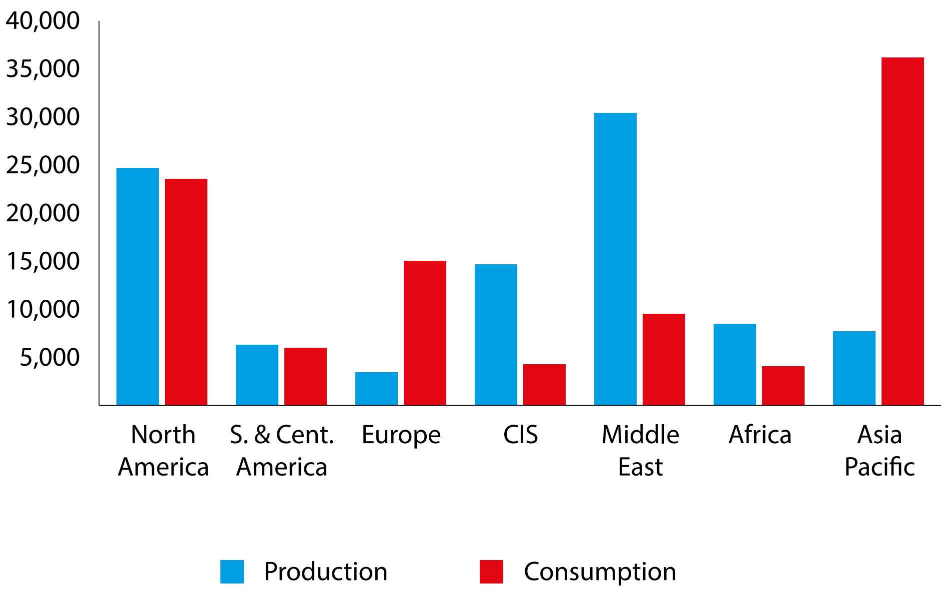
Repercussions for Europe's energy security

In Europe, energy security has traditionally been associated with the need to ensure sufficient oil and gas supplies in the short term. Being poorly endowed with domestic resources, the EU has to import 87 percent of the oil and 74 percent of the natural gas it consumes (Eurostat, 2019). Moreover, being reliant on a limited number of suppliers (Figure 6), the EU has developed over-dependency concerns.

This has particularly been the case for natural gas, given its rigidities arising from reliance on pipeline infrastructure and long-term contracts. These features contrast with the flexibility of the global oil market in which bilateral dependencies are limited by a global transport infrastructure (oil tankers).

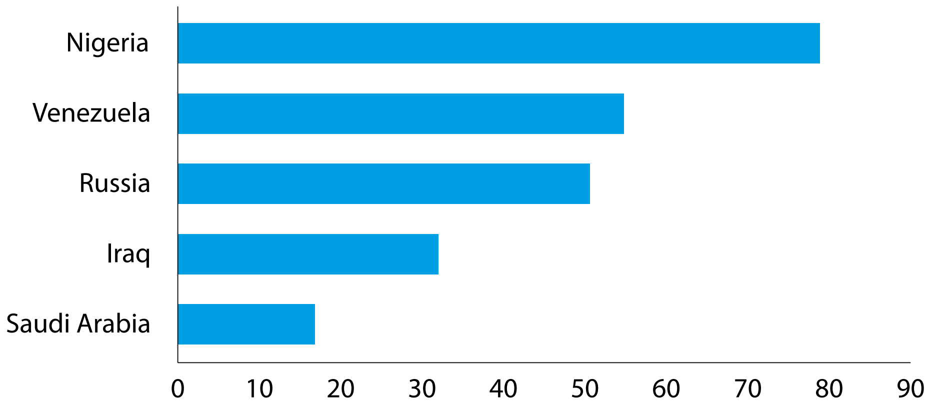
Europe's core energy security concern has been its dependence on Russian natural gas. After the Russia-Ukraine-Europe gas crises of 2006 and 2009, Europe pursued

Figure 4. Oil balance by region, 2019



Source: Bruegel/ECFR based on BP Statistical Review of World Energy (2020).

Figure 5. Break-even oil price, selected countries (2015)



Source: OECD (see https://read.oecd-ilibrary.org/view/?ref=136_136801-aw9nps8afk).

a diversification strategy targeting infrastructure (liquified natural gas terminals in Poland and the Baltics; the Southern Gas Corridor) and legislation (including EU regulations on the security of gas supply, (EU) 2017/1938, and on risk preparedness in the electricity sector, (EU) 2017/1938).

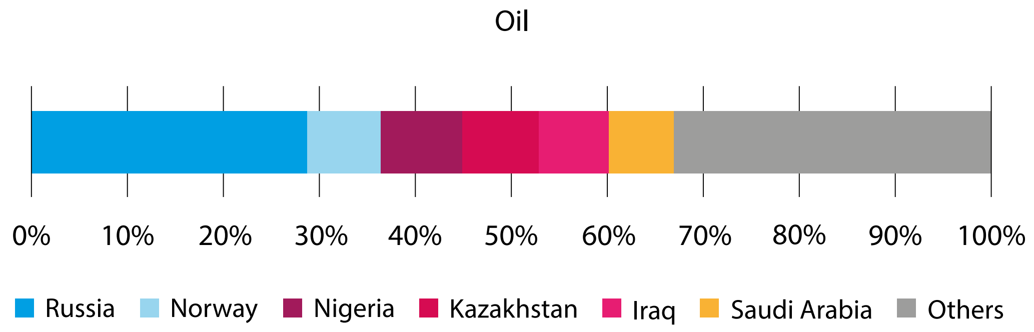
These efforts have already greatly strengthened the security of supply for natural gas imports into the EU. By reducing the continent's gas import requirements between 2030 and 2050, the European Green Deal will definitively solve Europe's oil and gas security concerns – and will also reduce Europe's oil and gas import bill, estimated at €296 billion in 2018 (Eurostat, 2020).

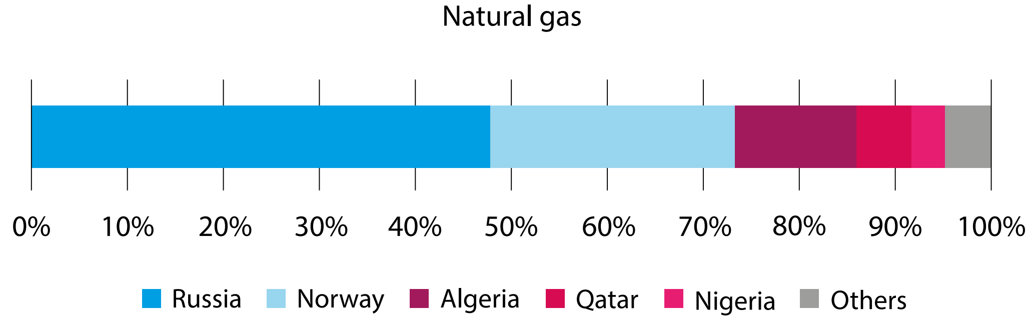
However, the European Green Deal can also create new energy security risks, most notably from the import of the minerals and metals needed for the manufacturing of solar panels, wind turbines, li-ion batteries, fuel cells and electric vehicles. These minerals and metals have particular properties and few to no substitutes.

While some of these minerals and metals are widely available and relatively easy to mine, others are either geographically concentrated in a few resource-rich countries, or treated and processed in a few countries. Europe itself has no significant mining and processing capacities for these critical raw materials. For instance, it produces only around 3 percent of the overall raw materials required in li-ion batteries and fuel cells (JRC, 2020).

In 2011, the European Commission produced a first list of critical raw materials, which has been updated every three

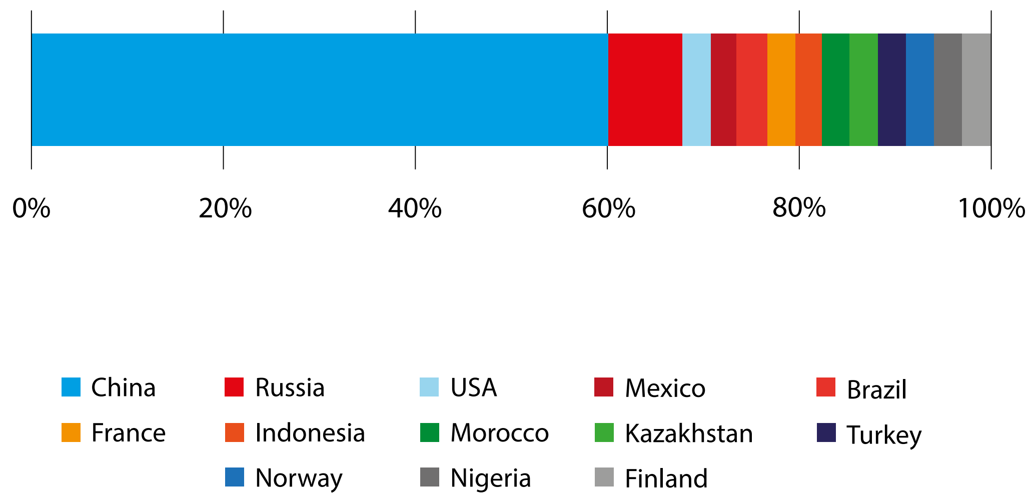
Figure 6. EU imports of oil and natural gas by main trading partner, 2018





Source: Bruegel/ECFR based on Eurostat (2020).

Figure 7. Main suppliers to the EU of critical raw materials, average from 2010-2014



Source: Bruegel/ECFR based on European Commission (2017).

years[7]. At time of writing it includes 27 materials judged critical because of their importance for high-tech and green industries, their scarcity and/or the risk of supply disruption.

China is a leading producer and user of most critical raw materials. The import of rare earths from China is probably the most critical issue in this area, also because Europe has no mining or processing activity for these important minerals (Figure 7).

For Europe, dependence on China will further increase as demand for green technologies increases. For example, the JRC (2020) estimated that the EU's annual critical raw material demand for wind turbines will increase between 2 and 15 times over the next three decades. Overall, the European Commission (2020) expects Europe's demand for raw materials to double by 2050.

Repercussions for global trade, notably from carbon border adjustment measures

Taxing the carbon content of domestic production without taxing imports in a broadly similar way in principle disadvantages domestic production. Consumers would have an incentive to continue buying the same products but shift to foreign suppliers rather than switching to more efficient domestic producers.

The European Commission has therefore said it will introduce a border carbon adjustment. The rationale is clear: if Europe puts in place a stringent climate policy while other parts of the world do not, there is a risk that emissions-intensive companies might leave the EU with its high carbon prices and relocate to places with significantly lower or no carbon prices (see Wolff, 2019, for an illustration).

This leakage issue is set to become more relevant with the EU pursuing a more ambitious climate policy, even if the exact order of magnitude of carbon leakage is unclear (Claeys *et al.* 2019).

A carbon tariff would have a double aim: i) preventing carbon leakage by ensuring that all goods consumed in the EU, whether imported or produced domestically, are treated the same; ii) incentivising other countries across the world to also decarbonise. The tax or tariff would be based on the emissions embedded in imported products.

In addition, EU exporters might reclaim the cost of the emissions embedded in their products to ensure that European companies are not at a competitive disadvantage when selling abroad. Given that the EU already imports significantly more carbon than it exports, the issue of carbon leakage cannot be ignored[8].

But introducing a carbon tariff would be a substantial practical and political challenge – and indeed no country in the world has so far adopted such a tariff[9]. The initiative will face two main difficulties.

The first, of technical nature, relates to the difficulty of calculating the emissions content of imports, as all emissions along the entire value chain would need to be considered.

The second, of a geopolitical nature, relates to the risk of retaliation by trade partners. The European Commission has made clear that a carbon tariff should be compatible with the rules of the World Trade Organisation (WTO), to ensure that countries cannot retaliate based on WTO rules (Horn and Sapir, 2019, explain how this can be done)[10].

But even if the carbon tariff is safeguarded against formal objections, trade partners might still perceive it as overreach and threaten or adopt retaliatory measures. Something similar happened in 2012 when the EU directive on aviation emissions (2008/101/EC) went into effect. The directive entailed a form of carbon border adjustment by extending the EU emissions trading system (ETS) to all flights entering or leaving the EU.

A group of 23 countries – including the United States, China, India, Japan and Russia – strongly opposed the EU move and listed retaliatory measures they would take unless the EU changed the rule. Because of this forceful reaction, and in view of some developments in international negotiations on emissions controls, the EU withdrew the measure for intercontinental flights.

International reactions to the introduction of an EU carbon border tax are likely to be very diverse. Countries that strongly emphasise action to tackle the climate problem are likely to be supportive of the initiative, and might replicate it. However, countries that export emissions-intensive goods to Europe (Figure 8) are likely to oppose it.

Reviewing the geopolitical context

The four channels through which the Green Deal will have a geopolitical impact will affect the EU's geopolitical partners differently, depending on how they relate to the EU.

Countries in the European neighbourhood, such as Russia and Algeria, will mostly feel the effect of changes to the European energy market and European approach to energy security.

Global players, including the United States, China and Saudi Arabia, will feel the impact more strongly through the Green Deal's effect on global energy markets and trade. This section analyses those five countries to assess how they might understand and respond to the initiative.

Neighbouring countries: Russia

Russia is the world's fourth largest emitter of greenhouse gases and it has long been resistant to the idea of environmental policies that would reduce fossil fuel use: *"The country's environmental doctrine – and even its ratification of the Paris Agreement – are more of an international PR strategy than anything else. Its domestic climate policy documents are vague declarations that often contradict other projects"* (Paramonova, 2020). Except for monitoring carbon output, all emissions regulations remain voluntary.

Russian President Vladimir Putin continues to deny that climate change is caused by human activity and insists that Russia has *"the greenest energy system in the world."*[11]

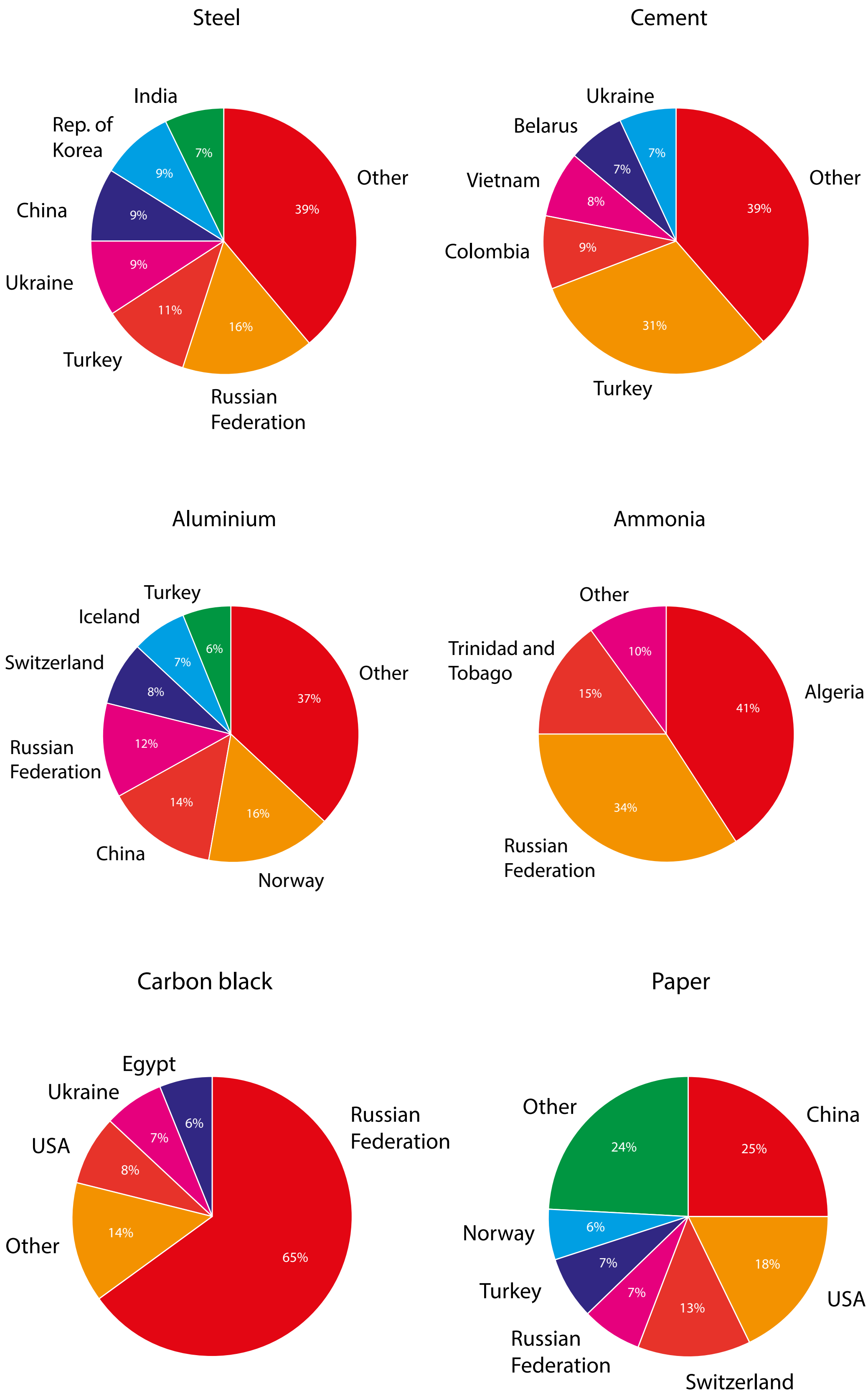
Meanwhile, Russia remains enormously dependent on hydrocarbons. Russia failed to meet Putin's goal of reducing the share of fossil fuels in the country's economy by 40 percent between 2007 and 2020 (it decreased by only 12 percent)[12]. Russia's coal development programme for 2035 was revised upward in 2019, setting a new target of a 10 percent to 20 percent growth in coal output.

There remains strong opposition in Russia to any regulatory effort to limit carbon emissions, particularly from the Russian Union of Industrialists and Entrepreneurs.

In context, the Green Deal could have a major impact on Russia. In 2016, oil and gas revenues contributed 36 percent of the country's government budget[13] and Europe absorbed 75 percent of Russian natural gas exports and 60 percent of its crude oil exports[14].

Over the next decade, the EU-Russia oil and gas trade will not be substantially impacted, as Europe would only marginally reduce its oil and gas imports by 2030 even in a 55 percent emissions reduction scenario, but the situation will radically change after 2030 when Europe is expected to substantially reduce its oil and gas imports.

Figure 8. EU27 imports of carbon-intensive goods by country of origin (share of imports)



Note: trade data for 2018.
Source: Bruegel/ECFR based on UN Comtrade.

The EU will possibly shift from suppliers such as Russia where extraction is emissions-intensive to suppliers such as Saudi Arabia where extraction has roughly half the carbon footprint it has in Russia[15].

Moreover, a carbon border adjustment mechanism (on EU imports other than oil and gas) would also reduce Russian goods exports as they tend to be very carbon intensive (Makarov and Sokolova, 2017). It is not clear how much Russia will seek to resist these efforts.

Ruslan Edelgeriev (Putin's climate adviser) told companies in February 2020 to prepare for the EU border tax, noting that *"the EU wants to push through these regulations not because they don't like our companies, but so that their own companies don't overstep emissions targets."*[16]

Russia's inefficient energy system implies many opportunities to reduce carbon intensity in its economy. There is ample scope for European cooperation with Russia on increasing the use of renewables, reducing methane leakage and boosting energy efficiency.

Russia's most likely geopolitical response will be to seek diversification of its energy customer base. An effort to pivot energy sales to China has been underway since at least the 2007-2009 financial crisis, accelerating after the 2014 Ukraine crisis soured Russia's political relationship with Europe.

In 2016, Russia displaced Saudi Arabia as China's largest crude oil supplier and, in 2018, Russia sent 1.4 million[17] barrels/day of crude oil to China, accounting for more than 25 percent of Russian oil exports.

Until recently, Russia only supplied China with very small amounts of natural gas, but the Power of Siberia gas pipeline opened in December 2019 and is expected to supply 38 billion cubic metres of gas/year to China by 2024, or about 15 percent of Russian 2018 natural gas export volumes.

Despite these advances, however, China has proved unwilling to support the Russian energy industry for geopolitical purposes. In an environment of falling energy prices, China has taken advantage of Russia's lack of options and has forced continually lower prices on Russia (*The Economist*, 2020).

The long-term risk for Russia is that if this effort to move towards the Chinese market is not paired with a green transformation that will allow continuation in serving the European market, Russia will grow increasingly dependent on China.

Neighbouring countries: Algeria

Algeria will be something of a test case for the foreign policy aspect of the Green Deal. As the third largest supplier of natural gas to Europe, most of the country's energy infrastructure is oriented toward the European market and the country is highly reliant on Europe for its hydrocarbon revenues. And this is relevant, as hydrocarbon revenues account for 95 percent of its exports by value and pay for 60 percent of its national budget (Africaoilandpower.com, 2020).

Algeria clearly needs to rethink its economy and be prepared for when – possibly well after 2030 – European demand for its natural gas supplies will progressively disappear. Diversifying the Algerian economy away from hydrocarbons while developing a strong renewable energy sector would soften the blow of a green Europe.

There are reasons to be optimistic that this will happen. There have, for starters, been some signs of international cooperation. A 2017 agreement setting out Algeria's and the EU's common priorities emphasised the considerable potential of Algeria[18] in the renewable sector and included proposals to transfer green energy technology across the Mediterranean.

This was not the only attempt to engage with European partners. In 2015, the German-Algerian Energy Partnership was created, aiming to *"develop and implement a national energy policy for an environmentally sustainable energy supply."*[19]

Despite this, Algeria also presents formidable challenges. The country remains ruled by an insular gerontocracy, the so-called 'pouvoir', which prioritises the regime's precarious survival well above any economic consideration. With the price of hydrocarbons falling, the country urgently needs a more diversified economy and foreign investment to keep up with its growing population and infrastructure requirements.

But the powers behind the scenes also understand that it is the government's tight control over hydrocarbon resources that sustains the regime. The government remains extremely wary of foreign financial assistance. It refused to approach the IMF20 for loans in 2020 despite a financial crisis caused by the collapse in oil prices and the coronavirus lockdown, fearing for its financial sovereignty[21].

Adding to this problem, Algeria and other hydrocarbon exporters suffer from what economists call the Dutch disease: as their currency appreciates with the large amounts of exports of hydrocarbons, other economic sectors cannot develop and industrialisation is held back.

This is certainly not the only reason why agriculture, manufacturing and services have remained underdeveloped in Algeria, but oil exports have not helped.

When it comes to its energy transition, wind and solar energy capacity in Algeria only rose from 1.1 MW in 2014 to 354.3 MW by June 2018, about 1.6 percent of its 2030 target of 22,000 MW (Bouraiou, 2019). But so far, the country has few viable alternative markets for its energy or other potential exports.

It joined China's Belt and Road Initiative in 2018 but its potential to sell energy into the Chinese market is very limited. In any case, even the Algerian government recognises the benefit of developing a renewables sector and more diversified economy in the current global environment.

Rather than confrontation or resistance, the Algerian government will likely seek to channel Green Deal inspired

"Introducing a carbon tariff would be a substantial practical and political challenge, facing technical and geopolitical difficulties"

reforms so that they do not affect, or even so they reinforce, the government's ability to maintain the rentier state.

In this sense, the Green Deal represents yet another variant of the enduring EU effort to use financial levers to achieve political and economic liberalisation in its neighbourhood. This effort has had mixed results at best and practically no success in Algeria.

But the Green Deal effort strikes right at the heart of the government's control over society – the rentier economy based on hydrocarbons that, as elsewhere in the world, facilitates centralised control, enables corruption among regime cronies, and fund subsidies that grants the regime some degree of popular acceptance.

Chances are therefore high that the current leadership will delay diversification and aim to continue maintaining strong control over rents.

In the long term, this could present the EU with a dilemma. If the Algerian government, fearing loss of control, fails to make a transition away from hydrocarbons, the Algerian economy could lapse into nearly terminal decline.

The possibility of such instability on Europe's periphery would create incentives for Europeans to relax conditionality and foster an energy transition in Algeria that sustains the current regime.

Global players: Saudi Arabia

Saudi Arabia is the world's biggest oil exporter. Oil and gas revenues amounted to 80 percent of Saudi Arabia's total exports in 2018 and accounted for 67 percent of its government revenues in 2017 (Tagliapietra, 2019).

More fundamentally, Saudi Arabia's long dependence on the rent from hydrocarbons has created an economy that relies on public sector employment (30 percent of the workforce) and expensive and economically inefficient subsidy schemes (costing $37 billion in 2017), particularly in the energy market (Tagliapietra, 2019).

Unlike in Algeria, however, the European Green Deal does not directly threaten this model. Saudi Arabia exports less than 10 percent of its oil to Europe. Its main markets, now and likely even more in the future, are in Asia to which it already exports over 70 percent[22] of its oil.

A European transition to renewables is not per se a major problem for Saudi Arabia. Indeed, the European Green Deal may even increase short-term demand for Saudi oil which has a lower carbon footprint than oil from Russia or the United States. Saudi Arabia could face 30 percent to 50 percent less in EU carbon tariffs than most competitors[23].

Overall, the Saudi approach so far has been to say little about the Green Deal, privately encourage the Europeans to develop new renewable technology, and focusing their energies on making fossil fuels cleaner. Saudi Arabia used, for example, its 2020 chairmanship of the G20 to promote the idea of a circular carbon economy, an effort to make the use of oil and gas more climate friendly.

However, the broader transition away from fossil fuels, of which the Green Deal is a part, presents a serious long-term threat to the Saudi model of a rentier state. As demand and prices for hydrocarbons fall, Saudi Arabia's ability to afford its large public-sector wage bill and domestic energy subsidies will erode, perhaps even threatening Saudi domestic stability. Already Saudi foreign exchange reserves are in decline[24], in line with oil revenue declines since 2014.

The Saudi regime, led by the crown prince, Mohammed Bin Salman, appears very aware of this threat and has adopted a strategy to deal with it. Most publicly, it launched in 2016 the Vision 2030 programme, a broad-ranging development plan to diversify the economy away from hydrocarbons, develop private small- and medium-enterprises, and create a non-oil export sector.

The idea of global peak demand for oil being reached soon has inspired Saudi Arabia to increase its export capacity in order to produce as much oil as possible and seize market share before demand fades away[25]. Saudi Arabia's relatively low-cost production means that it can sustain low prices that might drives competitors such as Russia, Venezuela and Iran out of the market.

This low-cost strategy threatens the entire climate change effort embodied in the Paris Agreement, as it makes it more difficult for renewable energy resources to compete with hydrocarbons.

The outcome will depend on the evolution of green technology and the ability of the European Green Deal and other efforts to get global energy consumers to internalise the cost of carbon emissions.

In the context of a long-term fall in demand, increased market share, even at lower prices, offers Saudi Arabia the prospect of greater total revenues from its vast oil reserves. This logic inspired the Saudi oil price war with Russia in the middle of the COVID-19-caused price collapse in April 2020, which briefly drove US oil prices below zero[26] (indicating that the cost of storage was more than the oil was worth).

None of this is inherently at odds with the EU's ability to implement the Green Deal. The EU has every incentive to encourage Saudi Arabia's economic diversification effort, and some Saudi displacement of higher-carbon oil for other sources will ease Europe's transition.

Through its massive sovereign wealth fund, Saudi Arabia will be an eager investor and customer for renewable-energy technology that might come from European sources.

However, Saudi Arabia's Vision 2030 plan has had little success thus far in diversifying the country's economy (Grand and Wolff, 2020). Four years in, the regime's erratic governance and the deep rentier state give foreign investors little confidence that it will have the capacity to make the often-painful choices inherent in an economic diversification strategy.

A Saudi failure to make this transition could, as the world slowly moves away from fossil fuels, threaten stability in the Persian Gulf. Europeans have an interest in assisting this transition, but Saudi Arabia's human rights record makes cooperating with its regime difficult. Saudi Arabia's substantial reserves and tight relationship with the United States mean that the EU lacks the leverage to force difficult changes.

An effective strategy to encourage both better governance and economic diversification in Saudi Arabia will thus clearly require close cooperation with the United States, which may be possible now with a new US administration that also has greater awareness of the demands of energy transition.

Global players: the United States

The US has at times rivalled the EU for global climate change leadership. The Trump administration, however, pulled back from global negotiations and broadly refused to accept any responsibility for combatting climate change.

Trump withdrew from the United Nations Paris Agreement, rolled back many Obama administration regulations that limited carbon emissions and called climate change a Chinese hoax devised to secure unfair trade advantage.

However, roughly two-thirds of Americans believe in climate change[27]. They think the federal government is not doing enough to reduce its impacts and see environmental protection as a top policy priority. Many of US states are pushing forward with regulations that are as tough or tougher as those in Europe[28]. Fires and floods across the United States in 2020 increased concerns about climate change.

Part of the reason for this disconnect is that climate change has become a highly partisan issue in the United States – perhaps the single starkest policy divide between the two parties. This means that the Democrats have become the party aiming to do something about climate change. US policy on this issue will thus change dramatically under a Biden presidency.

During the election campaign, Biden proposed[29] policies similar to the European Green Deal, including net-zero emissions by 2050, an electricity sector fully powered by renewables by 2035, carbon pricing and border adjustment mechanisms.

It remains unclear though if more similar US and European climate policies under Biden will necessarily be more harmonious. Even for the incoming Biden administration, the European Green Deal presents some geopolitical challenges.

For example, the European Green Deal implies stricter emissions standards[30] for US automobiles than the US will have in place.

As the US exports more than €5.5 billion (2018)[31] worth of passenger cars to Europe, this could have a large impact on a politically sensitive industry. Similarly, the Green Deal may include stricter agricultural policy based around sustainable practices, which could negatively affect the 13 percent of US agricultural exports that go to the EU (CRS, 2020).

It is, however, the carbon border adjustment mechanism (CBAM) proposal that generates the most concern in the United States. A carbon tariff could dramatically impact US exports of coal, natural gas and many manufactured products.

The US exported[32] over 1.5 million barrels of day of petroleum products to Europe in 2019, about 19 percent of its export market[33]. The Trump administration viewed the Green Deal threat to this important industry as an unacceptable infringement on US sovereignty and pure protectionism.

Wilbur Ross, the US Secretary of Commerce, promised retaliation, noting that *"depending on what form the carbon tax takes, we will react to it – but if it is in its essence protectionist, like the digital taxes, we will react."*[34]

A Biden administration will want to pursue its own version of a green deal and seek climate neutrality by 2050 as the US re-joins the Paris Agreement. But opposition in the US Congress means that, compared to the EU, the US effort will likely adopt less-ambitious targets and rely more on promised developments in technology than foreseen by the European Green Deal.

This means that, particularly up to 2030, when the EU may be more aggressive in its climate targets, measures such as the CBAM could introduce trade tensions with the United States. Managing those tensions could prove very complex, particularly under a future Republican administration.

For the next few years, however, the Biden administration will likely seek a cooperative approach to dealing those tensions. Meanwhile, the Democrats' desire to take a global lead in climate negotiations may, as Obama occasionally did[35], create conflict with the EU's similar aspiration.

As during the 2009 climate negotiations in Copenhagen, the US might decide that it can more easily reach agreement with China than with the EU, and that Europeans will simply accept whatever the US and China decide.

The increased tensions in the US-China relationship make this less likely, but Biden[36] sees scope for cooperation with China on climate change.

The Green Deal also contains more than a hint of a new environmental justification for industrial policy. A Council of the EU paper[37] on the Green Deal asserts that the EU needs *"climate and resources frontrunners to develop commercial applications of breakthrough technologies"* and advocates

"The Green Deal could have a major impact on Russia, especially after 2030 when Europe is expected to substantially reduce its oil and gas imports"

"new forms of collaboration with industry and investments in strategic value chains" in areas including battery technology and digital technologies.

Any US administration will likely see such government subsidies as a protectionist European effort to use state aid to capture the green technology industries of the future.

Despite these challenges, a cooperative US response to the Green Deal is possible depending on the EU's willingness to compromise and negotiate a package deal with the US. The EU and the US will likely see that they face similar challenges in implementing their climate ambitions.

Global players: China

At a time when it has become increasingly difficult to define the positive, constructive elements in the Europe-China relationship, climate change has become the single most important topic for the cooperative agenda with Beijing.

Almost like a mantra, when European policymakers debate the market-distorting practices of Chinese state capitalism, forced technology transfers, intellectual property theft or large-scale human rights violations in Xinjiang or Hong Kong, the conversation ends on the relatively obvious declaration *"but we need China for global challenges, such as climate change"* (See for example Oertel *et al.* 2020).

And it is true. For the European Green Deal and the Paris Agreement to work, China must be part of the equation. China is the world's second largest economy and its largest emitter of CO_2, as well as a major production hub for European products. Responsibly greening the European economy thus necessarily also implies greening the supply chains of which China is an essential part.

Notwithstanding the green narrative of its leaders, China continues to operate 3,000 coal plants[38] – more than in the US, the EU, Japan, Russia and India combined – and has more than 2,000 in construction. Chinese emissions have not yet peaked (China is still a developing country, by climate standards) and in fact the US has massively curbed emissions despite the federal government's unwillingness to be held accountable by global agreements.

These stark facts and a new, more climate-friendly US administration starting in 2021, mean that the informal China-EU climate alliance may not last very long.

Nevertheless, China also has an interest in pursuing a more sustainable and efficient path to prosperity. The effects of climate change on Chinese agriculture, water and food security are considerable and will grow. Coupled with air and soil pollution China's environmental situation has the potential to unsettle the careful balance of acceptance of Communist Party rule.

Beijing's general willingness to serve as a constructive force in global climate negotiations and its support for the Paris Agreement were indispensable, but adherence to an agreement that does not force Beijing to reduce emissions at all is no longer enough given China's role in global emissions.

More ambitious European targets on climate change, biodiversity and sustainability are not intrinsically problematic from Beijing's perspective. China itself claims global environmental and climate leadership. Xi Jinping has further advanced the use of the environmental catchphrase of the 'ecological civilization', environmental sustainability with Chinese characteristics.

The Chinese government, in part to show the Europeans that is working on the broad climate agenda, said in September 2020 that it *"aim[s] to have CO_2 emissions peak before 2030 and achieve carbon neutrality before 2060."*

China undoubtedly has a national strategy to move the economy gradually towards greater sustainability. It will however do so at its own pace and always with the caveat of stability with a strong focus on retaining high levels of economic growth and curbing any rise in unemployment.

A more energy-independent Europe has no major repercussions for relations with Beijing: China does not export energy to Europe. A reduction in European energy needs could in fact reduce global energy prices, which would be beneficial for China, still a net importer of energy (mainly oil and gas), and would allow China to reduce the costs if running its economy.

China, however, is a major supplier of minerals such as rare earths that are of essential importance for the European Green Deal, though China's ability to use this dependence for strategic leverage is limited. China's previous effort to use its market dominance against Japan in 2010 inspired other nations to create stockpiles[39].

In the longer-term, rare earths, oddly, are not extremely rare. China had dominated this market largely because of subsidies to producers that kept prices too low for potential competitors to enter the market. This was a costly policy that caused unpopular environmental damage in those parts of China that processed these minerals.

The Chinese government already seems intent on reversing it, which is encouraging the development of foreign competitors in the US and Malaysia[40].

The idea of a carbon border adjustment mechanism for carbon-intensive products entering the European Union poses a more fundamental challenge to Beijing. Especially at the lower end of the value chain where margins are not particularly high, Chinese manufactured products could lose their comparative price advantage (and thus their appeal), making it more attractive for European industry to source from other 'greener' partners.

This could exert significant pressure on Beijing to adapt its own policies and serve at least temporarily as leverage in getting China to commit to an overall more ambitious climate change and sustainability agenda.

Otherwise, current trends towards the greater diversification of global supply chains away from China, which started because of the US-China trade war and were accelerated by the COVID-19 crisis, could be further exacerbated.

Adding this extra price tag for importers of Chinese goods could help level the playing field. European companies are already considering greater localisation of their value chains and production processes, which could entail production specifically for the Chinese market within China. This would effectively decouple Europe's China business from other parts of the global economy.

With the Green Deal, the EU will push for an ambitious global climate agenda within the UN Framework Convention on Climate Change framework. At the COP26 (Conference of the Parties) in Glasgow in 2021, China will be in the spotlight in terms of specifying how it will peak its carbon emissions before 2030 and then reduce emissions.

To achieve carbon neutrality by 2060, the measures will have to be significant and start immediately. China seems to be moving closer to the European approach in terms of its commitments, while trying to buy as much time as possible to invest in its own green transition and in green or clean technology. China already leads on electric vehicles and is a major force in solar and wind energy.

Clean tech is a growth market with huge potential for China-Europe cooperation, but also for crowding out of European industry and achieving Chinese tech dominance.

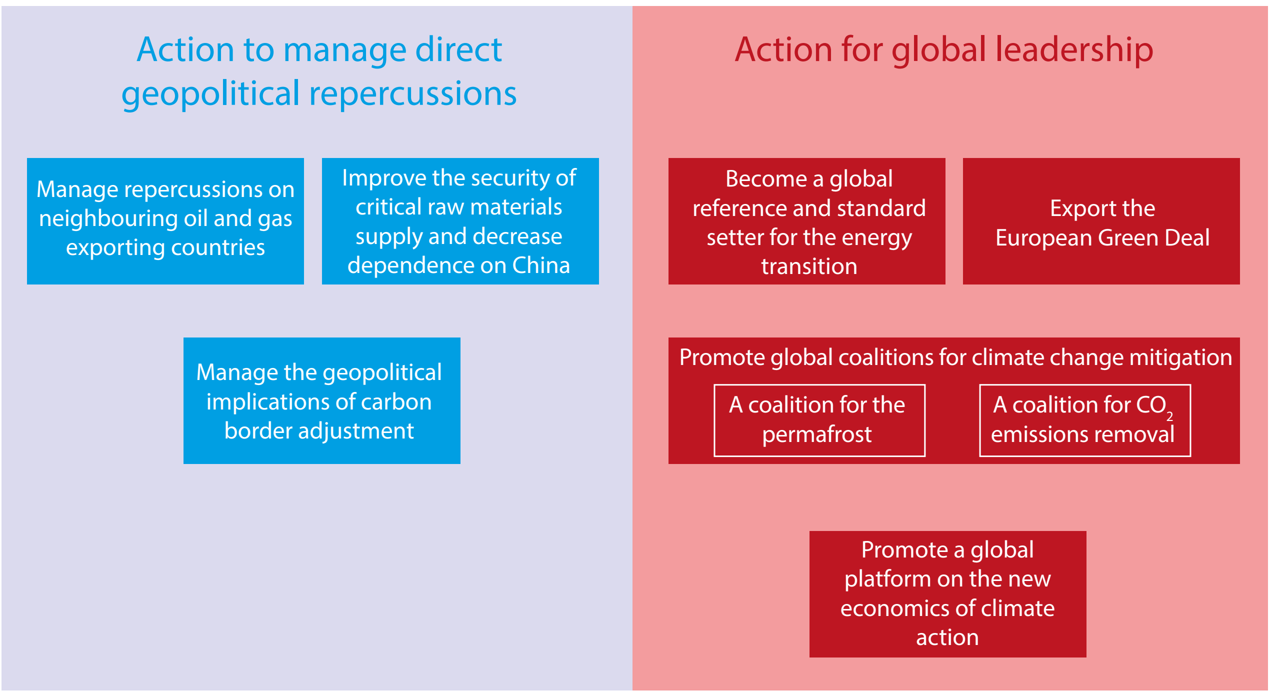
COVID-19 meant that China experienced negative growth in the first quarter of 2020 for the first time since the end of the Cultural Revolution in the late 1970s. Emissions are down and Beijing is clearly determined to use its economic stimulus packages to jump start the Chinese economy with a specific focus on boosting its digital economy and continuing its effort to lead on renewable energy technology.

But despite the green-tech push, the stimulus packages feature heavy investment in coal-fired power plants, in part for purposes of job creation.

Climate change is one of the areas in which China still adheres to the developing country logic. It retains significant negotiating power through strong alliances with Brazil and Saudi Arabia (both needed to make an international agenda work) and with the G77 more broadly, which includes the majority of states most gravely affected by the effects of global warming and rising sea levels.

Europe can make a sustainable development policy offer to these countries within the Green Deal framework and

Figure 9. A foreign policy action plan for the European Green Deal



Source: Bruegel/ECFR.

"Responsibly greening the European economy necessarily implies greening the supply chains of which China is an essential part"

compete with China's Belt and Road Initiative, which has already generated degrees of cynicism and opposition in recipient countries.

Whether developing countries are receptive to the European offer will to a great extent depend on the conditions attached to loans and investments. But in the countries in Europe's vicinity, greater European conditionality on accession financing in line with the Green Deal could effectively hamper Chinese investments in coal power plants and environmentally harmful resource extraction.

A foreign policy action plan for the European Green Deal

How should the EU manage the geopolitical repercussions of the European Green Deal, and the possible reactions of countries including Algeria, China, Russia, Saudi Arabia and the US?

From a conceptual perspective, answering this requires looking beyond traditional geopolitics and security considerations, while considering soft power issues. That is, the EU can strengthen its position as a norm- and standard-setter for the global energy transition, promoting transparent cooperation on technical and regulatory matters in different fields. This should also be considered as part of a foreign policy action plan for the European Green Deal.

From a policy perspective, a clear strategy and a foreign policy action plan are needed. We suggest dual approach: i) actions to manage the direct geopolitical repercussions of the European Green Deal; ii) actions to foster EU global leadership in the field (Figure 9).

Action to manage the direct geopolitical repercussions of the European Green Deal

#1 Help neighbouring oil and gas-exporting countries manage the repercussions of the Green Deal

The EU has a strategic interest in contributing to the stability of its neighbourhood, for a number of reasons, from migration to trade. In this context, helping oil and gas-exporting countries in the neighbourhood to manage the repercussions of the European Green Deal will be a crucial item in the foreign policy agenda.

The EU should not adopt a one-size-fits-all approach here. It should rather adopt an approach that fits the specific context of each partner country and focuses on the most promising local competitive advantages. Europe's past experiences of promoting abstract regional energy cooperation projects should not be repeated.

The EU and its oil and gas-exporting neighbours have time to properly plan this transition. Up to 2030, the EU will continue to import oil and gas from neighbours, and significant declines will only start after 2030.

The decade to 2030 should be used to prepare for what will come afterwards. Revenues from oil and gas exports should be increasingly utilised by oil and gas-exporting countries to diversify their economies, also including into renewable energy and green hydrogen that could in the future also be exported to Europe. The EU should support such initiatives, including through a stronger and more coherent approach to climate finance (see #5).

#2 Improve the security of critical raw materials supply and decrease dependence on China

Securing access to the critical raw materials that underpin green technologies is essential to safeguard the implementation of the European Green Deal and to ensure reliable industrial development in Europe. This will ensure 'Europe's strategic autonomy' (European Commission, 2020).

This can be done through supply diversification, increased recycling volumes and substitution of critical materials. Where possible, increasing the domestic supply of critical raw materials could alleviate Europe's reliance on imports.

Likewise, diversifying the import portfolio represents a sensible strategy to avoid risks of over-dependency on a single supplier. Trade agreements or contracts with different supplier countries could help reduce the threat of supply shortages.

Alongside diversification, Europe should pursue recycling and substitution strategies. While several critical raw materials have a high technical recycling potential, their recycling rate remains generally low. Increasing the cost competitiveness and efficiency of sorting and recycling technologies is thus a priority.

In this field, the EU can provide support for research and innovation (through Horizon Europe) and for technology demonstration (for example, via the Innovation Fund).

#3 Work with the United States to establish a common carbon border adjustment mechanism

As noted in previously, even if the introduction of a carbon border adjustment mechanism is done in a way that prevents formal objections at the WTO, trade partners might still perceive it a protectionist measure and threaten or adopt retaliatory measures.

The challenge for the EU will be to design a carbon border tax *"in such a way that it minimises the potential costs to the international system, while maximising the chances that it reduces global carbon emissions"* (Horn and Sapir, 2020).

President Biden's climate plan pledges similar carbon border adjustment measures, opening an avenue for the formation of a joint EU-US approach. The EU should take the initiative and propose to the US president the creation of a climate club whose members would apply similar common carbon border adjustment measures.

The club would function as an open partnership, and membership would be subject to criteria on the level and implementation of emissions reductions. All countries, including China, would be welcome to join if they commit to abide by the club's objectives and rules.

To succeed, a climate club should be initiated by a group of countries that are (a) committed to emission reduction targets compatible with the goals of the Paris Agreement, and (b) significant enough economically to create a strong incentive for third countries to join. This is why a joint EU-US initiative, possibly in partnership with developing countries, would be a major boost to climate action.

Together, the two economies still account for over 40 percent of global GDP and nearly 30 percent of global imports[41]. The size of the transatlantic economy means that, if the carbon border adjustment is constructed to comply with WTO rules, trade retaliation from third countries would not be possible.

In this way, a climate club would put the enormous transatlantic economy at the core of global efforts to reduce greenhouse gas emissions, effectively complementing the UNFCCC process.

During the Trump presidency, cooperation between the EU and China was instrumental in avoiding the collapse of the Paris Agreement. If only for this reason, the EU should in parallel intensify its dialogue with China on climate action with the aim of letting China join the climate club as soon as possible.

Action to foster EU global leadership in the field

#4 Become the energy transition's global standard setter

The EU can become the global standard-setter for the energy transition. One of the EU's biggest strengths is its internal market of 450 million people. Requiring compliance with strict environmental regulations as a condition to access the EU market is a strong incentive for exporting countries to green their production processes.

Furthermore, the EU can become a standard setter for the nascent hydrogen market. By quickly developing a benchmark for euro-denominated hydrogen trades, the EU could create the basis for an international hydrogen market based on EU standards. Moreover, it could try to consolidate the role of the euro the sustainable energy trade.

Finally, the EU can become a standard setter for green bonds. The global green, social and sustainability-related bond market reached €270 billion in 2019. The segment currently remains a niche, representing about 5 percent of the total bond market.

However, it is rapidly expanding. Between 2018 and 2019, it expanded by 50 percent, and it is expected to have reached €338 billion in 2020. The EU is not only the biggest player in the market with 45 percent of global issuance in 2019, but is also the market experiencing the strongest increase, with a 74 percent jump between 2018 and 2019.

In a survey, 67 percent of respondents indicated a lack of adequate supply of green bonds (TEG, 2019). Moreover, respondents specified that regulation is the most effective way to scale-up the green bond market, with the development of a clear taxonomy being a priority.

Considering, the current relatively small size of the green bond market, its expected rapid growth, the EU's substantial share and investors' needs for standardisation, the EU could well become a global standard-setter.

#5 Internationalise the European Green Deal

The EU produces less than 10 percent of global greenhouse-gas emissions. This implies that to have an impact on global warming, the EU needs to push the green transition beyond its borders. It has two main instruments for this: i) the EU budget and Next Generation EU, and ii) EU development policy.

The EU budget and Next Generation EU

The EU adopted in 2020 its budget – in jargon, the Multiannual Financial Framework (MFF) – for the period 2021-2027, the overall size of which is €1,074.3 billion.

On top of this, the EU established in 2020 its post-COVID-19 recovery fund – named Next Generation EU (NGEU) – for 2021-2023, with an additional €750 billion of resources. The whole package thus amounts to around €1.8 trillion. The EU has pledged to devote 30 percent of MFF spending and 37 per- cent of NGEU spending to climate action[42].

This means that between 2021 and 2027 around €600 billion of 'fresh' EU resources will be made available for the green transition. There are of course many demands on this money, but the EU could agree to devote 10 percent of the resources earmarked for climate action – €60 billion – to internationalise the European Green Deal to neighbouring countries and beyond.

Such an approach, entailing the provision of grants, loans and guarantees for sustainable energy projects in partner countries, would help meet global climate objectives more efficiently, as countries in the EU neighbourhood and in the developing world have lower marginal emissions abatement costs than European countries.

Second, it would help EU industry enter new, rapidly growing, markets – turning into a formidable EU green industrial policy tool. Third, it would help economic development and diversification in the EU's partner countries (and most notably in oil and gas-producing countries), providing an invaluable foreign policy dividend for the EU.

EU development policy

The EU and its members are the world's leading Official Development Assistance donors, with €75.2 billion[43] disbursed in 2019, or 55 percent of global assistance. In the 2021-2027 budget, the EU has a new tool designed to bring together EU funds for external policies: the Neighbourhood, Development and International Cooperation Instrument (NDICI). The introduction of NDICI – the budget of which is set at €79.5 billion for 2021-2027 – will help increase the EU's visibility and leverage in developing countries.

One problem related to EU development policy has been the fragmentation of its instruments, which leads to overlaps, gaps and inefficiencies. A further step towards the consolidation of Europe's development policy would be to create a single entity, such as a European Climate and Sustainable Development Bank (Council of the European Union, 2019).

NDICI and a new climate bank could become the primary tools for exporting the European Green Deal to the developing world, starting with Africa.

#6 Promote global coalitions for climate change mitigation: a coalition for the permafrost

Around a quarter of the Northern hemisphere is covered in permanently frozen ground (permafrost). As a result of rising global temperature, the Arctic permafrost is not thawing gradually, as scientists once predicted, but at an unprecedented speed. This is a major problem for climate change, because the permafrost is a massive reservoir of greenhouse gases.

As these soils thaw they release ancient organic materials – and masses of greenhouse gases – that have been frozen underground for millennia. The potential magnitude of the problem is shown by the up to 1,600 gigatonnes of carbon dioxide held in permafrost globally: nearly twice what is currently in the atmosphere.

Scientists have pointed to the urgent need to avoid a tipping point that would see global warming release the gases from the permafrost, making global warming much worse.

The EU should initiate and lead a global coalition for the permafrost, aimed at funding research to better assess the current status of the problem and at funding measures to urgently contain the permafrost thaw, such as restoring grassland by reducing forests and increasing grazing by large animal herds (Macias-Fauria *et al.* 2020).

This is a global common good, and as such it requires international cooperation.

#7 Promote global coalitions for climate change mitigation: a coalition for CO_2 emissions removal

Another global common good requiring international cooperation is carbon sequestration. Removing CO_2 from the atmosphere will be necessary to reach climate neutrality by the middle of the century and subsequently to achieve net negative emissions.

CO_2 can be removed from the atmosphere through both nature-based and technological solutions. Nature-based solutions include afforestation and reforestation. Technology-based solutions include carbon capture and storage and geoengineering solutions such as direct air capture.

The EU should establish a global coalition for CO_2 emissions removal aimed at promoting international cooperation in the field. The coalition should include countries, companies and international organisations willing to invest jointly in afforestation and reforestation activities across the world, and to invest jointly in research, innovation and demonstration projects for technology-based solutions.

The preservation of rainforests as major sinks of CO_2 is essential. With carbon pricing currently far from delivering the necessary investment signals, there is an absence of incentives to pursue both solutions. This makes international cooperation of paramount importance.

The EU should use trade, development and financial policy to pursue this agenda.

#8 Promote a global platform on the new economics of climate action

The EU should become a global reference on the socio-economic implications of decarbonisation. Being at the forefront of global decarbonisation efforts, the EU is among the first to deal with its socio-economic impacts.

The aim of the European Green Deal is to intelligently promote decarbonisation by tackling the distributional effects of the economic and industrial transformation it necessarily implies, and by ensuring the social inclusiveness of the overall process.

Issues such as just transition and addressing the distributional effects of climate policies are key for the successful unfolding of the decarbonisation process. Likewise, green industrial policy and green investments are key to seize the industrial opportunities of decarbonisation, promoting jobs and economic growth.

The EU could establish multilateral forums to share with international partners lessons learned and good practices. This could replicate the approach of EU carbon market cooperation with international partners, which has, for instance, provided a significant contribution to the launch of China's nationwide emissions trading system.

Together, these actions would provide foreign policy support for the European Green Deal. They respond to the geopolitical challenges that other countries are likely to face from the Green Deal and from increasing global warming more generally, and offer ways to leverage European efforts and expand the decarbonisation push beyond the EU – which will be a necessary to the Green Deal's success. ■

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Endnotes

1. See https://ec.europa.eu/eurostat/statistics-explained/pdfscache/46126.pdf
2. From the Sahara to the Arabian Peninsula.
3. From Morocco's Atlantic coast to Egypt's Red Sea coast.
4. This was, for instance, the case of the failed Desertec project and of similar initiatives, such as the Mediterranean Solar Plan.
5. For example, some industrial processes such as steel and cement, and certain transport segments such as trucks, shipping and aviation.
6. See http://www.bmz.de/en/issues/wasserstoff/index.html
7. Other countries, such as the United States, Japan and Australia, have produced similar lists.
8. See Borghesi et al (2019). For France, for example, consumption of carbon dioxide is 60 percent greater than production; see https://www.hautconseilclimat.fr/publications/maitriser-lempreinte-carbone-de-la-france/
9. California's emissions trading system, which applies a border carbon adjustment to electricity imports from neighbouring states, is the only context in which border adjustment has been tried.
10. Horn and Sapir (2019) showed that under certain conditions carbon border adjustment mechanisms can be implemented without endangering the multilateral trading system.
11. See https://www.themoscowtimes.com/2019/12/19/putins-end-of-year-press-conference-in-quotes-a68686
12. See https://www.themoscowtimes.com/2020/02/10/putins-top-climate-adviser-calls-for-urgent-climate-action-a69207
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23. See https://www.bcg.com/en-gb/publications/2020/how-an-eu-carbon-border-tax-could-jolt-world-trade
24. See https://www.ft.com/content/6825366f-92db-4473-b5b2-cacda032d8ee
25. This strategy is referred to as Green Paradox by economists. This is one reason why carbon prices should increase sharply early on, as otherwise oil extraction will be as much as possible anticipated to prevent stranded oil assets.
26. See https://www.ft.com/content/a5292644-958d-4065-92e8-ace55d766654
27. See https://www.pewresearch.org/fact-tank/2020/04/21/how-americans-see-climate-change-and-the-environment-in-7-charts/
28. See for example https://www.gov.ca.gov/2020/09/23/governor-newsom-announces-california-will-phase-out-gasoline-powered-cars-drastically-reduce-demand-for-fossil-fuel-in-californias-fight-against-climate-change/
29. See https://joebiden.com/climate-plan/
30. See https://thehill.com/opinion/energy-environment/511367-biden-has-an-ambitious-climate-plan-but-it-needs-to-do-much-more
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41. See https://ec.europa.eu/eurostat/statistics-explained/index.php/International_trade_in_goods
42. See https://ec.europa.eu/commission/presscorner/detail/en/ip_20_1657
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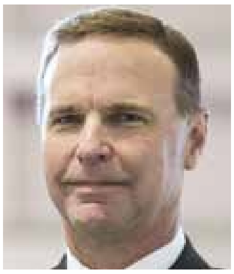


Beyond COVID-19

Ed Bolen is President and CEO the National Business Aviation Association (NBAA)

Even as the international business aircraft community continues responding to the daunting challenges of our ongoing COVID-19 moment, I believe there's reason for optimism as we look to finally emerge from this crisis.

Certainly, we've had to weather many 'headwinds' throughout the past year. Local, state and national restrictions in 2020 had a profound impact on the travel flexibility afforded by the use of business aviation, and those effects continue to linger today.

We must also acknowledge that already, some of the positive developments we'd hoped to see at the start of 2021 – most notably a return to in-person gatherings – haven't yet manifested. Despite these setbacks, however – in fact, to large degree because of them – we've also seen tremendous resilience and innovation across our industry.

For example, as air traffic control facilities around the globe were impacted by COVID-19, business aviation, flight crews adapted quickly to such 'ATC Zero' environments by reverting back to their training, which in turn allowed operations to continue safely under very challenging circumstances.

Similarly, our industry was at the forefront of measures to protect the safety and health of our passengers, crews and flight departments. These range from cashless transactions and enhanced sanitization procedures, to dedicated flight crew, dispatch and maintenance shifts.

At the same time, business aviation FBOs swiftly implemented enhanced safety protocols of their own to ensure the safety of the passengers and flight crews utilizing their operations, as well as their employees. This impressive response has helped business aviation weather the COVID storm with greater resilience than most other segments of the transportation industry.

As COVID-19 took hold across our country last Spring, companies also realized that business aviation offered distinct advantages over other forms of travel, including preservation of personal health standards and social-distancing guidelines. The ability to reach thousands of community airports, another inherent benefit of our industry, became even more important as airlines drastically curtailed their service.

It's also clear we're seeing a wave of new business aviation clients, particularly in the charter segment, as people

have turned to our industry in the place of traveling on the commercial airlines. In this time when concerns about personal health and safety are paramount, business aviation offers passengers a greatly enhanced level of control over their surroundings – one that is simply not possible onboard a commercial airliner, or in the airline terminal environment.

Many signs point to an exciting future

Although we continue to face challenges from the lingering pandemic, I also feel a strong sense of optimism as we look to rebound in 2021, when vaccinations take hold, and our lives return to something more closely resembling 'normal'.

In fact, I believe it's fair to say our industry also has several strong 'tailwinds' that indicate a bright future ahead, including continued strong growth predictions for the global economy. We've seen before that, as the economy expands, so too does demand for transportation across all segments, but particularly in aviation. This offers an opportunity for business aviation as a leading indicator of economic recovery.

I'm also excited by the level of innovation across our industry that has maintained momentum throughout the pandemic. From the emerging advanced air mobility (AAM) segment, to continuing investments in supersonic aircraft, to increasing awareness and adoption of new, sustainable aviation fuels (SAF), there's never been a more exciting time to witness new product development across business aviation.

As readers of *World Commerce Review* are aware, NBAA is at the forefront of promoting sustainability across our industry, particularly in the area of sustainable aviation fuel, or SAF. In fact, 2020 may be remembered as the year when our industry truly advanced toward widespread adoption of these innovative and environmentally-sustainable fuels.

Momentum established through a variety of SAF-focused events around the globe in 2019 continued to be strong, even as COVID-19 halted in-person demonstrations. That

"... the lessons we've learned will serve us well this year and beyond"

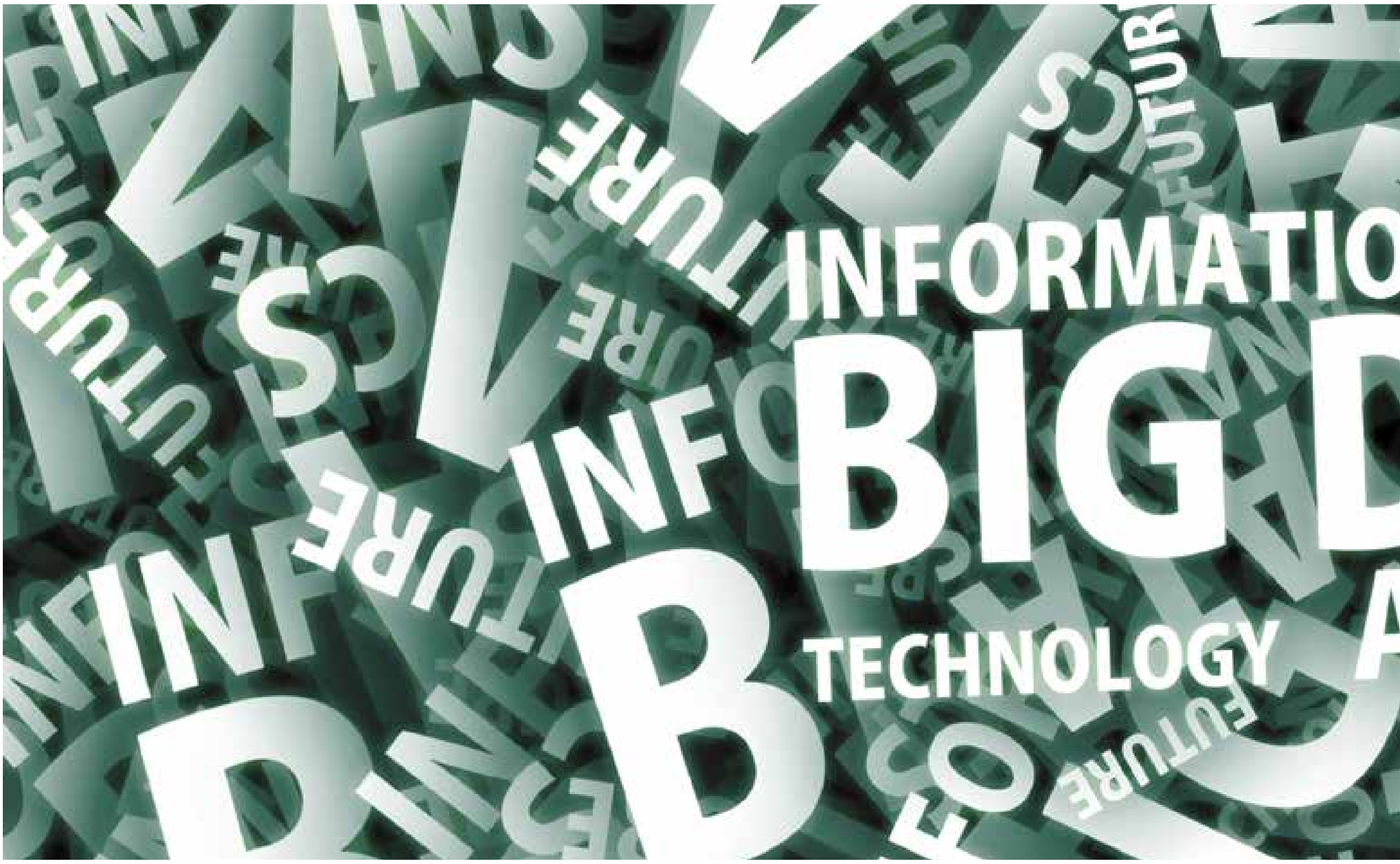
included strong participation in NBAA's Virtual SAF Summit last September, and this greater awareness drove progress toward broader SAF availability and production.

Already this year, we've seen several of announcements of new partnerships in bringing SAF to a larger audience. At the same time, our industry is building on other ways to promote sustainability through book-and-claim programs, and encouraging government programs to further stimulate this important, emerging market.

A next-generation workforce

I'm also encouraged by our industry's growing focus on growing a diverse inclusive and highly talented workforce. NBAA is working on this front across multiple channels, including with universities and others to promote business aviation, and make sure that our industry is accessible, and capable of attracting the best and the brightest to help us go forward.

This certainly remains a time that holds unique, and at times seemingly insurmountable obstacles for our industry. However, it's also a time when learning from each other and applying lessons that are inherent to us as aviators and aviation professionals continues to be at the forefront. In short, the lessons we've learned will serve us well this year and beyond. ■



Regulating big tech

Julia Anderson is a Research Analyst, and Mario Mariniello is a Senior Fellow, at Bruegel

Digital market forces drive huge efficiency gains. But they also create winner-take-all dynamics that can, left unchecked, lead to monopolistic markets and hurt consumers in the long run. Slow-moving competition policy tools are ill-equipped to fully address these digital concerns.

In December 2020 the European Commission proposed the Digital Markets Act (DMA)[1] to regulate the gatekeepers of the digital world by imposing direct restrictions on the behaviour of tech giants. While the Commission has not named any companies, it has proposed criteria that are sure to catch Google, Facebook, Amazon, Apple, Microsoft and SAP, among others.

This blog unpacks the different provisions of the DMA and explains why the Commission chose to regulate big tech.

What is a digital gatekeeper?

A gatekeeper is a company that acts as an important nexus between two or more groups of users – say buyers and sellers. When they attract a large share of users on one side of the platform (say buyers) gatekeepers can become unavoidable tolls on routes to certain markets or customers. Users on the other side of the platform (say sellers) may have little choice but to use the gatekeepers' infrastructure.

The EU has thought in terms of 'digital gatekeeper' for as long as Google has existed[2]. In the DMA, it defines a gatekeeper as

a platform that operates in one (or more) of the digital world's eight core services (including search, social networking, advertising and marketplaces) in at least three EU countries and:

- Has a significant impact on the internal market (defined quantitatively as an annual turnover of €6.5 billion or a market capitalisation of €65 billion);
- Serves as an important gateway for business users to reach end-users (user base larger than 45 million monthly end-users and 10,000 business users yearly); and
- Enjoys an entrenched and durable position or is likely to continue to enjoy such a position (meets the first and second criteria over three consecutive years).

A platform that meets these quantitative thresholds is labelled a gatekeeper. However, the Commission would retain the right to remove (or confer) 'gatekeeper' status by qualitative assessment. The Commission would also be empowered to alter the thresholds as technologies change, and to conduct market investigations to look for new gatekeepers.

Why big tech is big

Digital hubs are a time drain. In December 2019 (pre-COVID-19), the average Italian[3] spent 45 hours a month on Facebook, and 24 hours on Google. The same may be true for physical marketplaces and social venues, but online, the hubs are controlled by only a handful of global players.

British internet users spend 40%[4] of their online time on sites owned by just two providers (Google and Facebook). These same two providers are frequented by 96% and 87% of British users each month. 58% of Germans[5] book their holidays through just one site (Booking.com).

For a long time, policymakers were not especially worried about high concentration in digital markets. They assumed digital champions faced competition 'for the market', that is, competition from outside players keen on becoming tomorrow's winners. After all, Facebook outcompeted MySpace. Google overtook AltaVista. Nokia once looked unassailable.

But the competitive dynamics of the early days of the internet no longer seem to apply. While the primacy of AltaVista lasted one year (and Myspace three years), a decade[6] of that of Google and Facebook has now passed. The persistence of today's digital leaders has become concerning: have they found a way out of the competitive race?

There are several explanations for the unusual persistence of digital leadership. For one, digital markets feature characteristics of 'tipping markets', or markets in which there is room for only a few players.

These characteristics are the combination of:

- Consumer inertia (why bother shop for a new email provider when the current one works just fine?);

"The Commission does not propose to regulate big tech as natural monopolists, but rather to make sure it never has to"

- Increasing returns to scale (recommendation algorithms become better with more users);
- Low marginal costs (it costs close to nothing to distribute one extra app);
- Strong direct and indirect network effects (the more users frequent a social media site, the more attractive it becomes to other users and to advertisers).

To illustrate, consider the market for mobile operating systems (OS). OS with more end-users are naturally more attractive to app developers than OS with fewer end-users. Developers thus tend to prioritise the largest OS (an example of indirect network effects).

Over time, the gap in what larger and smaller OS can offer grows. The large OS gather more user data which helps them improve the quality of their recommendations. The small OS become even less attractive, until they go bust and the winners take all. One of the reasons Microsoft abandoned the mobile market[7] in 2017 is that it could not attract enough app makers to its OS.

Masses of data, cheap machine learning technologies and the refining of ecosystem business models[8] have further entrenched leading positions, conferring incredible bargaining power to set commercial conditions and terms unilaterally (eg. to expel, charge high fees, manipulate rankings and control reputations). Such power leaves platform users vulnerable to abuse.

Online gatekeepers are a source of concern

Success is by no means illegal. But practices that lock it in might well become unlawful. The DMA would constrain gatekeepers' behaviour while forcing them to proactively open up to more competition.

Those in breach of the rules face penalties of up to 10% of their yearly turnover and repeat offenders face being broken-up.

The DMA addresses two problems: high barriers to entry and anticompetitive practices by gatekeepers. The objective is to make digital markets both contestable and fair for existing and future rivals.

To illustrate, consider the DMA's prohibition on combining end-user data from different sources without consent. Combining data from multiple sources can give gatekeepers a significant advantage over smaller rivals.

Indeed, data gleaned from one source, say online searches, can be used to predict users' preferences in other market, say music streaming. A gatekeeper that knows the web browsing history of a user is much better positioned to predict her musical tastes than a data-poor rival.

Restricting the combination of data from multiple sources, therefore, restricts the ability of gatekeepers to leverage their market power from one market to another to the detriment of small players. Other prominent rules include:

- No self-preferencing: a prohibition on ranking their own products over others;
- Data portability: an obligation to facilitate the portability of continuous and real-time data;
- No 'spying': a prohibition on gatekeepers on using the data of their business users to compete with them;
- Interoperability of ancillary services: an obligation to allow third-party ancillary service providers (eg. payment providers) to run on their platforms;
- Open software: an obligation to permit third-party app stores and software to operate on their OS.

The proposal also includes a requirement that gatekeepers inform the regulator of all mergers and acquisitions, even when the target is too small to be subject to merger control. It does not include any powers to intervene to block these mergers however (unlike the equivalent UK proposal[9]).

As with the definition of 'gatekeeper', the DMA's list of obligations is a balancing act between enforceability and flexibility. Indeed, while seven rules apply equally to all gatekeepers, the majority (eleven rules) will be tailored to each.

The practical consequences of unconstrained power

In the last few years, numerous studies (twenty-two of which are summarised here[10]) and antitrust investigations have suggested that some gatekeepers adopted questionable practices from a competition standpoint (Table 1).

In setting the DMA list of obligations, the Commission drew on the knowledge it acquired through the various antitrust investigations: the DMA rulebook targets most of the unfair practices listed in Table 1.

Take the Amazon case for example. The Commission suspects the e-retailer of gathering data on the activities of third-party sellers in order to out-compete them.

One DMA obligation – for gatekeepers not to use the data of business users to compete with them – would clearly addresses the problematic practice.

Stepping-up with ex-ante regulation

The DMA takes a diametrically opposite approach to antitrust enforcement (which is currently the United States' favoured

Table 1. Alleged unfair practices by large digital platforms investigated by EU or national competition authorities (NCA)

General practice	Platform	Nature of concern	Legal action
Unfair contract terms	Apple	Anti-steering clauses on the Apple App store (Epic Games case)	Private lawsuit open (2020)
	Booking.com	Most favoured nation clauses	German NCA, overruled (2019)
	Amazon	Links between access, rankings and unrelated conditions	German and Austrian NCAs investigation open
	Google	Exclusivity clauses (Google AdSense)	Commission decision (2016-2019), pending ruling by the EU General Court
Anti-competitive use of third-party data	Amazon	Misuse of Amazon Marketplace data to benefit own services	Commission investigation open (2019)
	Google	Misuse of third-party data to support display advertising	Italian NCA investigation open
	Apple	Concerns over Apple App store data use to inform own music product development	Dutch NCA market study (2019)
	Facebook	Misuse of third-party data	German NCA, overruled (2019), now on appeal
Self-preferencing in rankings and listings	Google	Influencing listings (Google Shopping)	Commission decision (2010-2017), pending ruling by the EU General Court
	Google	Pre-installation of Chrome on Android (Google Android)	Commission decision (2015-2018), pending ruling by the EU General Court
	Google	Refusal to list competing app on auto services	Italian NCA investigation open
	Amazon	Influencing listings for companies using Amazon fulfilment	Italian NCA investigation open
Tying and bundling	Microsoft	Tying of Media Player to the OS	Commission decision (2000-2004)
	Apple	Pre-installation of Apple music service onto Apple devices	Dutch NCA market study (2019)
Lack of access to key functionality	Apple	Lack of access to payment chip	Dutch NCA market study (2019)
	Amazon	Exclusive access to rating service Vine	German and Austrian NCAs investigation open
Other self-preferencing	Apple	Commissions of up to 30% on downstream competitors	Commission investigation open (2020)

Note: Cases investigated by the European Commission are highlighted in grey.
Source: Bruegel based on European Commission's DMA Impact Assessment (2020)[11].

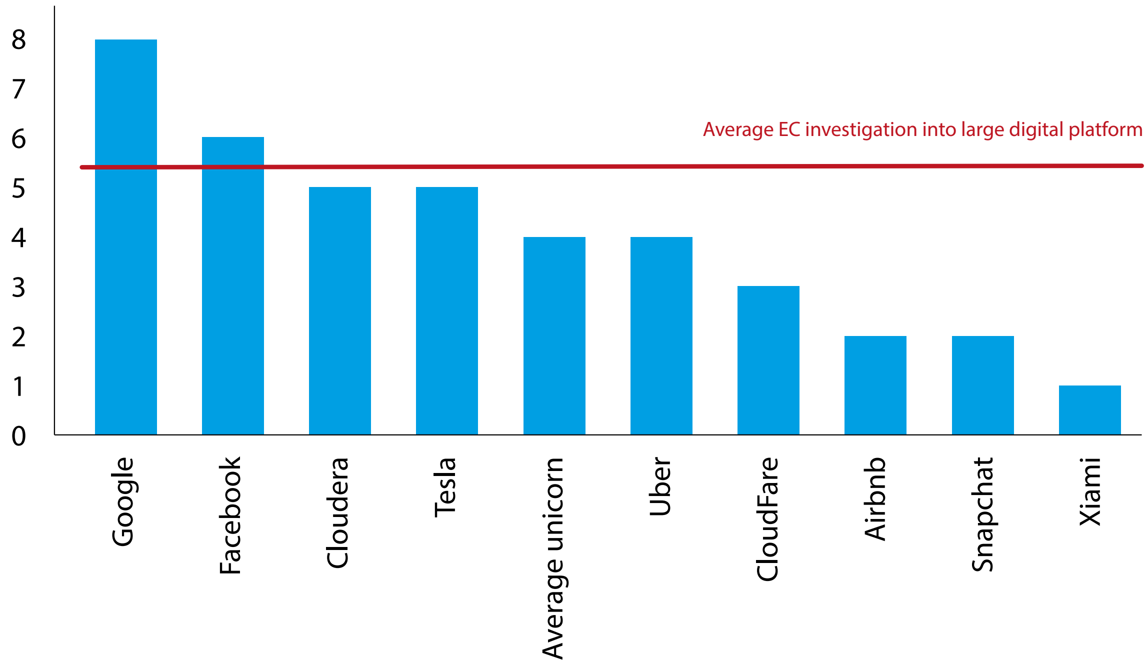
approach). It is an ex-ante set of rules that constrains operators before any bad behaviour can materialise, as opposed to antitrust which kicks in after an infringement (ex-post).

Antitrust (ex-post) enforcement has a number of advantages: by proceeding on a case-by-case basis it can be applied to a variety of business models, avoiding the imprecision of regulation.

However, examples like the Google shopping case, now in its tenth year, show that this approach isn't fit for digital markets. Google's business model has changed considerably over the past decade, aside from the fact that for the competitors hurt by Google's conduct in 2010, the damage has been done.

In fast-moving markets prone to tipping, ten years is a lifetime. On average, successful start-ups that reach a valuation of $1

Figure 1. Years to reach valuation of $1 billion and average length of Commission antitrust case into large digital platforms



Note: average length of a Commission antitrust case into large digital platforms computed on the basis of the information provided in Table 1. Unicorn=start-up company that reaches a valuation of $1 billion.
Source: Bruegel based on Accenture.

billion do so in one year less than it takes the Commission to run an investigation into large digital platforms (Figure 1).

The analytical pillars of antitrust cases are: market definition (eg. the market for music streaming) and assessment of market dominance (ie. how much power the investigated firm has in said market).

As highlighted in the DMA's impact assessment[12], both are notoriously difficult to establish in multisided digital markets: what may amount to a market on one side of the platform (eg. the side of music streamers) may not clearly extend as a market on the other (eg. the side of music publishers).

The fact that many digital goods are provided for free also challenges traditional methods for assessing market power.

The EU's competition authority's resources are already stretched[13]. This can only exacerbate the great asymmetries in technology and knowledge between the authorities and market players.

Even if competition enforcement could somehow be sped up in digital cases, it would fail to adequately address the systemic failures that stem from the behaviour of digital users, for example the tendency to stick to the default option.

Online platforms have developed sophisticated tools to monitor users' behaviour in real-time and are uniquely positioned to leverage behavioural biases to solidify their market positions.

Consider, for instance, that on a smartphone where Google is the default search browser, 97% of searches are made on Google versus 86% on desktops where Bing is the default, according to a CMA report[14]. Forcing one platform to change its default setting will do little to prevent every other digital player from doing the same.

Regulation can address some of these limitations: by setting out clear rules from the outset, regulators would be empowered to act quickly when these rules are violated. The creation of a digital market centre of knowledge and expertise would ensure speedy detection. Regulation is also more far-reaching: it concerns all gatekeepers, all of the time.

True, regulation is more prone to capture by industry than competition policy. Over-enforcement is also a concern as rules could fail to account for consumer benefits from seemingly anti-competitive behaviour. In a very dynamic environment, regulation can be rendered useless.

These are risks EU policymakers are willing to take after what they have judged to be years of underenforcement. And the proposed DMA offers more flexibility than the stereotypically-rigid regulatory approach. As described above, the terms of the DMA would evolve alongside markets and adapt to individual business models.

More fundamentally, the aim of the DMA is to protect the competitive process, not to prescribe specific outcomes. The Commission does not propose to regulate big tech as natural monopolists, but rather to make sure it never has to. ■

Endnotes

1. The DMA was proposed alongside the Digital Services Act (DSA) which targets illegal goods, services and content, abuse of platforms, advertising and algorithmic transparency. The DSA concerns most online businesses.

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Will 2021 in CEECs look better than 2020?

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Introduction

The COVID-19 outbreak in the early 2020 has dramatically affected societies and economies all over the globe. It has already claimed two million lives worldwide and lead to an unprecedented contraction of the world's economies. The successful development of the vaccines in late 2020 and the expected ease of the containment measures coming ahead give rise to optimistic projections for the economic rebound in 2021.

2020 in a nutshell

As the International Monetary Fund (IMF) projections[1] show, it is expected that the global economy shrunk significantly in 2020 with an estimated 4.4% negative GDP growth rate. The EU economy was not an exception as economic activity almost halted and real GDP fell at double-digit rates in the first half of 2020.

European Commission forecasts[2] predict a negative real GDP growth of 7.4% for 2020. Employment has also suffered from a continuous drop in economic activity, with the unemployment rate in the EU set to hit 7.7% in 2020, an increase of one percentage point over 2019.

Central and Eastern European (CEE) countries

The downturn of economic activity in 2020 is expected to be slightly less pronounced in the CEE countries. The recent CASE projections show that the fall of annual real GDP in any CEE country will not reach the EU average.

The Czech Republic and Slovakia will suffer the most from the negative impact of COVID-19 on the regional economy, with an expected 6.8% contraction in GDP. Poland and Lithuania, on the other hand, are the two economies forecast to decline

at a relatively low pace with negative growth rates of 1.9% and 3.5%, respectively.

A sharp decline in economic activity could also be observed in the labour markets as the unemployment rates are expected to range from 2.7% to 8.6%, the lowest in the Czech Republic and the largest in Latvia and Lithuania.

The measures undertaken by the Czech government, the pre-crisis tight labour market, and low share of temporary employment contracts are the main contributing factors to the lowest expected unemployment rates in the Czech Republic.

The governments of CEE countries responded to the COVID-19 pandemic through various fiscal measures such as social security contributions, wage subsidies, increased loan guarantees for medium and large companies, additional loans from micro firms, increased unemployment benefits, interest rate subsidies, and public investment supports.

These measures are expected to increase government expenditures by on average 4.8% y/y in 2020. Along with decreased tax revenues, elevated expenditures will likely lead to large gaps in government financing.

Poland in the spotlight

The year 2020 is set to mark the worst performance of the Polish economy in nearly three decades. In response to the COVID-19 pandemic and restrictions imposed on economic activity, Polish GDP went down by nearly 9% q/q in the second quarter of 2020 with respective 10.5% and 9% q/q decline in private consumption and fixed investment.

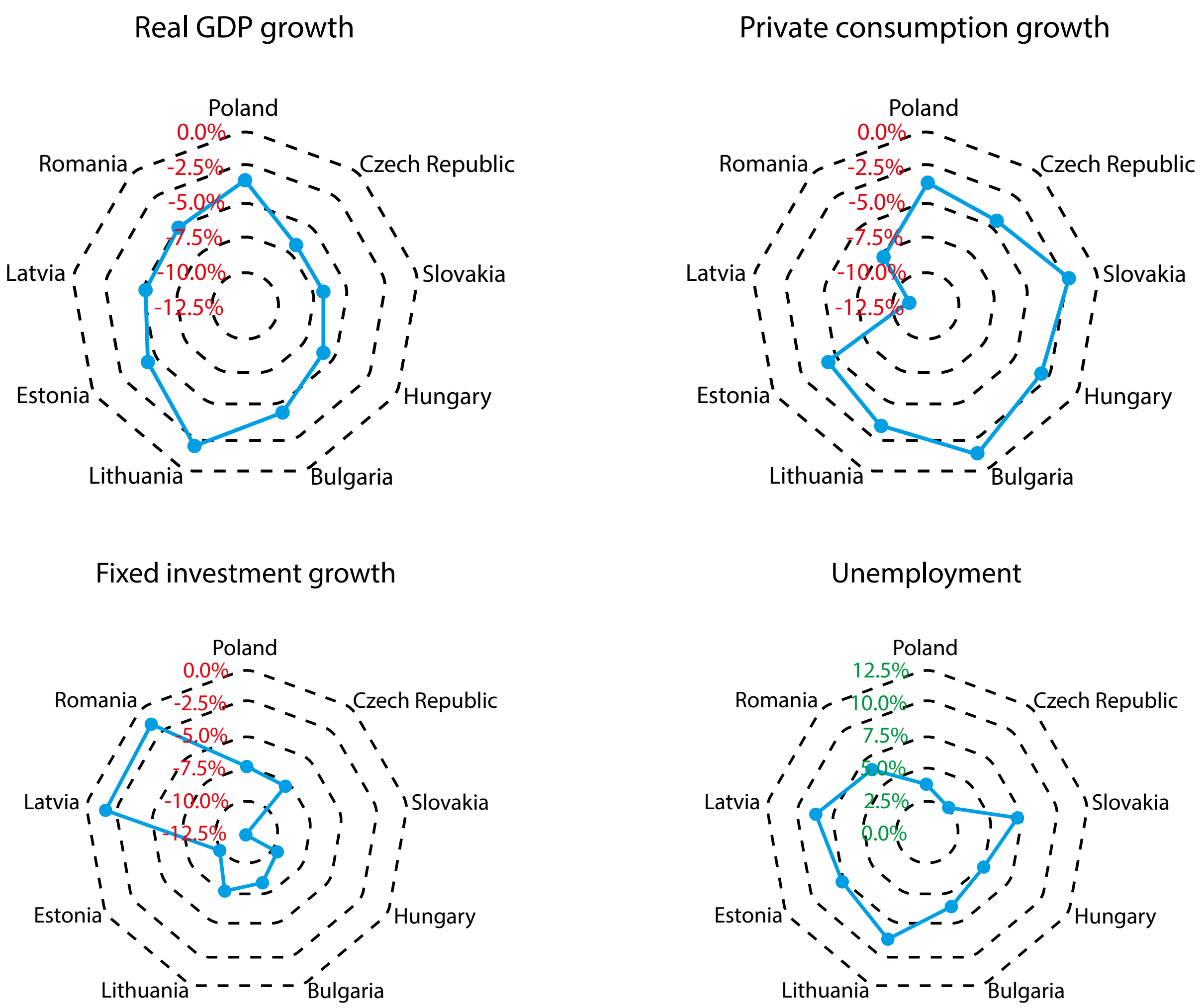
"... it is crucial that the economies in the region succeed in containing infection rates and effectively implement national recovery strategies"

In the third quarter of 2020, with the ease of containment restrictions, the Polish economy sharply rebounded, and the GDP soared by 7.9% q/q. The surge in new infections and reintroduction of containment measures were expected to bring a halt to the recovery of the economy in the last quarter of 2020, with the expected annual real GDP growth at negative 3.5% and unemployment rate at 3.8% for 2020.

Thanks to the emergency support measures the increase in the unemployment rate following the pandemic did not go one-to-one with the decrease in the economic growth. The main employment-related measures included subsidies for employee remuneration costs and social security contributions for companies that experienced sharp decline in their turnover.

As of March 2020, the Polish Parliament started adopting legislation packages titled 'Anti-Crisis Shields'[3] that, as of January 2021, have already amounted to PLN 312 billion support[4] in a form of credit guarantees, micro loans, and liquidity programs for the businesses. Coupled with the dropdown in economic activity, these measures are expected to significantly deteriorate Polish public finances.

Figure 1. CEE economies forecast for the year 2020



Source: Own elaborations based on the CASE projections

CASE projects that the budget balance will reach -9.2% of the GDP in 2020, which could be the largest deficit among the CEE countries. The budget deficit will also push up the public debt in Poland. As a result, the public debt-to-GDP ratio is expected to hit 58.4% in 2020, whereas in 2019 it stood at 45.7%.

2021 outlook

CEE

The 2021 GDP in real terms is projected to remain below the levels observed in 2019 with the full recovery of the CEE economies being expected no earlier than 2022.

Among the CEE economies, the highest GDP growth in 2021 is projected for Slovakia – at 5.4% y/y. As Slovakia ranks first in terms of trade openness in the region, the anticipated restoring of international trade in 2021 is expected to support the recovery. In addition, the forecast 10.9% y/y growth in fixed investment – the highest among the nine CEE countries – will be the main engine of 2021 growth in Slovakia.

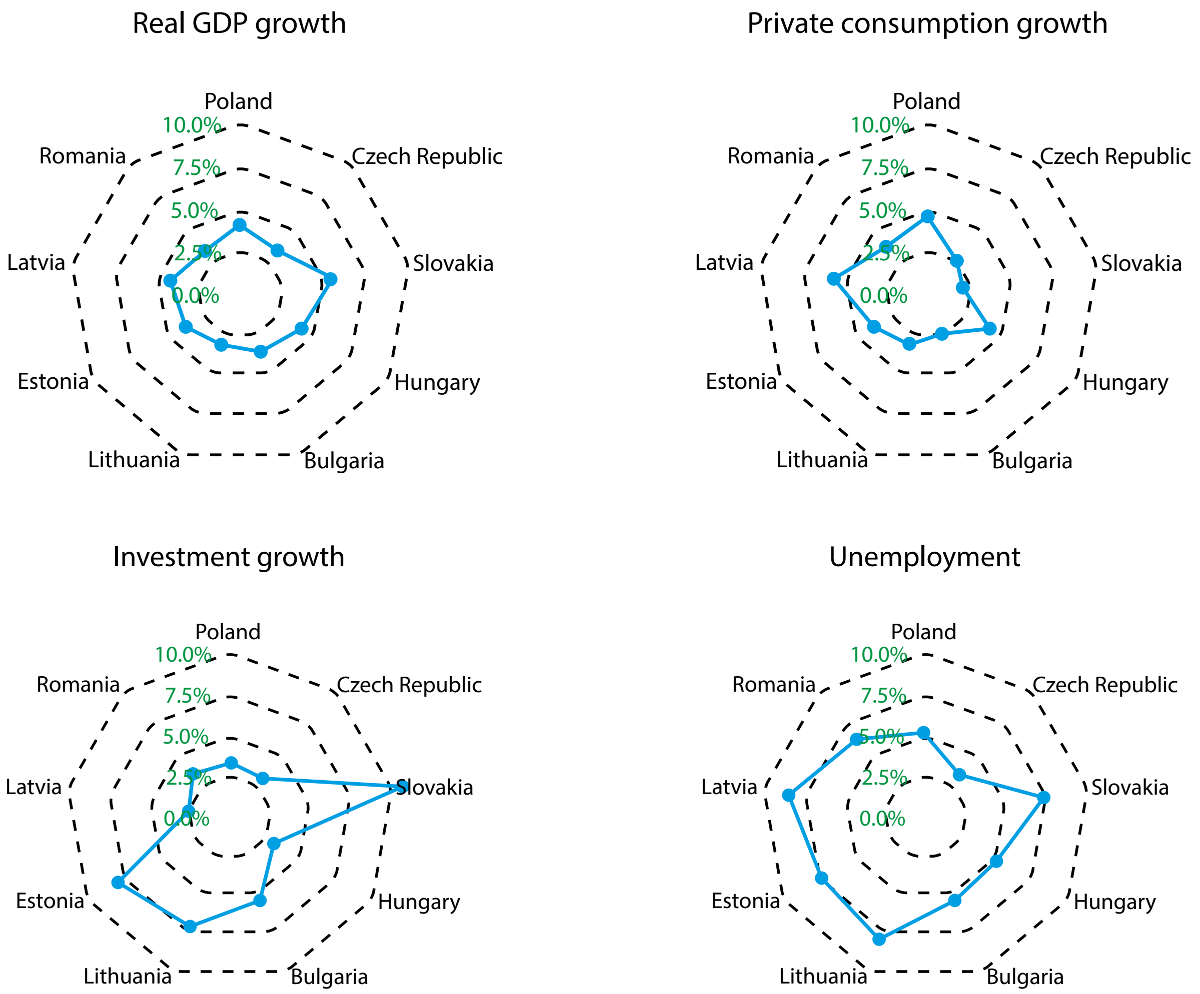
Poland, Hungary, and Latvia are the other economies expected to grow at a fast pace of over 4% y/y in 2021. The rebound will mostly be driven by private consumption that is expected to increase by 5.7%, 4.5%, and 4.2% y/y in Latvia, Poland, and Hungary, respectively.

On the other hand, the growth of fixed investment is anticipated to be relatively slow in these countries with a projected rate of around 3% y/y.

The other factors that contribute to the GDP growth in Hungary and Latvia diverge. The anticipated recovery in international trade coupled with the recent depreciation in the forint will support Hungary's positive trade balance which will contribute the 2021 GDP growth.

However, the opposite is true for Latvia – an expected negative trade balance will constrain the GDP growth, while the projected positive growth in public consumption is expected

Figure 2. CEE economies forecast for the year 2021



Source: Own elaborations based on the CASE projections.

to stimulate the 2021 recovery of the Latvian economy. In the case of Hungary, an expected cut in public spending will have negative impact on growth.

The growth rates of the other countries in the region are expected to fluctuate between 3% and 4% y/y. Estonia will lead this group with an estimated 3.7% y/y GDP growth, mostly driven by the prospect of the solid fixed investment performance expected to grow by 7.9% y/y in 2021.

Although the Czech Republic is expected to have the lowest unemployment rate in the region (3.5%), the anticipation of modest increases in private consumption (2.7% y/y) and fixed investment (3.2%) will help the Czech Republic to have a 3.5% y/y GDP growth in 2021.

Lithuania is forecast to have the lowest GDP growth among the CEE countries in 2021 – at 3.1% y/y. Although the projections for private consumption and fixed investment are not the lowest in the region (3.0% and 7.0% y/y, respectively), the expected negative trade balance in 2021 will pull down the GDP growth rate.

The Romanian economy will also follow a similar path with private consumption and fixed investment growth at 3.8% and 3.5% y/y, respectively, yet only 3.3% y/y GDP growth due to the expected negative trade balance and cuts in public consumption.

Poland in the spotlight

The assumed easing of the COVID-19 restrictions not only in Poland but also in the rest of the EU is expected to help Polish economy to recover in 2021. The annual GDP growth for the years 2021 and 2022 is thus forecast at 4.1% and 4.0%, respectively. These figures are approaching the average annual growth rates[5] enjoyed throughout 2014-2019 (ie. 4.2%); hence, even in the short-term recovery, the Polish economy is expected to restore its pre-crisis growth trend levels.

Considering the current dynamics, it appears that the 2021-2022 economic rebound in Poland will be primarily fuelled by private consumption which is expected to increase by 4.5% y/y (supported by the build-up of savings and positive consumer moods). The government consumption, fixed investment, and trade balance are also expected to have a positive contribution to the growth in the next two years, albeit at a lower extent.

The government consumption is forecast to grow at a decreasing rate – 3.1% in 2021 and 2.8% in 2022, which, nonetheless, is set to be compensated by the increase in fixed investment – from a 7.4% decline in 2020 to a projected 3.3% and 6.5% growth in 2021 and 2022, respectively.

Conclusions

The forecasts for 2021 are made under the assumption of easing containment restrictions. Thus, for the positive forecasts to be realised it is crucial that the economies in the region succeed in containing infection rates and effectively implement national recovery strategies.

In the case of a high rate of active cases that would require an extension of the containment restrictions, economic activity risks to drop further which may once again pull down consumer and business confidence and exacerbate the pressure.

In a closer look, the additional downside risks for the Polish economy in 2021 are the phasing-out of support measures that may put downside risk on unemployment, a generous social policy stance that would put pressure on public finances, as well as potential low interest rates and disputes with the European Commission that may stagnate private investment. ■

Endnotes

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Moving toward continuous transaction controls

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Tax authorities around the world are committed to closing the VAT gap and are willing to use all the tools at their disposal to collect any revenue owed to them. As a result, continuous transaction controls (CTCs) have emerged as a primary concern for multinational companies looking to remain compliant with increasingly diverse VAT enforcement approaches. But such controls are nothing new. Before we look at the current environment, we'll take a brief look at how we got here, and why.

Introduction of controls

Any company that trades beyond its national borders will inevitably have to contend with fast-changing and diverse local legislation, not least that around taxation. Until about twenty years ago, such challenges would have been concerned with accounting procedures, report filing, and the retention of documentary evidence.

But, as businesses began to digitise their internal administrative workflows as a means of improving efficiencies, so they began to replace manual, paper-based invoicing processes with electronic alternatives. Bureaucracy and logistical complexity meant governments were slow to catch up, though, a fact that became increasingly problematic as more businesses adopted paperless invoicing processes. Tax authorities are, after all, extremely interested in an organisation's invoices.

Without the right tools to effectively audit companies' digital invoice flows and archived transaction data, and without reliable guarantees of the integrity and authenticity of businesses' digital workflows, many tax authorities were - understandably - reluctant to allow businesses to progress to full electronic, or e-invoicing.

This frustration accelerated these authorities' digital transformations, and saw the introduction of controls that would forever change the nature of VAT reporting.

Closing the VAT gap

Contributing more than 30 percent of all public revenue, VAT - which is sometimes also called Goods and Services Tax, or GST - is the most significant indirect tax for most of the world's trading nations.

As many governments use invoices and periodic reports summarizing sales and purchase invoices as primary evidence in determining the value of VAT, owed to them by organisations, the taxpayer itself plays a critical role in assessing the tax.

VAT, therefore, depends on organisations meeting legal obligations as an integral part of their sales, purchasing, and general business operations. This, in turn, requires tax authorities to exert some control over business transactions, typically in the form of audits. Despite this, however, incidents of fraud and malpractice often mean that governments will collect far less VAT than they're actually owed.

This VAT gap is by no means insignificant. In Europe alone, it amounts to around €140 billion[1] every year - 11 percent of expected VAT revenue. It's little surprise, then, that tax authorities are enforcing various legal consequences for irregularities in VAT reporting, including administrative fines, protracted audits, and even sanctions under criminal law.

While Europe has been slow to adopt digital tools to modernize the enforcement of VAT, over the last two months the EMEA region has seen huge shifts in government-enforced initiatives around tax enforcement, and these changes are set to continue throughout 2021 and beyond.

Here, then, are a few of the key trends that could transform the way EMEA organisations approach regulatory reporting and manage compliance.

Stricter, more frequent VAT reporting processes

Rather than copying programs successfully implemented by Latin American governments in the past decade by imposing a clearance approach to e-invoicing, in which tax authorities take an active role, validating an invoice before the transaction is complete, many EU member states are taking smaller initial steps towards CTCs by first making their existing VAT reporting processes more granular and more frequent.

Typically, member states can organise reporting processes, such as those concerning VAT returns, whichever way they like. But Article 234 of the EU VAT Directive[2] contains much narrower constraints when it comes to e-invoicing, stating that they *"may not impose on taxable persons supplying goods or services in their territory or any other obligations or formalities relating to the sending or making available of invoices by electronic means."*

In an effort to bypass these constraints, countries including Poland, Spain, Hungary, and the UK (when it was still part of the EU) have over the past years introduced VAT reporting requirements that stop short of actually requiring digital invoices to be exchange, but that instead require companies to submit digital files with more granular transaction data - and often on a more frequent basis than traditional VAT returns.

Since 2017, for example, all companies in Spain have to report inbound and outbound invoices within four days while, in Hungary, suppliers have had to report their sales invoices in real-time since the new requirements were introduced in 2018.

EU e-commerce package and digital services

Changes are being made to existing legislation established in 2015, extending the system to increase and facilitate reporting for taxable persons and intermediaries such as marketplaces for both intra-EU and external low-value goods and digital services sold to European consumers online.

The EU has, for some time now, been gradually introducing new regulations to ensure that VAT on services is more accurately accrued in the country in which those services are consumed. Since January 2015, for example, the supply of digital services has been taxed in the EU country in which the end customer is located, usually resides, or has their permanent address.

These changes have been accompanied by the introduction of a 'one-stop-shop' (OSS) system aimed at facilitating reporting for businesses and their representatives or intermediaries.

Currently still expanding, this OSS system is set to play an important role in the *EU e-Commerce VAT Package*[3], which is due to be implemented in July 2021, and under which all goods and services - including e-commerce-based imports - will be subject to intricate new regulations around cross-border VAT reporting, as well as to changes in the way customs in all EU member states operate.

SAF-T is here to stay

The Organisation for Economic Co-operation and Development's (OECD's) Standard Audit File for Tax (SAF-T) will remain an inspiration for European tax administrations to obtain copies of taxpayers' entire accounting books on their own systems.

According to the OECD[4], SAF-T was designed to aid tax authorities in auditing both direct and indirect taxes, such as VAT, covering the *"full set of business and accounting records commonly held by taxpayers."* A flexible standard, with the option for OECD members to adopt or adjust it as they see fit, SAF-T was adopted by Portugal in 2008.

Originally designed to facilitate controls in a post-audit world, in which an audit is carried out long after a transaction has taken place, the SAF-T standard is nonetheless compatible with CTCs. In time, it could even evolve to complement them, given its ability to allow the periodic or on-demand provision of a variety of accounting records including but not limited to transactional data.

"As more countries adopt CTCs, it's likely that various forms of continuous VAT controls will co-exist, effectively forming an end-to-end audit package"

Mandatory e-invoicing could be on the cards

The Italian treasury was able to successfully recoup as much as €1.4 billion in VAT revenue in the first six months after mandatory e-invoicing was introduced in the country. Spurred on by this success, more European countries are determined to follow suit.

In France, for example, e-invoicing for B2G transactions is already mandatory, with the last stage of its implementation rolled out at the beginning of January 2020. Since then, the French government has announced its intention to extend this mandate to cover all B2B transactions by 2025.

According to an initial outline[5] of the proposed e-invoicing reform, published in November 2020, France will follow the clearance method whereby invoices need to be submitted to a CTC platform before they can be considered legally valid. Following its implementation, certain flows not covered by the mandate, such as B2C and international invoices, will instead be subject to an e-reporting obligation.

Poland's Ministry of Finance has also taken concrete steps to implement a CTC system, based to some extent on the Italian model, at some point in 2021, while many other European countries, where e-invoicing is already mandatory for B2G transactions, are likely to follow suit and extend their mandates to B2B and other flows over the coming years.

'Own the Transaction' CTC model becomes more popular

More tax administrations are looking not only to receive data from companies' business transactions, but also to use legislation to make themselves the actual invoice exchange platform.

Using the CTC platform in this way takes a tax authority's interest in the exchange of data between the supplier and the buyer a step further than the classic clearance model. Fundamental to the design of the CTC function of Italy's platform, its popularity appears to be growing as the adoption of CTCs spread eastward across the globe.

It constitutes a core concept in both Turkey and Russia's CTC legislation, for example. Jordan and Saudi Arabia appear to be moving in a similar direction, too. Both countries are exploring the concept of fully operating - or fully controlling, at least - the data exchange networks that underpin their respective national e-invoicing frameworks.

The other digital transformation

Businesses everywhere are undergoing a form of digital transformation, turning to technology in a bid to improve efficiencies and productivity and reduce costs. As part of this, the widespread adoption of electronic invoicing was of great concern to tax authorities, frightened of losing control over revenue collection.

Looking to close their country's VAT gap, many have now undergone a digital transformation of their own, employing CTCs in order to collect transactional data from suppliers and their customers.

Wary of legal constraints within the EU VAT Directive that make it difficult to make e-invoicing mandatory, many EU member states have instead initially focused on making existing VAT reporting processes more granular and frequent via CTC reporting. In time, though, it's likely they'll adopt requirements for real-time - or near real-time - invoice transmission to the tax authority.

As it stands, Italy is currently the only EU country to have fully implemented mandatory clearance e-invoicing, although this did require it obtaining an EU derogation from two Articles of the VAT Directive. As mentioned earlier, the Italian treasury was able to recoup €1.4 billion in VAT revenue in the first six months of mandatory e-invoicing.

So it's not surprising that more countries across Europe, such as France, Hungary and Poland, are beginning to follow its example.

As more countries adopt CTCs, it's likely that various forms of continuous VAT controls will co-exist, effectively forming an end-to-end audit package, allowing tax authorities to match transaction data from different periodic, real-time, and near real-time sources.

Keeping track of and complying with the various types of controls can be problematic to businesses, though, especially those with a global footprint. Organisations can have a number of different priorities as they undergo a digital transformation - addressing different imperatives among lines of business, the need to find a productive balance of power between corporate functions and subsidiaries, and the impact of mergers, acquisitions, and divestments among many others.

But, given ever stricter penalties for non-compliance, it's vitally important that businesses make it a priority to understand how this other digital transformation is unfolding. Otherwise, as governments across the world look to close their VAT gap, they could easily find themselves swept up in a tsunami of global CTCs. ■

Endnotes

1. https://ec.europa.eu/taxation_customs/sites/taxation/files/vat-gap-factsheet-2020_en.pdf

2. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32006L0112

3. https://ec.europa.eu/taxation_customs/business/vat/modernising-vat-cross-border-ecommerce_en#heading_2

4.

5. https://minefi.hosting.augure.com/Augure_Minefi/r/ContenuEnLigne/Download?id=FE5BCAE8-943B-4DD9-8A64-314DB883FF6D&filename=370%20-%20Rapport%20de%20la%20Direction%20g%C3%A9n%C3%A9rale%20des%20Finances%20publiques%20-%20La%20TVA%20%C3%A0%20l%27%C3%A8re%20du%20digital%20en%20France.pdf

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Digital currencies and the future of the monetary system

Agustín Carstens is General Manager at the Bank for International Settlements

Introduction

In my remarks I will address the digitisation of money[1]. Does the economy need digital currencies? Digital money itself is not new. Commercial bank money has been digital for decades, and we already use digital means of payment on a daily basis. Central banks already provide wholesale digital money to banks.

I would like to discuss new forms of digital currencies or 'digital cash' that have been in the news lately, including central bank digital currencies, or CBDCs. If we need digital currencies of these new kinds, who should issue them, and how should they be designed? What are the implications of digital currencies for the monetary system?

These are weighty issues that are much on the minds of central bankers, scholars and the general public. I hope to clarify the concepts and sketch a path for the way forward.

Do we need new digital currencies? If so, who should issue them?

Let's start with whether the economy needs digital currencies, and from whom.

It is stating the obvious that our economy is in the middle of a technological revolution[2]. A combination of new digital technologies and greater online activity allows huge volumes of data to be collected, managed and telecommunicated. This has dramatically lowered the costs of many tasks[3]. It has resulted in powerful, hyper-scalable applications that have disrupted entire industries – everything from taxis to print media.

New players have entered the digital economy to provide these services. While advances in information technology and communications have been under way for many decades, the past decade has ushered in truly far-reaching changes. The COVID-19 pandemic may have further accelerated the pace of digital change[4].

The technological revolution has also reached the financial system – and even the design of money itself. Just to name one example, on primary foreign exchange (FX) venues, market-makers can now access real-time prices at five-millisecond time intervals. Project Rio, a new application for monitoring fast-paced markets developed at the BIS Innovation Hub, allows the entire market order book to be monitored every 100 milliseconds, or 36,000 times every hour[5].

The first point of entry into finance is the market for payment services, which are foundational to all economic activity[6]. Payments are attractive for digital disrupters because they are relatively less capital- intensive than other financial services, and the information they generate is highly valuable for cross-selling. Perhaps it is no surprise that we've seen a burst of digital innovation in payments, including new digital payment offerings by fintech startups, big techs and incumbents[7].

Many payment innovations build on improvements to underlying infrastructures that have been many years in the making. For instance, harnessing technological progress, central banks around the world have instituted real-time gross settlement (RTGS) systems over the past decades.

Meanwhile, operating hours of these systems have continued to lengthen around the globe, and in several countries are already operating almost 24/7. Also on the retail side, innovation is rampant, and a growing number of economies – 51 by our last count – have fast retail payment systems, which allow 24/7 instant settlement of payments between households and businesses (Graph 1).

These include systems like the Unified Payment Interface (UPI) in India, CoDi in Mexico, PIX in Brazil and the FedNow proposal in the US. Together, these innovations have shown that the existing system can adapt, providing good examples of how innovation in public- private partnerships is working.

Yet no one is compelled to choose the path of the existing monetary system. In addition to improvements to existing systems, many attempts to innovate in less traditional fields have been unleashed. One example is digital currencies – which could transcend both traditional account-based money and physical cash.

As already mentioned, account-based money has been digital for decades, as electronic deposits on a digital ledger. Yet there have been calls and attempts to digitise all money, including cash[8]. In my view, fully replacing either bank accounts or cash is neither desirable nor realistic, but let us discuss what a further digitisation of money could look like.

Narayana Kocherlakota – one of the world's leading monetary theorists, former president of the Federal Reserve Bank of Minneapolis and a former Stanford professor – argued in a famous 1998 paper that *"money is memory."* By substituting for an otherwise complex web of bilateral IOUs, money is a substitute for a publicly available and freely accessible device that records who owes what to whom[9].

The idea that money is the economy's memory leads us to two forks in the road for the design of digital money (Graph 2). At these junctions, decisions about architecture and access need to be taken. First, it needs to be ensured that the memory is always and everywhere correct. In payments parlance, this means ensuring the integrity and safety of the payment system, as well as the finality of payments. How to do this relates to the role of a central intermediary versus a decentralised governance system.

And second, rules to guide who has access to this information, and under what circumstances, need to be determined, with appropriate safeguards in place to protect privacy. In other words, we need to establish both proper identification and privacy in the payment system. Let me discuss these in turn.

If societies want digital money, the first fork in the road is the choice of operational architecture. Should the payment system rely on a trusted central authority (such as the central bank) to ensure integrity and finality? Or could it be based on a decentralised governance system, where the validity of a payment depends on achieving consensus among network participants on what counts as valid payments?

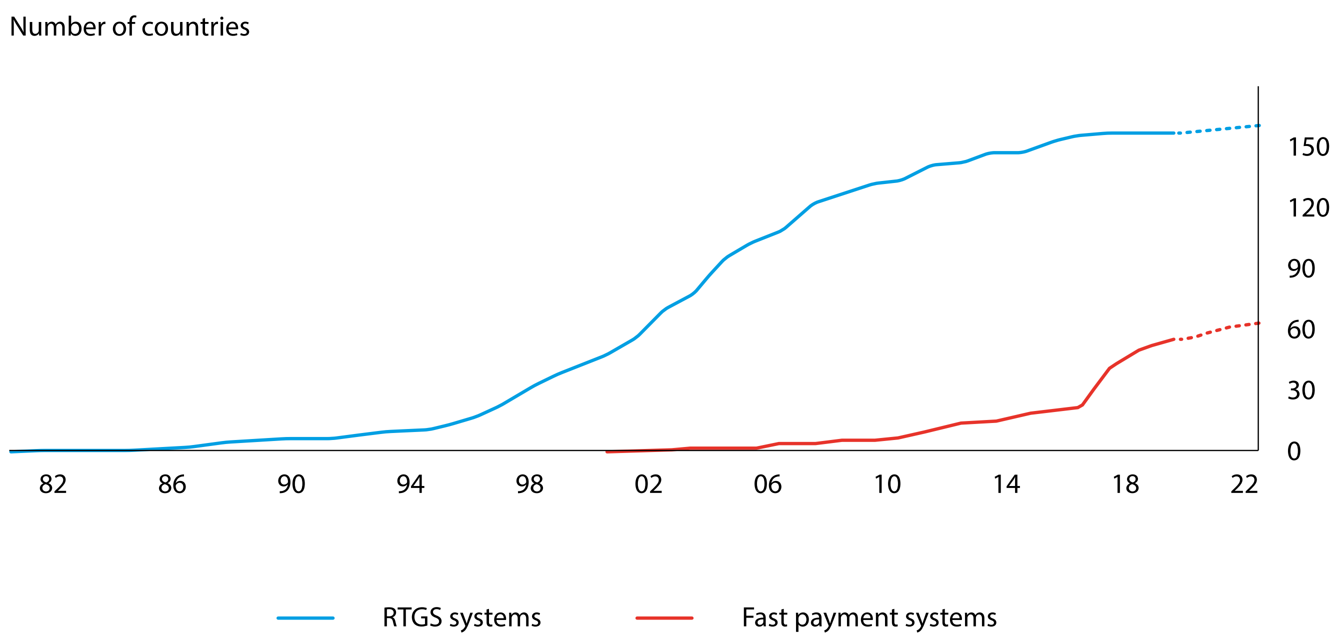
"Sound money is central to our market economy, and it is central banks that are uniquely placed to provide this. If digital currencies are needed, central banks should be the ones to issue them. If they do, CBDCs could also play a catalytic role in innovation, spurring competition and efficiency in payments"

This is the concept behind Bitcoin. Satoshi Nakamoto's protocol envisions a decentralised consensus, with no need for a central intermediary. Yet in practice, it is clear that Bitcoin is more of a speculative asset than money.

One contact recently told me that like Bitcoin is *"Tesla without the cars"* – observers are fascinated by it, but the actual value backing is lacking. Perhaps the Bitcoin network should be seen more like a community of online gamers, who exchange real money for items that only exist in cyber space.

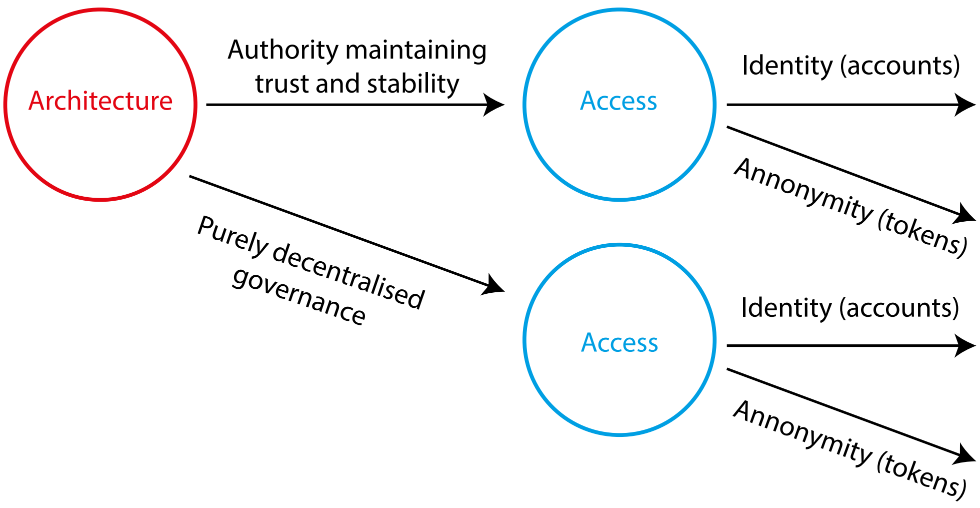
Bitcoin poses as its own unit of account, but fluctuations in value mean it is unrealistic to set prices in bitcoin. This also undermines its usefulness as a means of exchange, and makes it a poor store of value. The structure of the Bitcoin market

Graph 1. Diffusion of retail fast payment systems*



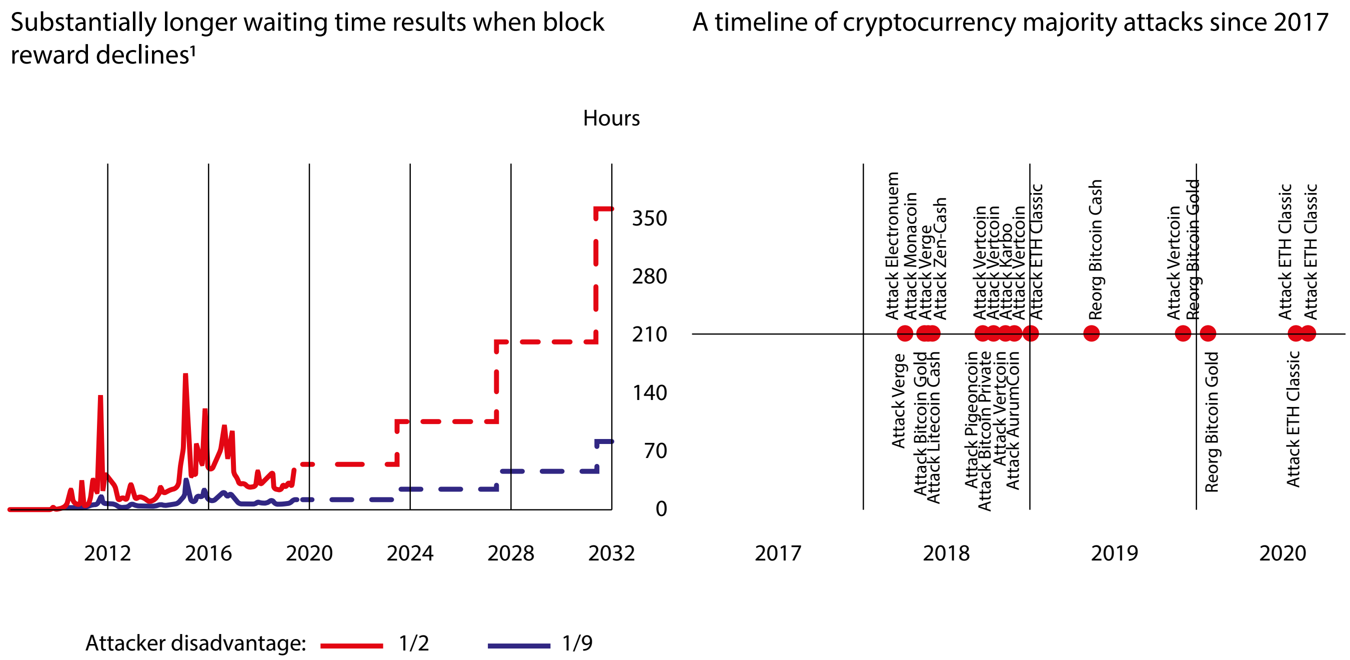
** The dotted part of the lines corresponds to projected implementation.*
Source: BIS, "Central banks and payments in the digital era", Annual Economic Report 2020, June 2020, Chapter III.

Graph 2. Two forks in the road for digital currencies



Source: Adapted from R Auer and R Böhme, "The technology of retail central bank digital currency", BIS Quarterly Review, March 2020, pp 85– 100.

Graph 3. Bitcoin is increasingly vulnerable; others already have been 'majority attacked'



1. The lines show the implied waiting time (number of block confirmations before merchants can safely assume that a payment is irreversible) required to make an economic attack unprofitable: the attacker rents mining equipment on a short-term basis and executes a change-of- history attack. The dashed pattern indicates predicted values (see Auer (2019) for calculations).
Sources: R Auer, "Beyond the doomsday economics of 'proof-of-work' in cryptocurrencies", BIS Working Papers, no 765, January 2019; S Shanaev, A Shuraeva, M Vasenin and M Kuznetsov, "Cryptocurrency value and 51% attacks: evidence from event studies", The Journal of Alternative Investments, Winter, 2020; blocksde-coded.com; bravenewcoin.com; btcmanager.com; coinbase.com; Coindesk.com; deribit.com; github.com; medium.com.

is decidedly concentrated and opaque, and there is research evidence on price manipulation[10].

Above all, investors must be cognisant that Bitcoin may well break down altogether[11]. Scarcity and cryptography alone do not suffice to guarantee exchange. Bitcoin needs a hugely energy-intensive protocol, called 'proof of work', to safely process transactions.

Currently, so-called miners sustain the system's security, and are rewarded with newly minted coins. A sad side effect is that the system uses more electricity than all of Switzerland.

In the future, as Bitcoin approaches its maximum supply of 21 million coins, the 'seigniorage' to miners will decline. As a result, wait times will increase (Graph 3, left-hand panel) and the system will be increasingly vulnerable to the 'majority attacks' that are already plaguing smaller cryptocurrencies (right-hand panel)[12].

What then of so-called stablecoins – cryptocurrencies that seek to stabilise their value against sovereign fiat currencies or another safe asset? Facebook's Libra – recently renamed Diem – was initially marketed as a 'simple currency for billions'. It would import credibility by being pegged to a basket of stable currencies like the US dollar and euro.

More recent incarnations of Diem would be denominated in individual sovereign currencies, looking more like so-called e-money or other digital payment services. This is certainly more credible than Bitcoin. But there are still serious governance concerns if a private entity issues its own currency and is responsible for maintaining its asset backing.

Historical examples show us that there may be strong incentives to deviate from an appropriate asset backing, such as pressure to invest in riskier assets to achieve higher returns[13].

Overall, private stablecoins cannot serve as the basis for a sound monetary system. There may yet be meaningful specific use cases for stablecoins. But to remain credible, they need to be heavily regulated and supervised. They need to build on the foundations and trust provided by existing central banks, and thus to be part of the existing financial system[14].

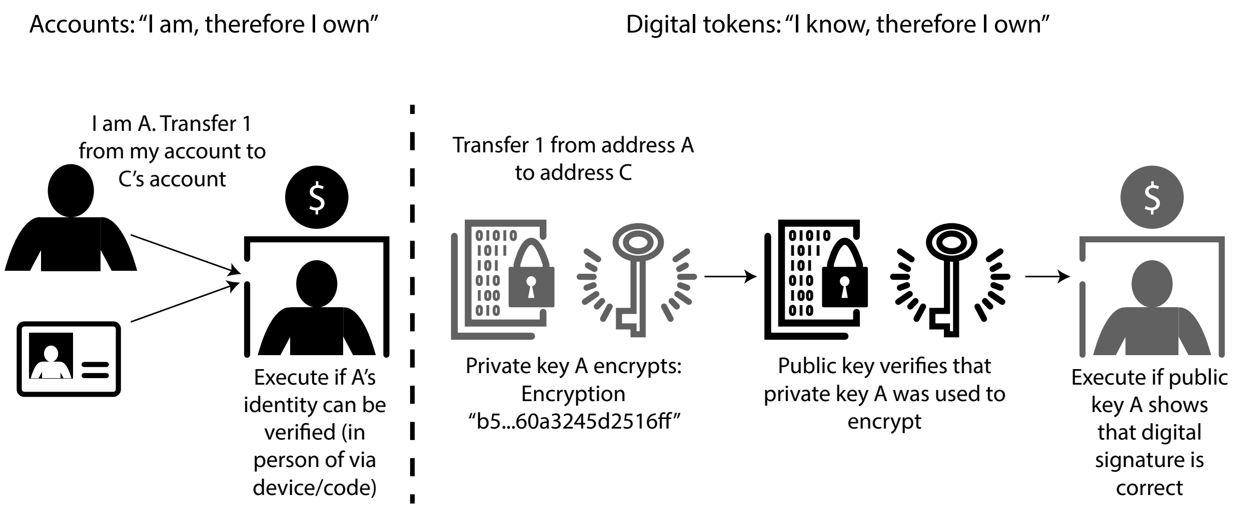
I side here with Milton Friedman, who argued, *"Something like a moderately stable monetary framework seems an essential prerequisite for the effective operation of a private market economy. It is dubious that the market can by itself provide such a framework. Hence, the function of providing one is an essential governmental function on a par with the provision of a stable legal framework."*[15] This idea remains as relevant as ever in the digital age.

So, clearly, if digital money is to exist, the central bank must play a pivotal role, guaranteeing the stability of value, ensuring the elasticity of the aggregate supply of such money, and overseeing the overall security of the system. Such a system must not fail and cannot tolerate any serious mistakes.

The second fork in the road is the question of how access should be arranged. There are many nuances, but the main choice is whether access should be around verification of identity as in bank accounts (sometimes called 'account-based access') or around validity of the object being traded as with physical cash, for instance with cryptography ('token-based access')[16]. In other words, is it *"I am, therefore I own"* or *"I know, therefore I own"* (Graph 4)?

Again, this harks back to the notion of money as the memory of society's economic interactions and the need for identification

Graph 4. Account-based access compared with token-based access



In an account-based CBDC (left-hand side), ownership is tied to an identity, and transactions are authorised via identification. In a CBDC based on digital tokens (right-hand side), claims are honoured based solely on demonstrated knowledge, such as a digital signature.
Source: R Auer and R Böhme, "The technology of retail central bank digital currency", BIS Quarterly Review, March 2020, pp 85–100.

in it. Just as our memories are tied to experiences we have in specific relationships, money does not exist in a vacuum that is separate from economic relationships.

Economic transactions weave a web of long-term relationships between suppliers, intermediaries and customers, as well as between borrowers and lenders. Such a web of trading creates – and rests on – a reservoir of relationship-specific capital that sustains financial relationships[17]. This capital is built up with the identification of all counterparties, as well as some degree of traceability of the underlying transactions.

Historical examples show that identification has been critical to allow commerce to flourish. For instance, in 18th century Europe merchants used so-called bills of exchange to solve the lack of trust between physically remote lenders and borrowers. Instead of extending loans directly to borrowers in distant cities, merchants could make arrangements with others whom they personally knew, creating a web connecting far-flung parties together.

Another example are the Maghreb traders of the 11th century. As Avner Greif – also of Stanford – famously showed, it was identity and traceability that allowed these traders to sustain trade, even over long distances and in the presence of great uncertainty[18].

This is even more the case today: your virtual ID is key to government benefits like pensions and cash transfers. Some form of identification is crucial for the safety of the payment system, preventing fraud, and supporting anti-money laundering and combating the financing of terrorism (AML/CFT).

There are trade-offs between access and traceability. Socially, there are many benefits to having more information, for example to prevent money laundering or tax evasion. Good identification can help here, giving law enforcement authorities new tools to fulfil their mandate.

So overall, my sense is that a purely anonymous system will not work. And the vast majority of users would accept for basic information to be kept with a trusted institution – be that their bank or public authorities.

The idea of complete anonymity is hence a chimera. Users have to leave a trace and share information today with financial intermediaries. This makes it easier for them to work online and prevent losses. To recount one recent anecdote, the user who lost his hard drive with $220 million of bitcoin would have probably liked to have a backup[19].

So if we take the path I have laid out just now, where do we end up? I argue that we end up with central bank digital currencies with some element of identification – that is, with primarily account-based access.

Today we have the possibility to produce a technologically superior representation of central bank money. This can combine novel digital technologies with the tried-and-true characteristics of central banks – such as trust, transparency, legal backing and finality – that others would need to either rely on or create for themselves from the ground up.

Designing CBDCs for the benefit of societies

Let me turn now to CBDC design. There are two types of central bank digital currencies. The first is in the wholesale realm, for payments between financial institutions and large commercial parties.

In the last few years, there has been a lot of activity around both private and central bank-issued wholesale digital currencies[20]. These efforts could introduce efficiency gains, for instance by allowing faster settlement and delivery versus payment[21].

Yet they may not be all that disruptive. Again, digital central bank money for wholesale purposes already exists, in the form of central bank reserves. Notably, privately issued wholesale digital currencies, also called utility tokens or wholesale stablecoins, are not separate currencies per se.

They still depend on central banks for the finality of clearing and settlement. Like the stablecoins I discussed before, they still have an 'umbilical cord' connecting them to the existing financial system.

The second type of digital currency is in the retail space, and it is here where the real disruption lies. Retail digital currencies could be used in daily transactions by households and businesses, and depending on their design, they could upend our existing financial system.

The BIS has surveyed central banks around the world on their engagement with CBDCs. In a new BIS Paper[22], we see that a full 86% of 65 respondent central banks are now doing some kind of research or experimentation (Graph 5, left-hand panel).

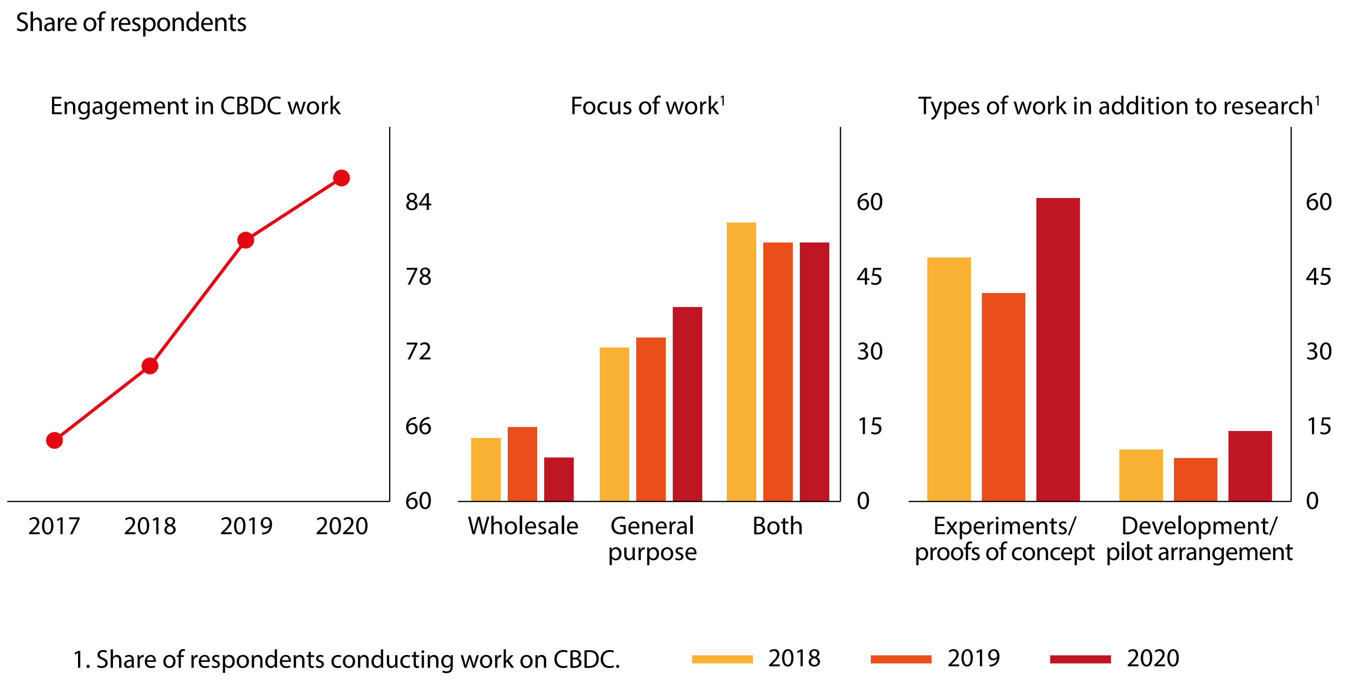
Some are working primarily on the wholesale side, and some primarily on retail, but the largest number are looking into both (centre panel). Increasingly, we see central banks moving beyond research towards actual pilots (right-hand panel). Since 2020, there has been a live CBDC, with the Sand Dollar project in the Bahamas.

The People's Bank of China is performing large-scale pilots across China. And the Boston Fed is working with the MIT Digital Currency Initiative on retail CBDC research that will be open source, for all to review[23].

The motivations for central banks engaging in CBDC work vary across central banks, and across retail versus wholesale projects (Graph 6). But it is striking that in both cases, and particularly for those central banks that have moved beyond research toward proofs of concept or pilots, safety and robustness are highlighted as being a key requirement.

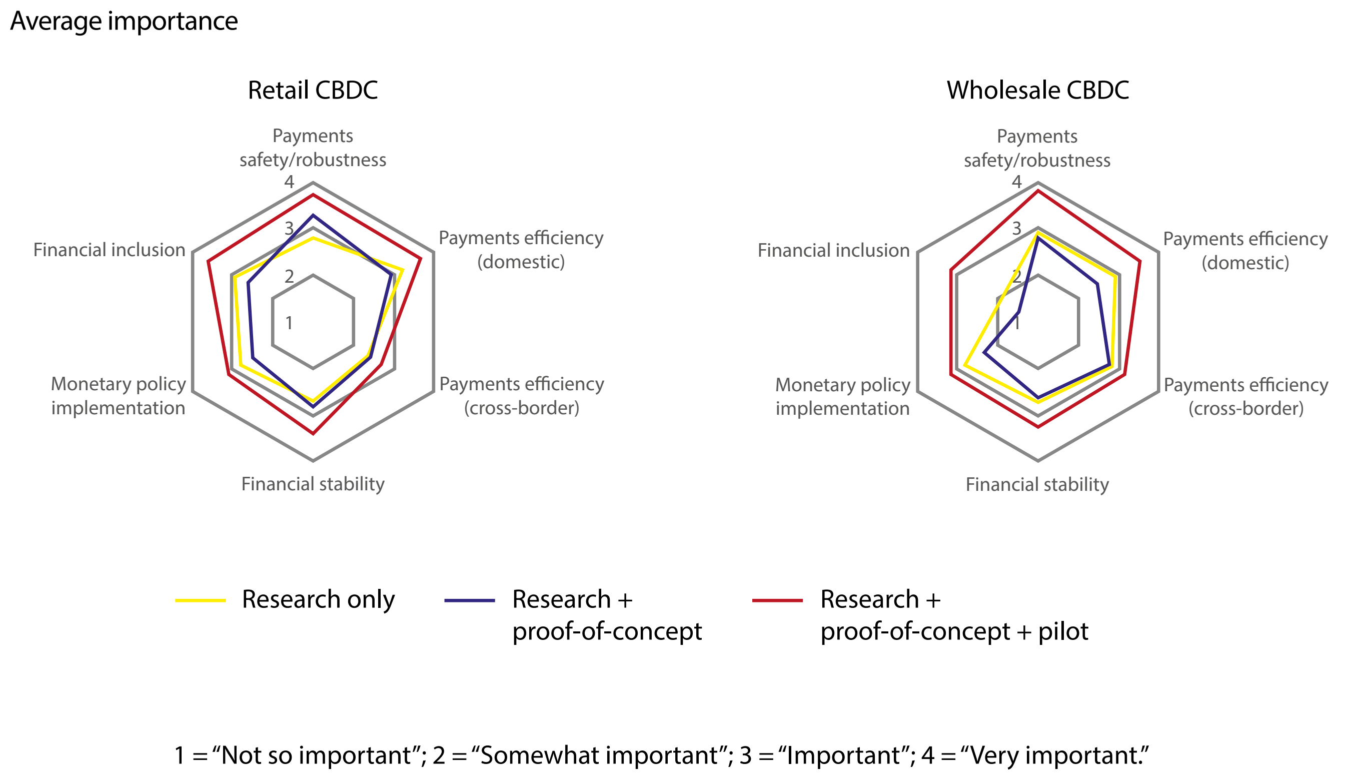
In the context of declining cash use and a lack of universal access to the banking system, many central banks see CBDC as a means to ensure that the public maintains access to a safe, publicly issued payment option to complement cash.

Graph 5. Central bank engagement on CBDCs is rising



Source: C Boar and A Wehrli, "Ready, steady, go? Results of the third BIS survey on central bank digital currency ", BIS Papers, no 114, January 2021.

Graph 6. Main motivations of CBDC work by stage



Source: C Boar and A Wehrli, "Ready, steady, go? Results of the third BIS survey on central bank digital currency ", BIS Papers, no 114, January 2021.

Notably, central banks see opportunities in digital technologies, not least to enhance payments efficiency and promote financial inclusion. Thus, the question here is not so much *"Do we need digital currencies?"* but *"Can central banks grasp the opportunity for what could be a technologically superior representation of central bank money?"*

The work on CBDCs does not imply replacing private sector initiatives. Of course, we need to take advantage of private sector innovation, and in many research projects and pilots the private sector is a key partner. The CBDC work shows that while disruptive innovation can be a threat, it can also be an opportunity.

Thus, even with CBDC, central banks are sticking to what money has always been: a social convention that involves a role both for the private sector and for the central bank or other public authorities. In this sense, money is an instance of a public-private partnership.

Thus, CBDCs can and must also be designed to preserve the two-tiered financial system, as a public-private partnership. In terms of involvement by the private sector, we should not think only about models where the central bank provides retail services directly (such as the FedAccounts idea)[24].

From a user perspective, a successful retail CBDC would need to provide a resilient and inclusive digital complement to physical cash – but that does not preclude an important role for the private sector.

Research at the BIS scopes out how two-tier 'Hybrid' and 'Intermediated' CBDC architectures can involve the private sector as the default operator of payments, with the central bank optionally operating a back-up infrastructure to provide additional resilience (Graph 7). Users could pay with a CBDC just as today, with a debit card, online banking tool or smartphone-based app, all operated by a bank or other private sector payment provider.

However, instead of these intermediaries booking transactions on their own balance sheets as is the case today, they would simply update the record of who owns which CBDC balance. The CBDC itself would be a cash-like claim on the central bank.

In this way, the central bank avoids the operational tasks of opening accounts and administering payments for users, as private sector intermediaries would continue to perform retail payment services. The benefit is that there are no balance sheet concerns with private sector intermediaries.

Further, these architectures also allow the central bank to operate backup systems in case the private sector runs into technical outages.

A system that in many ways resembles today's system could run successfully on distributed ledger technology (DLT), as a BIS working paper that we are releasing today shows[25]. This paper finds that despite all the limitations with Bitcoin and other permissionless cryptocurrencies, greater economic promise lies with the 'permissioned' variant of DLT.

In permissioned DLT, a known network of validators replaces the traditional model with one central validator. The BIS Innovation Hub has already demonstrated that this works in a lab environment, in a proof of concept that involved the settlement of tokenised assets in central bank money using a DLT-based software[26].

Going beyond the lab environment, the working paper shows that the technology may have economic potential primarily in niche markets. It shows that while the permissioned version of DLT holds more promise than the permissionless one, a trusted central intermediary fares even better. DLT hence can improve upon the traditional model of centralised exchange only where trust in, and enforcement of, the rule of law is limited.

In addition to the governance of the system itself, the governance rule of how participants can access it also warrants attention. What about the role of identification, and of the transaction data that digital currencies will generate?

Here, we need to compare different governance rules and analyse the role of the public and the private sector in guarding data. Of course, the danger of data breaches or abuse by public authorities warrants a careful approach. But there are designs where some level of individual privacy can be preserved – a CBDC does not have to entail an Orwellian Big Brother, where the central bank sees each and every transaction.

Private sector intermediaries have a role to play in this, too, as settlement agents in a competitive payment system. In particular, private intermediaries could (temporarily) record and guard users' data. Yet decisions on data privacy are very important. This is not just a technical issue, but an important policy issue that transcends the financial sphere.

Central banks will need to listen to societies in this respect. Moreover, public sector supervision and clear frameworks for the governance of data will still be needed. If multiple parties are involved in collecting, transferring and storing data, it must be ensured that one institution is ultimately responsible to the user.

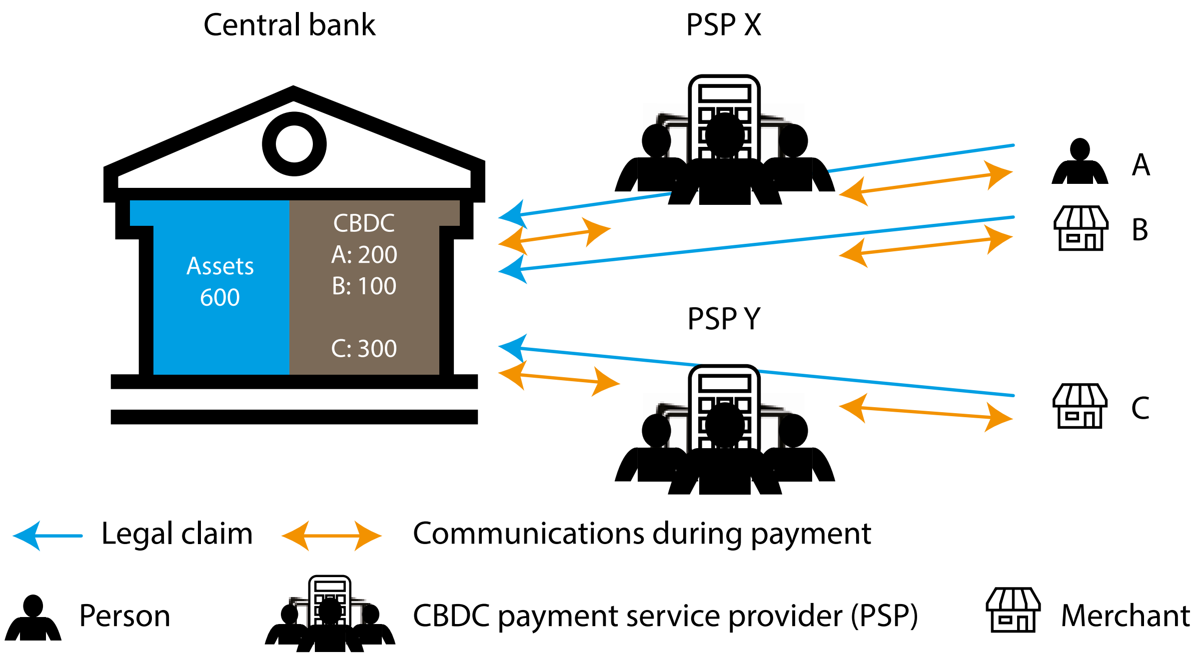
If this is done successfully, such a system could help maintain privacy while allowing access to law enforcement under clearly defined rules, much like today's system.

Moreover, it could put competitive pressure on today's intermediaries, pushing for more efficiency, lower costs and better service in payment markets[27].

Again, different jurisdictions may pursue different avenues. This relates in part to different preferences regarding data privacy across different societies. In China and India, for instance, users are much more comfortable with their data being securely shared (Graph 8).

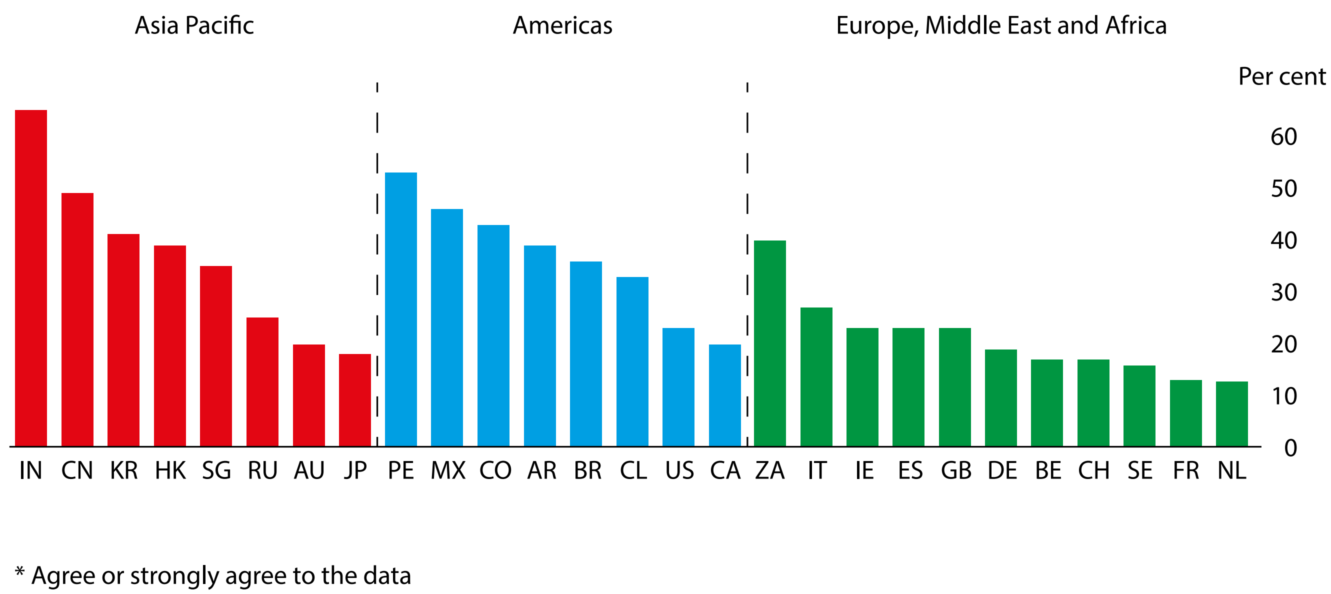
And in China, the approach of the People's Bank of China in its CBDC, the e-CNY, is to periodically record all user data from private intermediaries. In Europe and the United States, users

Graph 7. Hybrid CBDC architectures allow for public-private partnership in payments



Sources: R Auer and R Böhme, "The technology of retail central bank digital currency", BIS Quarterly Review, March 2020, pp 85–100; R Auer and R Böhme, "Central bank digital currency: the quest for minimally invasive technology", BIS Working Papers, forthcoming.

Graph 8. Preferences regarding privacy vary across countries



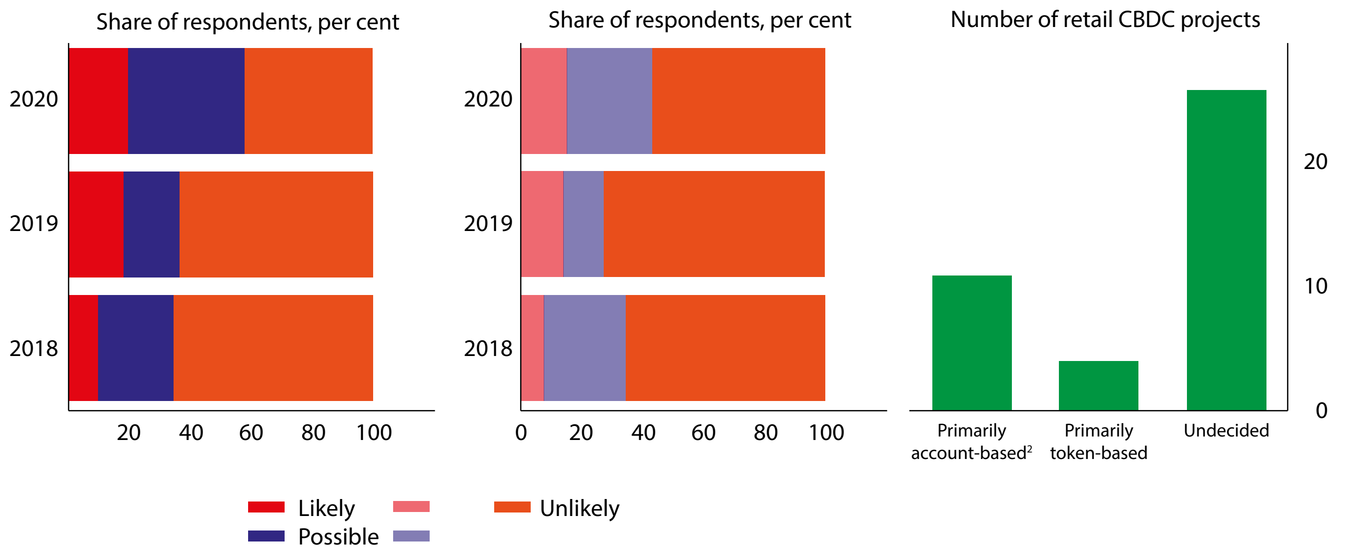
** The question in the survey reads, "I would be comfortable with my main bank securely sharing my financial data with other organisations if it meant that I received better offers from other financial intermediaries"; for Belgium, the figure covers Belgium and Luxembourg.*
Source: S Chen, S Doerr, J Frost, L Gambacorta and HS Shin, "The fintech gender gap", BIS Working Papers, forthcoming; EY, Global FinTech Adoption Index 2019, June 2019.

Graph 9. Likelihood of CBDC issuance is increasing, with account-based access preferred

Responses on likelihood of retail CBDC issuance in the medium term[1]

Responses on likelihood of wholesale CBDC issuance in the medium term[1]

Relatively more central banks are leaning toward account-based access



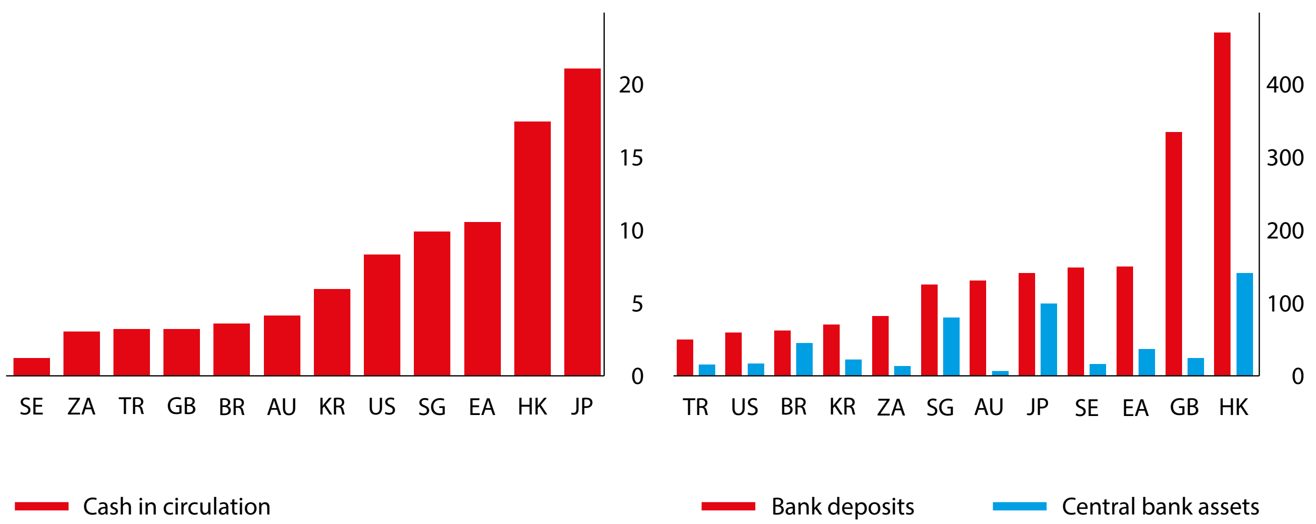
1. Medium term: 1-6 years. Likely combines "very likely" and "somewhat likely." "Unlikely" combines "very unlikely" and "somewhat unlikely."
2. Includes models with token-based access for small transactions.

Sources: C Boar and A Wehrli, "Ready, steady, go? Results of the third BIS survey on central bank digital currency ", BIS Papers, no 114, 2021; R Auer, G Cornelli and J Frost, "Rise of the central bank digital currencies: drivers, technologies and approaches", BIS Working Paper, no 880, August 2020.

Graph 10. CBDCs can be designed to have a limited systemic footprint – like cash today

Cash holdings are moderate...[1]

... and consumers' sight deposits vastly exceed central bank balance sheet sizes[1,2]



1. Data for 2018.
2. Closest alternative where data is not available.

Source: R Auer and R Böhme, "Central bank digital currency: the quest for minimally invasive technology", BIS Working Paper, forthcoming.

report in surveys being more worried about their privacy. For these cases, there are also technical designs that allow the central bank to be shielded from knowing identities, or even from having access to retail transaction data, recognising that it may not want this information[28].

Above all, the discussion of identification in CBDC needs to be considered in the wider context of digital ID. The use of personal data is necessary to improve the provision of financial services. Financial inclusion is about overcoming inequality, in particular by reducing information asymmetries.

CBDCs can be the entry point for financial services, but they need to be linked to an ID. By offering the unbanked access to a digital ID, authentication can help to support inclusion in the long term and to formalise the informal economy. While this appears to create trade-offs, as citizens also value their privacy and enjoy the anonymity of cash, there can be long-term gains from overcoming this.

Again, this seems to be the direction in which central banks are moving. As central banks report being more likely to issue CBDCs in the medium term (Graph 9, left-hand and centre panel), CBDCs tied to an identity scheme ('primarily account-based CBDCs') are also relatively more common (right-hand panel). These can serve as the basis for well-functioning payments with good law enforcement[29].

The idea that CBDCs will be like $100 bills floating around is a mischaracterisation of what CBDC would look like in practice. My own view is that CBDCs without identity (purely token-based CBDCs) will not fly.

First, they would open up big concerns around money laundering, the financing of terrorism and tax evasion.

Second, they may undermine efforts to enhance financial inclusion, which are based on good identification and building up an information trail for access to other financial services.

Third, they could have destabilising cross-border effects, allowing large and sudden shifts of funds between economies. For these reasons, we need some form of identity in digital payments.

Implications for the monetary system

Let me move now to the implications for the monetary system. If they are properly designed and widely adopted, CBDCs could become a complementary means of payment that addresses specific use cases and market failures. They could act as a catalyst for continued innovation and competition in payments, finance and commerce at large.

But if that happens, how will it affect national financial systems beyond payments? And what are the international repercussions of CBDC issuance?

Let me discuss these considerations through the lens of the core principles for CBDC issuance, as laid out in a recent report of the BIS, the Board of Governors of the Federal Reserve System and six other major central banks. This report laid out a Hippocratic Oath for CBDC design, the premise to 'first, do no harm'[30].

First and foremost, this oath implies that a precondition for CBDC issuance is that its design will not disintermediate commercial banks, nor lead to heightened volatility of their funding sources.

Central banks do not dismiss these risks. But there are tools to address digital runs and the potential for disintermediation, like caps on the size of CBDC holdings, or variable interest rates that discourage very large holdings by users[31].

If depositors did temporarily move funds from bank deposits to CBDCs during financial turmoil, central banks could also quickly re-channel liquidity back to commercial banks, much as they do now with open market operations.

Structurally, I do not anticipate the central bank becoming a major player in intermediating savings in the economy. While such risks do need to be managed, CBDCs do not need to threaten the stability of bank funding or lending to the real economy[32].

Second, as long as CBDC is supplied in response to transactional demand for it, this oath means that the impact on monetary policy and its transmission will be limited. Naturally, the monetary policy implications have received ample attention.

In theory, retail CBDCs could be interest-bearing, influencing monetary policy transmission and, in today's context, for some advanced economies, allowing for more negative policy rates.

However, one has to keep in mind that since CBDC would complement cash rather than replace it, and since another policy objective is to limit the central bank's systemic footprint, these monetary policy effects might be contained in practice.

Much as cash holdings and even total central bank assets are currently moderate in relation to bank deposits (Graph 10), I expect that CBDC holdings will not become very large. This could also mean that the central bank toolkit will remain largely unaffected.

Third is the international aspect and the threat of international currency competition[33]. Payment system design is a domestic choice, but it has important international implications.

Wherever there are macroeconomic or institutional reasons for dollarisation today, foreign CBDC issuance may aggravate this threat, by making it even easier for users to adopt a foreign (digital) alternative. Some have argued that an e-CNY or digital euro could even challenge the dominance of the US dollar as a global reserve currency[34].

But here, I doubt that CBDCs alone will tip the balance – especially if they are account-based. Indeed, the main reasons why a reserve currency is attractive are related to the macroeconomy. The dollar is the world's premier reserve currency because it has a stable value (low inflation), a large supply of safe assets and the credibility of the US economic and legal system.

Investors can also easily access the US's deep and efficient capital markets, without worrying about capital controls. These factors are likely to remain the primary drivers of global reserve currency status.

Yet beyond currency competition, there are opportunities from CBDCs to enhance the efficiency of cross-border payments. Multi-CBDC arrangements (Graph 11) could tackle frictions in today's correspondent banking system, such as differences in opening hours, varying communication standards and a lack of clarity around exchange rates or fees[35].

Conclusion

Sound money is central to our market economy, and it is central banks that are uniquely placed to provide this. If digital currencies are needed, central banks should be the ones to issue them. If they do, CBDCs could also play a catalytic role in innovation, spurring competition and efficiency in payments.

In this light, even as they fight the fires related to the COVID-19 pandemic, central banks around the world have stepped up their CBDC design efforts (Graph 12). This should not be seen primarily as a reaction to the emergence of cryptocurrencies or the announcement of corporate stablecoin projects.

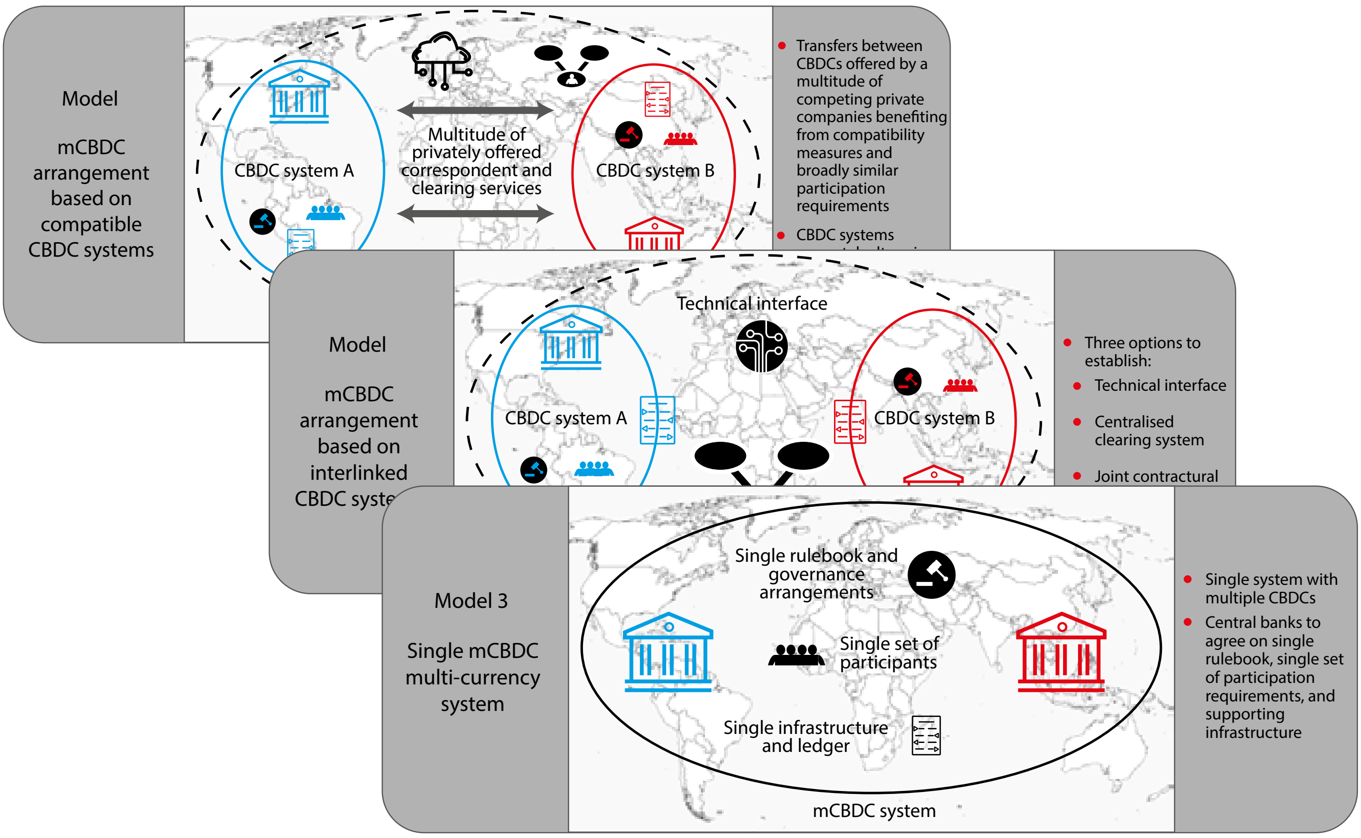
Rather, they are proactively researching a new form of money and how it could improve retail payments in the digital area, in line with central bank mandates. However, developing CBDC comes with a host of technological, legal and economic issues that warrant careful examination before issuance. Central banks – the guardians of stability – will proceed carefully, methodically and in line with their mandates. Issuing a CBDC is a national choice.

Wherever issued, CBDCs will be an additional payment option that coexists with private sector electronic payment systems and cash. Careful design – such as the architecture defining the roles of the central bank and private intermediaries – would ensure that they preserve the two-tiered financial system, and that monetary policy implementation and financial stability will not be jeopardised.

In all this, the need for international coordination cannot be overstated. It is up to individual jurisdictions to decide whether they issue CBDCs or not. But if they do, issues such as 'digital dollarisation' and the potential role of CBDCs in enhancing cross-border payments need to be addressed in multilateral forums.

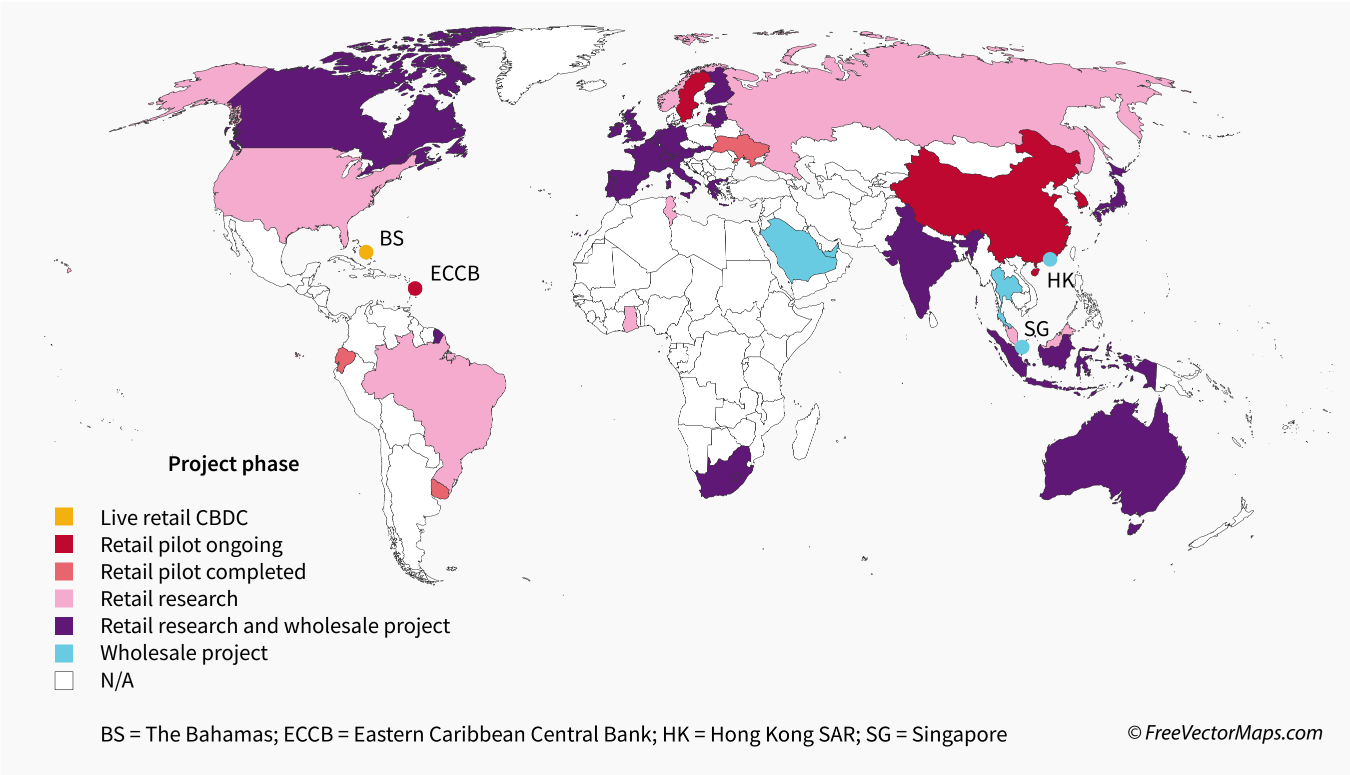
The BIS is supporting this international discussion, ensuring that central banks can continue learning from one another and can cooperate on key issues in design. In this way, central banks can work together to support digital money ready for the economy of the future. ■

Graph 11. Potential models for multi-CBDC arrangements



Source: R Auer, P Haene and H Holden, "Multi-CBDC arrangements and the future of cross-border payments", forthcoming.

Graph 12. CBDCs research and pilots around the globe



The use of this map does not constitute, and should not be construed as constituting, an expression of a position by the BIS regarding the legal status of, or sovereignty of, any territory or its authorities, to the delimitation of international frontiers and boundaries and/or to the name and designation of any territory, city or area.
Source: R Auer, G Cornelli and J Frost, "Rise of the central bank digital currencies: drivers, approaches and technologies", BIS Working Paper, no 880, August 2020.

Endnotes

1. "Digitisation" refers to the process of changing information from analogue to digital form. In the context of money, this refers to creating a digital representation of money, or moving it to digital form. "Digitalisation", meanwhile, refers to the use of digital technologies to change a business model and provide new revenue and value-producing opportunities, or the process of moving to a digital business. See Gartner, Gartner Glossary, 2021, accessed 15 January 2021.
2. F Caselli, "Technological revolutions", American Economic Review, vol 89, no 1, 1999 defines a technological revolution simply as "the introduction of a new type of machines" that are "more productive than machines of the pre-existing type". T Kuhn, The structure of scientific revolutions, University of Chicago Press, 1962 discusses the related notion of scientific revolutions, when, in the accumulation of new knowledge, anomalies lead to a sudden "paradigm shift" or change in beliefs. K Schwab, "The fourth industrial revolution: what it means, how to respond", Foreign Affairs, December 2015 discusses the unique features of the fourth industrial revolution, which involves "a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres".
3. For an overview, see A Goldfarb and C Tucker, "Digital economics", Journal of Economic Literature, vol 57, no 1, 2019.
4. To name just one example, the pandemic has led to a surge in e-commerce, particularly in countries with stricter lockdown measures and where e-commerce was previously less developed. See V Alfonso, C Boar, J Frost, L Gambacorta and J Liu, "E-commerce in the pandemic and beyond", BIS Bulletin, no 36, 2021.
5. Project Rio is being developed in the BIS Innovation Hub's Switzerland Centre, together with the Swiss National Bank. See BIS, "BIS Innovation Hub sets out annual work programme and launches Innovation Network", press release, 22 January 2021; and A Carstens, "Central bank innovation – from Switzerland to the world", speech at the founding ceremony of the BIS Innovation Hub Swiss Centre, Zurich, 8 October 2019.
6. See BIS, "Central banks and payments in the digital era", Annual Economic Report 2020, June 2020, Chapter III.
7. See M Bech and J Hancock, "Innovations in payments", BIS Quarterly Review, March 2020.
8. For instance, see K Rogoff, "The case against cash", Project Syndicate, 5 September 2016; and K Rogoff, "Will Covid make countries drop cash and adopt digital currencies?", The Guardian, 6 August 2020.
9. See N Kocherlakota, "Money is memory", Journal of Economic Theory, vol 81, issue 2, 1998.
10. See J Griffin and A Shams, "Is Bitcoin really untethered?", The Journal of Finance, vol 74, no 4, 2020.
11. On the outlook for Bitcoin, see R Auer: "Beyond the doomsday economics of 'proof-of-work' in cryptocurrencies", BIS Working Papers, no 765, January 2019.
12. See A Carstens, "Money in the digital age: what role for central banks?", speech, 6 February 2018; and BIS, "Cryptocurrencies: looking beyond the hype", Annual Economic Report 2018, 2018, Chapter V.
13. For one such example, see J Frost, HS Shin and P Wierts, "An early stablecoin? The Bank of Amsterdam and the governance of money", BIS Working Papers, no 905, November 2020.
14. See Libra Association, White Paper v 2.0, 16 April 2020; D Arner, R Auer and J Frost, "Stablecoins: risks, potential and regulation", Bank of Spain Financial Stability Review, no 39, 2020.
15. M Friedman, A program for monetary stability, Fordham University Press, 1960.
16. Importantly, this definition of token versus accounts must not be confused with the one used in the field of computer science. Here the distinction between accounts and tokens is the identification requirements: "In a token-based system, the thing that must be identified for the payee to be satisfied with the validity of the payment is the 'thing' being transferred – 'is this thing counterfeit or legitimate?' In an account-based system, however, the identification is of the customer – 'Is this person who she says she is? Does she really have an account with us?'" (C Kahn, "How are payment accounts special? Payments innovation" symposium, Federal Reserve Bank of Chicago, 2016).
17. This is also true in today's credit or trade finance relationships, but the roots go back much further. See I Schnabel and H S Shin, "Liquidity and contagion: the crisis of 1763", Journal of the European Economic Association, vol 2, no 6, 2004.
18. See A Greif, "Reputation and coalitions in medieval trade: evidence on the Maghribi traders", The Journal of Economic History, vol 49, no 4, 1989.
19. See N Popper, "Lost passwords lock millionaires out of their Bitcoin fortunes", New York Times, 12 January 2021.
20. For instance, on private digital tokens, see Committee on Payments and Market Infrastructures, Wholesale digital tokens, December 2019. For various models for wholesale CBDCs, see Bank of Canada, Monetary Authority of Singapore, Bank of England and HSBC, Cross-border interbank payments and settlements: emerging opportunities for digital transformation, 15 November 2018.
21. See eg. BIS, Project Helvetia: settling tokenised assets in central bank money, December 2020.
22. See C Boar and T Wehrli, "Ready, steady, go? Results of the third BIS survey on central bank digital currency", BIS Papers, no 114, January 2020.
23. See Federal Reserve Bank of Boston, "The Federal Reserve Bank of Boston announces collaboration with MIT to research digital currency", press release, 13 August 2020.
24. See M Ricks, J Crawford and L Menand, "FedAccounts: digital dollars", George Washington Law Review, 2018.
25. See R Auer, C Monnet and HS Shin, "Permissioned distributed ledgers and the governance of money", BIS Working Papers, no 924, January 2021.
26. See BIS (2020), op cit.
27. For one take on these points, see J Cochrane, "The digital euro is a threat to banks and governments. And that's OK", Il Sole 24 Ore, 23 December 2020.
28. This approach has been hinted at by Jay Powell, who noted the data privacy and information security issues associated with the central bank keeping a running record of all payments data. See J Powell, "Letter to Congressman French Hill", 19 November 2019.
29. See R Auer, G Cornelli and J Frost, "Rise of the central bank digital currencies: drivers, approaches and technologies", BIS Working Papers, no 880, 2020. The authors also document that that all central banks that are developing CBDCs have also promised to keep cash around. So, also in the digital era, central banks will continue to offer a fully anonymous means of payment – cash.
30. See Group of Central Banks, "Central bank digital currencies: foundational principles and core features", joint report no 1, October 2020.
31. See U Bindseil, "Tiered CBDC and the financial system", ECB Working Paper no 2351, 2020.
32. See D Andolfatto, "Assessing the impact of central bank digital currency on private banks", The Economic Journal, September 2020.
33. This relates to the broader debate on the denationalisation of money and digital currency areas. For the classic appeal to allow international competition between currencies, see F Hayek, The Denationalization of Money, Institute of Economic Affairs, 1976. For a rebuttal, see M Friedman and A Schwartz, "Has government any role in money?" in A Schwartz (ed), Money in Historical Perspective, University of Chicago Press, 1987. For the discussion of digital currency areas, see M Brunnermeier, H James and J-P Landau, "The digitalization of money", NBER Working Paper no 26300, 2019.
34. For an argument in this direction, see A Kumar and E Rosenbach, "Could China's digital currency unseat the dollar?", Foreign Affairs, May 2020. For a more nuanced take, see M Chorzempa, "China, the United States, and central bank digital currencies: how important is it to be first?", China Economic Journal, 2021.
35. See R Auer, P Haene and H Holden, "Multi-CBDC arrangements and the future of cross-border payments", BIS Papers, forthcoming for an examination of the potential of CBDC in cross-border payments, as well as Committee on Payments and Market Infrastructures, Enhancing cross-border payments: building blocks of a global roadmap, July 2020 for a discussion of how these could feature in global efforts to improve cross-border payments. M Ferrari, M Mehl and L Stracca, "Central bank digital currency in an open economy", ECB Working Paper no 2488, 2020, and International Monetary Fund, "Digital money across borders: macro-financial implications", IMF Policy Papers, no 2020/050, 2020 analyse the international ramifications of the digitisation of money.

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