WORLD COMMERCE REVIEW

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A 'No Deal Brexit' is a recipe for UK economic success, Patrick Minford explains

Money and trust. Yves Mersch reflects on Libra and how to mitigate the risks

Simone Tagliapietra et al examine the EU energy transition to a low-carbon economy

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FOREWORD

A new dawn

Guy Verhofstadt warns that the world is coalescing into a world order of empires, and that for Europe to compete in the 21st century with the United States, China, Russia and India it needs to be an empire, that to protect the interests of its citizens Europe needs to do it together in a European framework.

Europeans like to believe the European Union has the collective economic size and capacity to determine its own economic destiny. And that to do so they need to complete economic and monetary union, through the banking union and the capital market union, and there is a desire by EU politicians to strengthen other economic dimensions of the European Union in the areas of climate change, external security, competition, trade, and industrial policy.

An empire is forming. Economic interests and geopolitical interests will be intertwined to compete with the United States and China particularly. The EU is refocusing its attention on its relationship with the rest of the world.

The new leaders of the European Union, who have relentlessly championed open markets, are certain to trigger a conflict between climate preservation and free trade. The President-elect, Ursula von der Leyen, has defined an ambitious climate agenda. In her first 100 days in office, she plans to propose a European Green Deal that would include legislation binding the European Union to become carbon neutral by 2050. To reach this objective, she intends to put forward a comprehensive plan to reduce EU carbon emissions by at least 50% already by 2030.

The issue now is how to make this huge transition politically and economically sustainable. The idea is that if the rest of the world doesn't agree with European views on the climate then they will introduce a carbon tax, to avoid carbon leakage, the shifting of carbon-intensive production to countries outside the EU.

In the medium term it is hard to see how this will help Europe compete. It is hard to see how the EU's fight against climate change can sustain the multilateral trading system. The high-growth markets are outside of Europe. The United States and China are not likely to agree to make themselves poorer, and Europe risks being left behind economically.

But this clash is unavoidable, and how Europe and the world manage it will help to determine the fate of globalisation, if not that of the climate. ■

How Britain will react to a WTO-based Brexit

A 'No Deal Brexit' is the most likely outcome. Patrick Minford explains how it is a recipe for UK economic success, free of the shackles of EU protectionism, budget costs, intrusive regulation and subsidisation of unskilled immigration

In its attempts to force through its EU Withdrawal Agreement the previous government painted a 'No Deal Brexit' as some sort of disaster. The current government of Boris Johnson is committed to leaving the EU at the end of October, whether or not the EU will renegotiate, which it has repeatedly said it will not; and so this 'No Deal Brexit', or more accurately a Brexit under WTO rules, is the most likely outcome.

This outcome is in fact, as I explained in the Spring edition of *World Commerce Review*, a recipe for UK economic success, free of the shackles of EU protectionism, budget costs, intrusive regulation and subsidisation of unskilled immigration.

Our estimates of how a full Brexit impacts on the economy

To recapitulate the main points I made, a Clean Brexit produces long-run gains from four main sources (Minford, 2017):

1. Moving to free trade with non-EU countries that currently face high EU protection in goods trade

2. Substituting UK-based regulation for EU-based Single Market regulation

3. Ending the large subsidy that the 'four freedoms' forces the UK to give to EU unskilled immigrants

4. Ending our Budget contribution to the EU.

In total these four elements, according to research in Cardiff, create a rise in GDP in the long term over the next decade and a half of about 7%, which is equivalent to an average rise in the growth rate of around 0.5% per annum.

If we leave with No Deal, ie. under WTO rules with piecemeal side-agreements, we gain on top of this about £650 billion in one-off present value terms from extra tariff revenues, not paying the Deal's £39 billion, and making Brexit policy changes two years earlier; the EU loses £500 billion from all this.

At the heart of our estimates lie models which assume a world of tough long run competition in which industries can only survive by matching the competitive norm. By contrast the consensus among trade theorists is that

In sum, the key element in any immediate Brexit strategy designed to obtain the gains available from it is to achieve Brexit and so sovereignty. The best way to achieve this is via a simple exit under WTO rules

competing firms have significant monopoly power due to their unique brands; this theory is known as 'gravity' modelling, in which natural monopoly power arises simply from size and proximity to consumers.

On this view cutting into rival markets is hard, and this fact also protects their own market position. Along with this view goes an interventionist theory of regulation: that 'rights' can be awarded to 'stakeholders' at the expense of monopolist firms, with little damage to their competitive position. Along with it too goes the view that productivity growth occurs automatically as a result of growing trade, itself a product of proximity.

In our research we find a very different world: a world in which lagging firms can be largely destroyed, with examples like Nokia and Blackberry coming to mind. We see the role of supply chains as squeezing out uncompetitive intermediate producers who do not devote enough effort to raising productivity via innovation. In this world business regulation can easily damage competitiveness. This is particularly true of labour market regulation, for which we have good estimates of the damage based on UK experience (see chapter 2 of Minford *et al* 2015).

In our Cardiff World Trade Model we embed these assumptions and test their predictions against the facts of UK trade. We also set up a rival 'gravity model' as set out above. We test these models by indirect inference against the UK facts (Minford and Xu, 2018). This test is based on simulating each model many times to generate a full range of counterfactual histories due to randomly chosen reruns of historical shocks; we then ask how probable the actual UK history would have been if the model were correct.

What we find is that the gravity model is highly improbable, well below a 5% minimum threshold of rejection, whereas the Cardiff model is fairly probable, comfortably above this rejection level.

The implications of the Cardiff models for Brexit are radical. Brexit will usher in a world in which for the first time in our post-war history the UK market will be entirely dominated by world competition, finally admitted by abandoning EU protection of farming and manufacturing. UK firms and farms will have to be competitive with the best the world has to offer; this plainly will lower prices to the consumer and raise UK productivity.

Notice that because UK service sectors have never had EU protection, not much changes for them in terms of necessary world competitiveness. To ensure this competitiveness UK regulations will have to be business-friendly; utterly gone will be the idea that there is some 'free lunch' of 'rights' to be exacted from the business community for the benefit of particular constituencies.

What then of the position of EU firms in these UK markets? It will have fundamentally changed. Instead of being able to sell food and manufactures to UK consumers at inflated prices, owing to the lack of world competition, they will have to sell here at world prices, some 20% lower if EU protection is entirely removed. Were they not to match these prices they would simply be pushed out of the UK market, to sell nothing at all.

It needs to be understood just how large a change this is for EU exporters to the UK. The UK constitutes about a quarter of the whole EU consumer market. If prices fall by a fifth, their margins on a quarter of their sales may well be entirely wiped out.

But matters do not end there. If there is no UK-EU Free trade agreement then both sides must levy tariffs on the other, to comply with WTO rules; otherwise they must abolish their tariffs on everyone. But the EU will not because it is protectionist; the UK will not, because it wants to use its tariffs as leverage in FTAs with other countries.

UK tariff revenues from EU exports are estimated at £13 billion a year. But notice that these cannot be passed on to UK consumers after Brexit and UK FTAs around the world. EU exporters must match those world prices in the UK market; so bang goes another £13 billion bite into their margins.

Can the EU recoup these losses by their tariffs on UK exporters? This revenue is estimated at £5 billion a year. But notice these UK exporters now can sell their output at world prices at home; they will sell abroad at the same prices- arbitrage will force that. Abroad now includes the EU. The EU tariffs will therefore be passed on to EU consumers. This will not damage their sales compared with pre-Brexit, because their prices will still be competitive; pre-Brexit they were equal to world prices plus EU protection (tariffs plus non-tariff barriers), post-Brexit equal to home/world prices plus tariffs (only as there cannot be non-tariff barriers with the UK, standards being identical).

UK trade negotiations with the EU and the rest of the world: a struggle by the EU to control UK policy

This analysis based on our Cardiff models sheds light on why the EU has so bitterly opposed Brexit. When the UK leaves, not only will it stop contributing money to the EU budget and also stop the inflow of unskilled workers from the EU but also it will greatly reduce the UK profits made by EU exporters due to more UK competition and new tariffs. Furthermore, the UK will introduce lighter regulation designed to improve UK competitiveness, so reducing the scope for EU regulations to place burdens on EU industry which must compete with the UK.

However, our discussion also shows that the UK gains from leaving straightforwardly under WTO rules and rapidly proceeding on FTAs with the rest of the world, starting with the US, our biggest single trading partner, with whom we have a mutual interest in abolishing our EU- inherited import barriers. All that the EU achieves by refusing to agree a simple FTA with the UK is not to stop Brexit but rather to force the mutual imposition of tariffs, which makes EU losses even bigger. If the EU were to intervene diplomatically to oppose US-UK FTA discussions, it would risk inflaming its existing trade disputes with the US.

The main political weapon the EU has wielded has been the Irish border, claiming that there must be a 'hard border' if Brexit goes ahead and that this would create renewed IRA terrorism. However, this claim is not just irresponsible but also incredible, as the EU itself has admitted it would not impose a hard border under Brexit, while the UK has said the same, and the current government has committed to using technology and off-border checks to avoid it.

Another EU tactic has been to raise concerns about administrative disruption in the short run. However, any such disruption is mutually damaging and would be highly unpopular in both the UK and the EU- and if it involves border hold-ups is positively illegal, as I showed at length in my last piece for this *Review*. Plainly short-term disruption by definition is temporary while long term gains persist and so are the dominant consideration.

Conclusions

In sum, the key element in any immediate Brexit strategy designed to obtain the gains available from it is to achieve Brexit and so sovereignty. The best way to achieve this is via a simple exit under WTO rules.

However, if the EU should finally decide to negotiate seriously with the UK, then to relief all round a UK-EU FTA would be agreed. In the long run this has to happen anyway if EU losses from tariffs are to be avoided. Whereas the UK is indeed better off with No Deal, it is damaging to the EU, our neighbour. Better for neighbours to have good relations than to score off each other. ■

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Liberals and women's rights: past and present

There has been a century of female suffrage in the Netherlands. Fleur de Beaufort and Patrick van Schie consider the differing demands of feminists now and a century ago

A century of female suffrage in the Netherlands

This year the Netherlands is celebrating the fact that exactly one century ago women were granted the right to vote. Universal suffrage for Dutch women was realized two years after the same right was introduced for men, but while voting rights for men had been extended gradually over the preceding decades, no woman was entitled to vote until 1919.

The Netherlands were not exclusive in incorporating women's suffrage into law shortly after the end of the First World War; indeed, a wave of countries in the northern part of Europe did this during the same period (as did the United States and Canada). What did distinguish the Netherlands from those other countries was that it had been neutral during the war. The only other country to introduce women's suffrage in this period after having been neutral was Sweden. There is no evidence of a direct impact of the war on the suffrage issue in either country.

In the Netherlands, however, there was another foreign event that changed the receptiveness of parliament to the issue. At the end of the First World War, and subsequent to the revolution in Russia in 1917, revolutions erupted in Central Europe. The Dutch socialist leader Troelstra tried to exploit this unrest by proclaiming revolution in the Netherlands. Although he met with more outright resistance than support, not only in parliament but in the country at large, the fear of revolution among Catholic parliamentarians caused them to change their stance on female suffrage from resistance to support.

Women – seen as more religious, more in favour of order and discipline, and with purer morals – were now welcomed as a firewall against revolution. This ensured the majority required in parliament that had been lacking in 1917, when general suffrage had been introduced for men, but when liberals and socialists had been the only parliamentarians willing to give the vote to women as well.

Although there had been several doubters among them, liberal politicians had been the staunchest proponents of female suffrage when it became an issue in Dutch politics at the end of the nineteenth century. Their arguments were mainly framed in terms of their belief that women would turn out to be just as capable as men of making sound political judgments, rather than in terms of equal rights.

As liberals, they were convinced that individuals – whether male or female – were sensible and thus capable human beings, so it would be to the disadvantage of society as a whole to deny it the influence of the female perspectives and insights.

The demands of feminists nowadays are noticeably the opposite of those of the female activists who fought for the right to vote more than a century ago

Liberals and women's suffrage in other European countries

In Scandinavia too, liberals were often the first to propose legislation to introduce votes for women; their earliest attempts in Finland date from 1897. Ten years later it was the Russian Tsar who gave the women of autonomous Finland (formerly part of the Russian Empire) the vote, almost as if by accident, making Finland the first European country with universal women's suffrage at a national level.

In Denmark, there had also been liberal proposals in parliament before the First World War, but in the end a combined liberal-socialist government was successful in giving Danish women the vote from 1915 onwards.

Likewise in Sweden, several liberal women's suffrage bills adopted by the second chamber before the war had been rejected by the conservative-dominated Senate before a combined liberal-socialist government was able to introduce women's suffrage in the aftermath of the Great War.

To be honest, liberals were not fierce supporters of women's political rights everywhere. Looking at the map of Europe, one might be tempted to think that the late introduction of votes for women in predominantly Catholic countries such as France, Italy and Belgium was due to the resistance of conservative Catholic parties, but it was often the liberals and socialists who had combined their efforts to stop initiatives for women's suffrage in these countries.

Take Belgium, for example, where a Catholic proposal for female suffrage just after the First World War was thwarted by the liberals, who feared that women could be more easily influenced by priests to vote for the Catholic party, which was already the strongest party in the country.

Even after the Second World War, when the liberals were no longer able to stop the introduction of women's suffrage, a liberal minister succeeded in postponing it for at least one national election, meaning that Belgium lagged even further behind in this respect than it had already.

Belgian and southern-European liberals frequently acted opportunistically in obstructing female suffrage. They realized that equal voting rights were in accord with liberal principles, but they feared the electoral consequences. During the interbellum in France, members of the Radical (liberal) party who voted in favour in the Chamber of Deputies, repeatedly voted against once they became Senators; the Senate having the final vote.

Counterproductive activism in Britain

In Britain, liberal members of parliament were divided. In the early twentieth century, liberal backbenchers were mainly pro female suffrage, but a few important figures were either indifferent or openly opposed. Unfortunately for contemporary feminists, Prime Minister Asquith was one of the latter, and continually appeared to give other issues priority over women's suffrage.

Nowhere in Europe did the struggle for women's suffrage attract more activism and attention than in Britain. But the country was far from the first to introduce the measure, and when it was finally established in a bill in 1918 it applied only to about two thirds of the adult female population; the rest had to wait for another ten years.

Many British feminists tended (and still tend today) to blame the liberal government of 1906 onwards, particularly Asquith himself, but probably just as important was the role of the feminist movement itself, more specifically the ultra-radical faction led by Emmeline Pankhurst and her daughters.

Their Women's Social and Political Union (WSPU) – a rowdy but also tiny part of the British women's suffrage movement as a whole – soon opposed every liberal politician, whatever the consequence (for instance the election of a staunchly anti-suffrage conservative as MP) or the position that the individual politician himself took on the issue.

This policy naturally alienated liberals of all hues, including liberal-minded women, and was not at all helpful in converting those opponents of female suffrage in the liberal ranks. Even more damage was done by the campaign of outright violence and vandalism started by the WSPU in 1908.

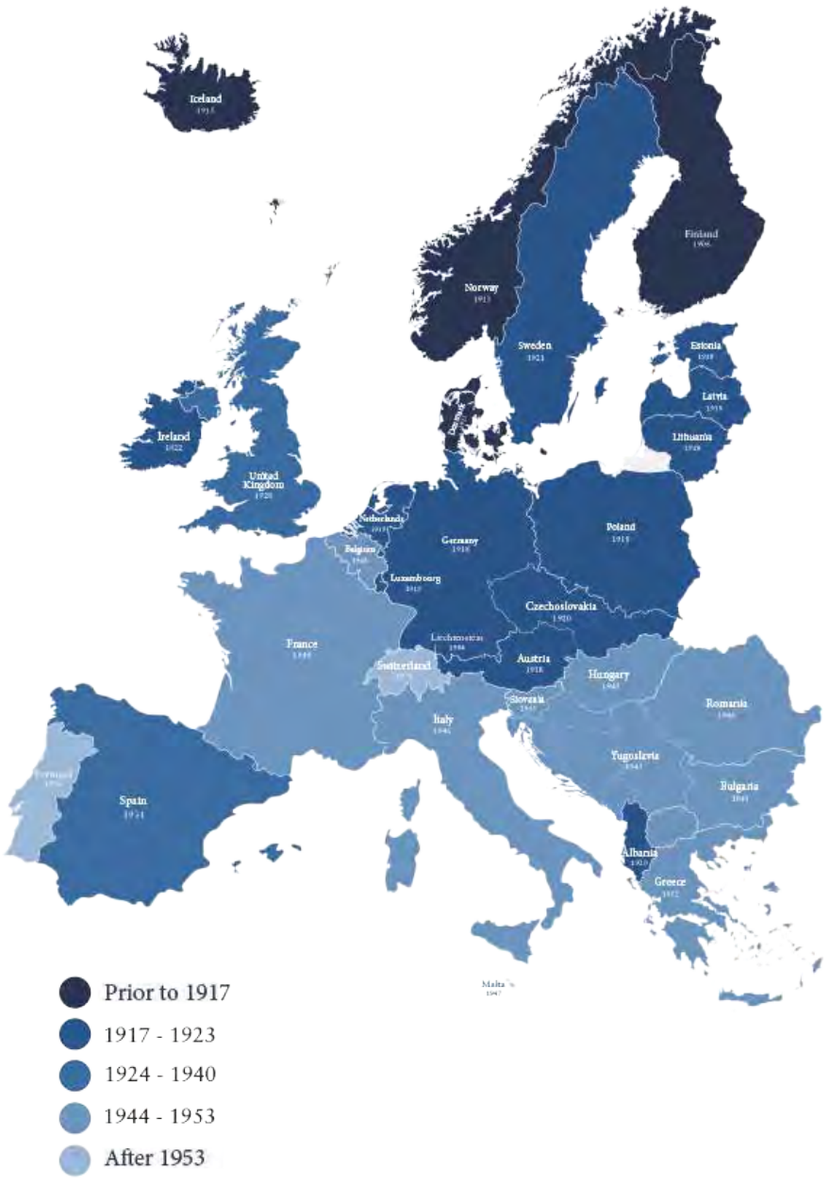
This included the breaking of shop windows and damaging of paintings in museums, attacks on liberal politicians, and setting fire to letter boxes, houses and churches. Such criminal acts were abhorred by the general public and made liberal politicians wary of appearing to give in to the violence.

Nowadays the actions of the ultra-radical suffragettes (who should not be confused with the moderate suffragists) are often portrayed as having laid the foundation for women's suffrage in Britain, but in fact they were counterproductive. It is no coincidence that partial women's suffrage was introduced in Britain more or less without incident in 1918, almost four years after the WSPU had suspended its violent activities.

As Asquith himself – now no longer Prime Minister – said, he was now able to vote for women's suffrage without giving the impression that he had given in to violence and crime.

What kind of equality?

Whether liberals voted for or against the actual bills to introduce female suffrage, the great majority of them did not question the liberal credentials of the measure. Almost nobody reasoned that women were equal, let alone that



Year of introduction of general woman's suffrage in European countries

they were the same as men in everything, but that liberalism itself as an ideology required that women deserved equal treatment and an influence of their own in the form of equal rights – including the vote – was almost undisputed.

Nowadays, however, the debate on equal rights for men and women sometimes seems to narrow down to equal opportunities and the presupposed lack of equal opportunities for women. Once women gained the right to vote, their actual presence in politics grew rather slowly.

In the case of the Netherlands, it took fifty years before the number of women in parliament exceeded 10% of the seats. From the 1970s, their number grew to 41% (62 seats out of 150) in 2010 – the highest percentage of female representation so far, as it declined to 35% in the most recent elections of 2017.

The picture is much the same at a local level, and current female representation in local government stands at 42%. In party politics, almost all leadership positions are filled by men, and the lists of candidates at elections continue to present more men than women to the voters.

Even though the position of prime minister or president has been held by a woman in a growing number of countries in recent years, the presence of women in politics continues to lag behind the participation of their male counterparts. The same can be said for board memberships and other leading positions in business, as well as government office.

For more than a decade this fact has motivated a number of people to call for a legally binding quota for board membership and political positions to solve this 'problem'. In a free labour market – as is the general assumption among those in favour of quotas – women don't share the same opportunities as men simply because they are women. Only legally binding quotas can end this inequality – or so the advocates of legislative action argue.

Before addressing the more fundamental arguments as to why legally binding quotas are – in our opinion – wrong, it might be good to focus on the 'problem' of female participation in politics and business. It is certainly true that the number of women in certain positions is lower than the number of men, but is it correct to blame inequality of opportunity for this, or could there be other causes?

Perhaps fewer women feel the ambition to be active in politics or in higher board positions. If this is the case, it is surely not a problem if this is the outcome of free individual choices. Women who do have the ambition to grow in certain positions should certainly have the same opportunities as men with these ambitions.

The much criticized 'old boys' network' – whereby men hire other men they already know or recognize as their equal – can't be the answer either, as women, once they are part of this network, exhibit the same behaviour.

The female board index (an annual overview of the presence of women in the executive and supervisory boards of Dutch listed companies) shows that the number of positions filled by women is growing faster than the number of

women in these positions. If women are active in politics or in higher positions on boards it is more likely for them to receive new appointments and thus be active on several boards or in different political functions.

One could argue that there is no problem at all, as women who have the ambition, and (more importantly) are willing to make the choices in the organization of their private life that will be compatible with the requirements of demanding jobs, share the same opportunities as their male counterparts.

It is true that women are more often the ones who take care of the family, and choose to work part-time as a result, but this is hardly something in which the government should interfere. Liberals in particular will instinctively disapprove of government legislation to solve such a private matter.

As for positions in politics, women in general exhibit less interest in politics, something demonstrated, for example, in their party membership. Far more men are active members of political parties.

The demands of feminists nowadays are noticeably the opposite of those of the female activists who fought for the right to vote more than a century ago. Instead of equal rights as a starting point, the debate about demands for legally binding quotas centres on equality of outcomes.

In other words, if the outcomes of a process based on equal rights are unappealing, the government is urged to do something to influence these outcomes in a more desirable way, even if this involves inequality as a means to an end. So-called 'positive discrimination' means that the rights of one group (ie. men) are limited and ignored because the rights of another group (ie. women) are deemed to be more important.

For true liberals, however, it is not the fairness of the outcome of a process that counts, but the fairness of the process itself, based on certain key values such as individual liberty, responsibility and equal rights.

Moreover, liberals will always take the individual and their rights as the starting point, and generally feel great antipathy to the focus on groups and group rights that tends to be espoused by socialists and other left-wing politicians. ■

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We share a responsibility to protect our democracy

The European Union and its values need to be safeguarded. Omri Preiss outlines the steps needed to engage citizens and build up a culture of civic responsibility

It is abundantly clear and often repeated that our social and political institutions have been disrupted. The unfolding grotesque theatrics of Brexit and Trump are a culmination of a long series of crises that have come upon our societies since the 2008 economic meltdown.

Trust in political institutions has been eroded, and democracy and human rights have been eroded with them, in Europe and around the world. Authoritarianism, economic inequalities and instability, and fake news have all been on the rise together, and bundled with accelerating climate change, they make up a heady mix of burning urgency.

It is time to invest in bringing together democratic civil society, connect up social actors across sectors for a meaningful response, tackle disinformation, and build up a model of social responsibility by each actor towards our democracy.

Despite all the urgency, so far, the overall response to these by democratic societies has been mostly muddled and dispersed. Overall, across the EU a piecemeal approach to these issues provides for buying time here and there, but not addressing fundamentals. For several years now, it has certainly been felt that the future of the Union is at stake.

Up until now, civil society organisations, NGOs and social movements have withstood the brunt of the impact of authoritarianism's rise. The phenomenon known as 'closing' or 'shrinking civil society space' entails governments putting in place barriers to the work of civic actors, slashing funds, introducing administrative burdens, as well as demonising civil society as enemies in public. As the watchdogs of democracy, the fate of these organisations is often an indicator for things to come.

What we now need is to do is accept that it is time for society as a whole to stand up in response to these threats. We need to begin to speak in terms of a common responsibility to defend and promote the values on which the

last 70 years of peace and prosperity have been founded. Democracy, the rule of law, and human rights are not just a pretty word, or a sentimental calling. They are, incidentally, also the foundations that have made economic prosperity possible, that have enabled the European Union's internal market.

And while our economic models' sustainability and excesses certainly merit re-examination, there is no doubt that any future prosperity will also depend on these very same values holding up. For them to survive, it seems, we need to put in the work.

To be able to address the fundamentals of how our society is being shaped we need an ambitious and robust all-of-society response, that is coordinated and coherent

Alliance4Europe is an organisation set up with the goal of operating as a focal point and an agile hub for civil society actors, and society at large, to coordinate and collaborate, and to activate citizens to affect change. Established in October 2018 with the goal of increasing voter turnout among pro-European democratic voters, Alliance has worked to flesh out a comprehensive all-of-society response to the threats our democracy faces, and advancing these fundamental values positively across Europe.

First of all, there is a need to address the issue of closing space and the fragmentation of civil society across Europe. Civil society has been underfunded and overstretched, in need of greater capacity. There is a strong desire among NGOs and civil society actors to coordinate more, share tools and civic tech applications, as well as create a new narrative and messaging for the kind of Europe civil society actors may want to see.

Setting up an effective online platform to share all of this was something that Alliance4Europe piloted during the European elections, and we are now working to build on that experience with a system that would bring together a wide range of allies, and would enable greater scope and more effective action for civil society organisations.

This is one concrete practical response to tackling closing civil society space, and organising actors together to push it back open. This coordination allows an amplified voice to reach the public at large.

Enabling greater civil society action, while critical, is not the full response. All parts of society need to mobilise and become invested in this. From business to the creative industries, public personalities, academics and athletes, all have a role to play.

A call to action must go out to all of these actors to do their part. Sending out a public message, taking a public stand, whether as part of a voter turnout campaign during an election, or on legislation and public affairs, are key.

The ultimate aim is to engage citizens and drive up participation. We need to invest in citizenship education across our society to make sure that we develop a vision together as a society about the functioning of a democracy. This is something that anyone with a public platform can contribute to. Education does not only happen in a classroom, it happens throughout our social sphere at all ages.

If we build up a culture of civic responsibility together, we could begin to address many of these issues. We have seen this happening on the issue of climate change, with marches and strikes across Europe. We can generate the same level of participation and activation on issues of democracy, fundamental rights, pluralism, and European cooperation, on which the fight against climate change also depends, incidentally.

In fact, the participation of new actors in the field on these issues can and should lead to greater diversity. Bringing in influential voices from the arts, sports, and fashion can activate citizens who might otherwise be silent or face barriers, for their gender or background, for example.

Whereas social media algorithms have tended to replicate exclusionary patterns of gender inequalities online, actively engaging diverse voices, and consciously putting out diverse role models can be part of the panacea. Activating demographics that tend to participate less because they feel unrepresented is a key to tipping the balance.

Tackling disinformation is a crucial prerequisite for restoring the health of democratic discourse. Tracking, monitoring and analysing disinformation and hate speech online, and coordinating the wide galaxy of actors who work on this, currently in a disparate and uncoordinated way.

What we need is to be able to preempt viral waves of disinformation before they spread, to be able to set a positive narrative ahead of negativity spreading. Fact-checking and rebuttal, and online activism can play a role in an overarching response to the issue. We need to aim at a holistic response that brings a range of actors together, coupled with specific tools that individual online users can use, with greater digital and media literacy.

Once we have been able to restore a modicum of fact-based debate to our public discourse, authoritarian leaders will no longer set the agenda. This action begins with the large online platforms, through public regulators and governments, to civil society organisations, academia, think-tanks, campaigners and individual users.

All of these amount to a common responsibility that we all share. Corporate social responsibility was framed as a concept in response to the great power that the private sector exercises on the public sphere.

In recent decades, the link between politics and the private sector have certainly been seen as one of the major eroding factors in trust in our institutions. The power of corporate lobbyists, operating behind closed doors, infusing public political decisions with narrow private interest – all this has been fiercely opposed and denounced. There is a need to apply corporate social responsibility to companies' engagement in politics and the public debate.

The overall economic interest in Europe is shaped, or ought to be shaped by the need to protect the fundamental institutions that enable the internal market and common prosperity, not to mention the urgency of combating climate change, which can only be tackled effectively at the European level.

This calls for a new concept of European social responsibility, where private sector support for civic participation is not driven by narrow interest, but in supporting an independent robust civil society and democracy.

This support can only be provided if it is honest, transparent, and vigorously protects the independence of the civil society actors who receive support from any narrow economic or interests.

However, there are many examples to show that when intentions and values align, this can be done up to a high ethical standard. It is a matter of transforming urgent need into a healthy culture of civic engagement.

To be able to address the fundamentals of how our society is being shaped we need an ambitious and robust all-of-society response, that is coordinated and coherent. This is something that an agile focal point like Alliance4Europe is working to create. ■

Omri Preiss is Managing Director of Alliance4Europe. Omri is an EU affairs and civil society professional, having worked in the European Parliament, and for human rights and sustainability NGOs on campaigning and advocacy

Hybrid and cybersecurity threats

Maria Demertzis and Guntram Wolff find that EU finance ministers should advance a broader political discussion on the integration of the EU security architecture applicable to the financial system

Introduction

'Fantasia' is a member state of the European Union and the euro area. Fantasia's finance minister is woken at midnight by her chief of staff alerting her to social media reports showing documents that implicate her in illegal pre-election financing. While she knows this is not true, she spends much of the rest of the night mobilising experts to prove that the documents posted on the internet are false. But citizens, who in any case dislike the minister for her austerity policies, are suspicious of the ministry's early morning press statement. Trust in the government is falling.

Early next morning, on her way to the first meeting of the day, the minister is informed that the biggest bank in the country has faced a run. It started with messages on Facebook, Twitter and Instagram reporting that the bank's cash dispensers do not work, and showing citizens queuing outside various branches unable to withdraw money from their accounts.

The bank's CEO issues immediately a public statement that there is an unfounded social media smearing campaign against his bank and follows the appropriate emergency protocol: informing the board, the domestic supervisor and the supervisor in Frankfurt, and putting crisis-management teams in place.

However, despite the CEO's best efforts, citizens stricken by panic rush to withdraw their savings. The bank, the minister is informed, is now out of cash and requires liquidity as soon as possible.

An electricity blackout in the capital increases confusion while in the meantime the internet in the entire country slows down – there seems to be a connectivity problem. Citizens in Fantasia's neighbouring country begin to worry – after all, the bank has major subsidiaries in their country too and the public sector has no information on what is happening in Fantasia.

Fantasia's neighbour government calls the EU's Hybrid Fusion Cell in the European External Action Service (EEAS), which collects and analyses evidence from such cases. However, the EEAS has received little information from Fantasia.

Meanwhile, Fantasia's finance minister issues a statement that domestic deposits are protected by a guarantee and tries to assure citizens that the government will honour all claims and protect citizens against malicious attacks. What happens next?

Cyber risks are typically managed as part of a financial institution's traditional operational risk management framework, but this is insufficient

Such events occurring simultaneously as described in this scenario would constitute a hybrid attack. Because of the nature of the attack involving diverse, simultaneous incidents, players in the corporate and political worlds find it difficult to see the whole picture.

Situation analysis and awareness of the degree of interconnectedness are key to better understanding. Political judgement, necessary to contain the fallout from such attacks in real time, needs to be able to rely on well-established procedures based on thorough analytical evidence and knowledge.

The example simulates a reality for which preparations need to be made, especially in the light or recent individual attacks. Estonia in 2007 experienced something that comes perhaps closest to our Fantasia example[1].

In 2014, Bulgarian banks experienced a run, triggered by an 'attack' when an unsigned news bulletin spread via social media[2]. Electricity blackouts can affect entire countries (as recently seen in Argentina, Uruguay and Paraguay)[3] and can be caused by cyber attacks, as happened with the December 2015 Kiev power outage[4]. Social media attacks against politicians are a well-studied subject (He, 2012; de Boer *et al*, 2012).

Meanwhile, a slowdown of the internet can be caused by physical or cyber attacks against the internet infrastructure, including against deep-sea cables, on which a lot of the internet traffic depends (Sunak, 2017).

The European Union considers hybrid *"activities by State and non-state actors"* to *"pose a serious and acute threat to the EU and its member states"* (European Commission/High Representative, 2018). According to European Commission/High Representative (2018), *"efforts to destabilise countries by undermining public trust in government institutions and by challenging the core values of societies have become more common. Our societies face a serious*

challenge from those who seek to damage the EU and its member states, from cyber attacks disrupting the economy and public services, through targeted disinformation campaigns to hostile military actions."

The EU understands hybrid threads and campaigns to be *"multidimensional, combining coercive and subversive measures, using both conventional and unconventional tools and tactics (diplomatic, military, economic, and technological) to destabilise the adversary. They are designed to be difficult to detect or attribute, and can be used by both state and non-state actors"* (European Commission/High Representative, 2018).

Cyber attacks, meanwhile, can be part of a hybrid attack but not every cyber attack is a hybrid threat. Companies, institutions and governments can be victims of such attacks. Financial companies face significant risks of cyber attacks unrelated to any hybrid tactics, which might be motivated purely by criminal reasons. Conversely, hybrid attacks, even if not targeted at the financial system, can have huge repercussions for the financial system, for example as malware spreads.

Cyber attacks are an increasing, and increasingly costly, risk

The frequency and cost of cyber attacks have increased. Sixty-one percent of companies reported one or more cyber event in 2018, up from 45 percent the previous year and the cost of those attacks is rising (Hiscox, 2019)[5]. The *2019 SonicWall Cyber Threat Report* finds over the course of 2018 an escalation in the volume of cyber attacks and new, targeted threat tactics used by cyber criminals (SonicWall, 2019). The Verizon 2019 data breach investigations report found that financial motives were the main reason for data breach attacks, but espionage was behind 25 percent of attacks (Verizon, 2019).

Data breaches arising from attacks often remain undetected for a considerable period of time. There is also evidence that small and medium-sized companies are often targets of attacks. The German industry association

BITKOM estimated that in 2016-17, German companies incurred damage of €43 billion from data espionage and sabotage. Seven out of 10 manufacturing companies have been subject to attacks according to BITKOM[6].

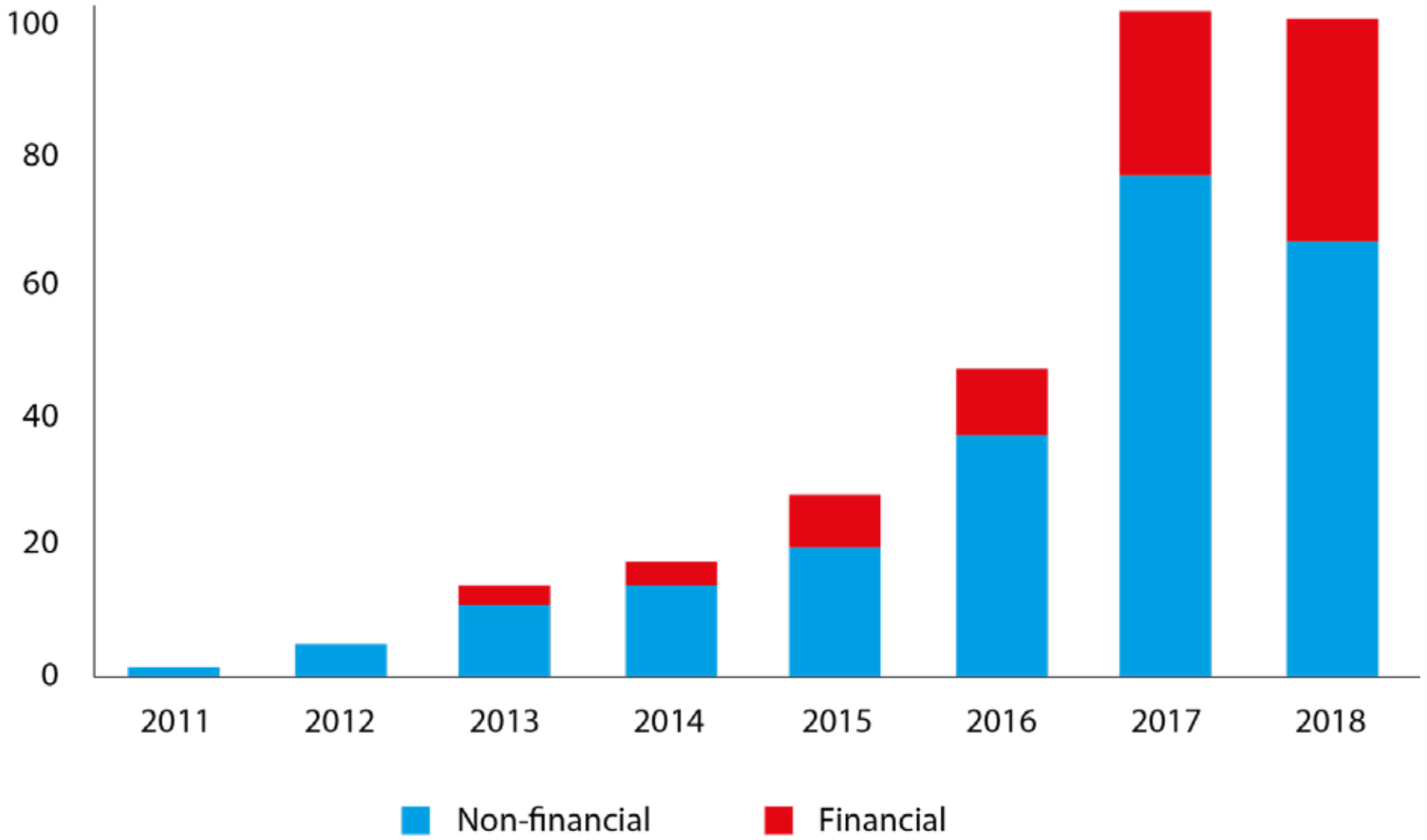
By contrast, the UK government Department for Digital, Culture, Media and Sport (DCMS, 2019) showed that 32 percent of businesses had identified a cyber security attack in the last 12 months, down from 43 percent the previous year. DCMS (2019) ascribed this reduction partly to new cybersecurity measures taken by companies in response to the introduction of tough new data privacy laws under the UK Data Protection Act and the EU General Data Protection Regulation.

Figure 1 documents the number of cyber incidents experienced by listed companies each year in Europe as reported in the press. While media reports capture only a fraction of the actual incidents, there is a clear upward trend in incidents affecting financial companies. In an empirical exercise, we show that the effects of cyber attacks on a company's value can be significant (see the Annex).

Cyber attacks are not restricted to listed companies but are also relevant for public and other institutions. Figure 2 lists the various EU28 institutions reported in the press as having been subject to notable cyber attacks in the past 12 months. Again, while press reports cover only a fraction of actual attacks, it is evident that the issue concerns a broad range of entities across sectors and topics. Given the highly interconnected nature of our economic systems, an attack on a public sector entity might well have repercussions for the financial system.

For example, five million Bulgarians had their personal data stolen in an attack on the Bulgarian tax authority in mid-2019[7]. This data could potentially represent risks to financial firms if, for example, stolen identities are used by criminals. The scope and complexity of modern economic systems imply that the downside risks of cyber attacks can be extremely disruptive and costly.

Figure 1. Number of 'cyber-attack events' affecting listed companies domiciled in the EU28, financial and non-financial sector, as reported by the media



Source: Bruegel.
Note: We classify articles in Factiva as cyber attack news if they contain the words 'Cyber attack', while simultaneously falling into any of the Factiva classifications 'Malware', 'Data breaches' or 'Cybercrime/Hacking' (Factiva articles in 31 languages). Factiva also identifies by name the company being discussed in these articles. One or more cyber attack articles written about a listed company in any given month counts as one 'cyber-attack event'. A 'cyber attack event' might not necessarily correspond to an actual cyber attack but, for example, to new measures companies take to fight cyber attacks, among other issues.

The literature on the impact of terrorism on the financial system can help discern some of the implications of physical-infrastructure disruptions related to hybrid attacks. Large-scale terror attacks can disrupt physical infrastructure, as can hybrid attacks in which, for example, deep-sea cables are targeted.

It is therefore useful to look at the empirical literature assessing the impact of events such as the 11 September 2001 attacks in the United States on the companies concerned and on the stability of the financial system, in order to better understand the effects of physical disruptions to infrastructure.

Theoretically, three impacts can be distinguished: the short-term market impact arising from the destruction of value; the medium-term confidence effects and the longer-term effects on productivity.

The empirical literature typically finds that even a large and successful terror attack such as 9/11 does not fundamentally endanger the stability of the global financial system or the global economy more broadly. While specific sectors such as the airline and defence industry might see lasting changes to their valuations[8], the market as a whole recovered relatively quickly[9].

Longer-term major fiscal and human costs resulted from the US response to 9/11 in the form of wars (Frey *et al*, 2007). But for the financial system alone, the rapid recovery observed was due to significant redundancy systems, such as back-up systems in different cities, at the company level and at the systemic/institutional level, and to decisive policy action in the form of additional central bank liquidity and effective communication[10].

An evolving landscape for managing cybersecurity and hybrid threats to the financial system

The EU has responded to hybrid threats with an extensive set of policies. There is no single definition of hybrid

Figure 2. Notable cyber attacks in the EU28 in the year to July 2019 as reported in the press

Source: Bruegel based on Factiva and CSIS data.
Note: Cyber attacks were identified through a Factiva search for cyber-attack news published between August 2018 and July 2019 (as explained in the note to Figure 1). We identified additional attacks through the 'Significant Cyber Incidents' list provided by the Center for Strategic & International Studies (CSIS), which focuses on "cyber attacks on government agencies, defence and high tech companies, or economic crimes with losses of more than a million dollars."[11]

threats but most definitions include conventional and non-conventional aggression by state and/or non-state actors.

The European Union Institute for Security Studies provides a good summary of hybrid threats and the respective policy responses (Fiott and Parkes, 2019). They find substantial shortcomings such as inadequate information sharing and intelligence exchange (including with EU institutions), and risk assessments that are based on the lowest common denominator among member states, which could lead to underestimation of risks.

They also highlight that collaboration with the private sector is suboptimal and that EU institutions find it difficult to overcome compartmentalisation when devising strategies and responses to hybrid threats.

They argue that the real challenge for the EU is to recognise and respond to a 'staccato' of events based on credible intelligence coupled with good political judgement. Official communications on hybrid threats make little specific reference to the financial system's vulnerability to hybrid threats.

The financial system, however, is considered an essential service by the Network and Information Security Directive (NIS Directive, 2016/1148/EU), under which EU countries must supervise the cybersecurity of such critical market operators (energy, transport, water, health, and finance sector) in their territories.

Cyber risks are typically managed as part of a financial institution's traditional operational risk management framework. This framework is insufficient. ECB (2018) sets out four key reasons why it falls short of what is needed. A distinguishing characteristic of cyber attacks is often the persistent nature of a campaign conducted by a motivated attacker. As a result, cyber attacks are often difficult to identify and to fully eradicate and they can have a substantial impact.

Second, and moreover, cyber risks posed by an interconnected entity are not necessarily related to the degree of the entity's relevance to a financial institution's business. In other words, unlike in traditional financial contagion, a small business partner might pose as big a risk to a given firm as a major partner.

Third, cyber attacks can render some risk-management and business-continuity arrangements ineffective.

Fourth, cyber attacks can be stealthy and propagate rapidly. We would add a fifth point: cyber attacks can be systemic if they exploit shared vulnerabilities. These could, for example, result from a scarcity of cybersecurity providers to major financial institutions, leading to similar cyber-protection systems and vulnerabilities in several institutions.

To increase resilience against hybrid and cyber attacks against the financial system, the EU has taken a three-part approach: (i) regulations and standards, (ii) testing and preparedness, (iii) governance.

Attempts to promote cybersecurity, including for financial market infrastructures (FMIs), have led to a number of initiatives at all levels: globally, at EU level and at national level. At the global level, the G7 Cyber Expert Group first took steps in 2013 to develop a set of high-level (but non-binding) fundamental principles for assessing the level of cybersecurity. The EU adopted a cybersecurity strategy in the same year. The EU finalised the NIS Directive in 2016, an initiative taken to tackle the cybersecurity challenges in a coordinated attempt.

When it comes to the financial sector in particular, the European Banking Authority, the Committee on Payments and Market Infrastructures and the International Organisation of Securities Commissions have taken a number of initiatives to mitigate ICT risks and provide for information security.

The European Central Bank's governing council adopted cyber-resilience oversight expectations (CROE) for the Eurosystem in 2018 (ECB, 2018)[12]. CROE is structured in a way that outlines expectations on governance, identification and detection of cyber risks, protection, testing and putting in place procedures for response and recovery.

It has three key purposes: 1) provide FMIs with detailed steps on how to operationalise the guidance given; 2) provide a framework to those who oversee FMIs for evaluating the level of cybersecurity; and 3) provide a basis for a communication between FMIs and their supervisors.

Concrete measures aim at promoting coordination and standardisation in two areas: identifying weak parts of the system – testing, and ensuring business continuing following a breach – quick recovery.

European financial regulators are increasing their efforts to promote good testing practices. The ECB sets expectations in CROE in terms of what constitutes a good testing framework[13]. At the same time the European Supervisory Authorities issued advice on how to provide a coherent framework across the EU, including on which parts of existing regulations will need to be adjusted (ESAs, 2019).

The EU has now produced a testing framework called TIBER-EU that was developed jointly by the ECB and the European System of Central Banks, and is based on the results of earlier similar testing frameworks including the UK's CBEST and the Dutch TIBER-NL. Such tests are typically voluntary and focus mostly on penetration vulnerabilities. Increasingly, there are tests that focus on the recovery capabilities of entities. TIBER-EU therefore is there to provide a framework for improving resilience rather than for holding entities to account.

CROE expectations all set a target to recover essential services within a two-hour period, following a cyber attack. All available guidance emphasises the need for availability and continuity of critical services. This involves setting targets in terms of both the minimum level of services that should remain available, and the time frame for recovery.

While the aim is to restore critical services within a two-hour period, full recovery should be expected by the end of the day of the disruption, in particular for functions that are systemically relevant.

The ECB, in line with international institutions such as the Bank for International Settlements, has formulated clear expectations on how governance at the level of the individual financial institution should be structured.

For example, ECB (2018) discussed in detail that board and management should have an awareness culture and also clear procedures involving large parts of the organisation to be able to deal with a cyber attack in real time.

We do not have systematic evidence on how well these expectations have been implemented in individual institutions but surveys suggest that the awareness and preparedness of individual institutions has increased[14].

A more worrying aspect is the governance set-up to manage cyber and hybrid threats at a more systemic level. A key concern we have identified, in our interviews in particular, relates to the institutional interplay between private firms and European and national authorities. In the EU, security questions are dealt with by and large by national authorities, while the single market is a true EU endeavour.

This asymmetry of governance is becoming problematic as the global security environment becomes less benign. At the same time, the EU relies on the US for a military guarantee and vital elements of the security infrastructure.

As trust in the US declines and security weaknesses become apparent (Leonard *et al*, 2019), this asymmetry becomes an obstacle to effective cyber security.

The supervisory infrastructure of the EU's financial system has obviously evolved substantially in the last decade, with a much greater degree of centralisation and coordination, in particular because of the Single Supervisory Mechanism at the ECB and the European Supervisory Authorities (ESA).

There has not been, however, a corresponding increase in institutional collaboration, let alone centralisation of the security infrastructure[15]. The intelligence sharing between national security institutions and EU institutions or national institutions of other countries is sub-optimal according to analysts (Fiott and Parkes, 2019) and the EEAS calls on member states to increase intelligence sharing between national services and the EEAS-based service in charge of assembling and analysing hybrid threats (the Hybrid Fusion Cell)[16].

Reinforcing the EU's financial resilience to hybrid and cyber risks

The risks to the EU's financial system of hybrid and cyber risks are real but difficult to assess. The fact that so far there has not been a major incident with significant systemic repercussions does not mean that there will not be in the future.

Risks to the financial system from hybrid threats are multifaceted and do not originate necessarily in the financial system itself. Critical financial and other infrastructures need to be part of a strategy against hybrid threats. It is therefore important that the EU strengthens its resilience.

It is difficult to assess how adequately prepared the EU is to address these risks. In the course of our interviews with senior policymakers and private-sector representatives, we explored how they assess the state of play when

it comes to regulation, testing and governance at the level of the institution and at a more systemic level. While necessarily subjective, we have distilled our discussions and reading of public documents into five broad messages:

1. There have been significant advances to protect individual institutions. Considerably less has been done to address the issue from a system-wide perspective. In general, senior officials are well aware of regulatory, testing and governance measures recommended for, or required of, individual institutions.

The private financial sector, for its part, is alert to cybersecurity issues. Many institutions have put in place strong technical and procedural measures to protect their business, but we cannot be sure about the level of preparedness across all companies[17].

It is our understanding that neither policy officials nor the private sector have advanced significantly on the broader systemic dimension. Interlocutors were much less clear when it came to the system as a whole – the perspective that is most relevant when thinking about actual hybrid attacks on a key infrastructure or systemic institutions.

Table 1 maps the vulnerabilities based on our interviews and reading of the publicly available material across the three main areas: regulation, testing and governance in terms of individual institutions and the financial system as a whole.

2. Starting with individual institutions, two issues deserve more deliberation. First, the joint advice from the European Supervisory Authorities (ESAs, 2019) is to streamline existing regulations and guidelines on cybersecurity. It is not always easy for countries with different legal systems to build a single or coordinated regulatory framework for cyber risks[18].

Table 1. A heat-map of the EU financial system's preparedness in the face of hybrid and cyber risks

	Regulation	Testing	Governance
Individual FMI	What does regulation on cybersecurity say? Need to review the liquidity buffers? Need to review the capital requirements?	Are individual MFIs doing enough testing of their vulnerabilities?	Board-level priority, recommendations but how good is implementation?
Financial system	Systemic regulation? Macro-prudential discussion	G7 exercise, but no EU exercise. Euro- area exercise?	Integrated market but not integrated security structures. ECB and other EU financial supervisors lack counterpart on security side. Capacity to organise rapid macro-policy response.

Source: Authors' assessment based on interviews and reading of publicly available literature.

Currently, much is done through non-binding guidelines. The CROE example for payment systems points to the lack of regulatory alignment between the ECB and national authorities. We also found little evidence that existing rules on liquidity and capital regulatory requirements treat cyber risks differently to other operational risks that might require the built-up of separate buffers.

Second, when it comes to testing and governance, our impression is that large financial companies are very actively engaged. But it is less clear if smaller financial institutions and public institutions are similarly prepared. Unlike typical financial shocks that transmit via large institutions, cyber shocks might transmit as effectively via small institutions.

3. At the level of the system as a whole, significant issues deserve more deliberation. We received few indications that systemic regulatory questions have been considered. The macroprudential implications of cyber risks is also a topic that has not received much attention, despite an acknowledgement that cyber risks, let alone hybrid risks, cannot be treated as normal operational risks.

4. Cybersecurity is ultimately a matter for (and part of) national security in all countries, irrespective of the sector. National security authorities are informed and ultimately in charge, and security cooperation remains limited in the EU

This will have an impact on the way that cybersecurity is dealt with in the financial sector, despite banking union and, in the future, Capital Markets Union. This level of complexity is a lot more difficult to deal with as the EU remains still a union of 28 sovereign states.

5. The mismatch between strong financial integration and limited security integration could be a cause of systemic weakness. Strong financial integration means that many key financial services are provided by a limited number of

companies that might be concentrated in only a few member states.

While the supervision of such systemic institutions is centralised at European level (or there is a high level of supervisory coordination depending on the sector), the institutions' counterparts for security questions are national.

This mismatch could lead to systemic weaknesses if national authorities fail to internalise the financial effects that cyber attacks on local financial firms can have beyond national borders. Similarly, a cyber attack on the electricity or water supply system of an EU state could harm financial firms' activities, domestically and abroad.

The way forward?

The five messages we have outlined indicate that policy discussion on cyber risks should address the following issues:

1. Information sharing can be improved within and between jurisdictions. The Basel Committee (BIS, 2018) reports that most jurisdictions have put in place cyber security information-sharing mechanisms (either mandatory or voluntary) involving banks, regulators and security agencies. Following an attack, financial institutions are required to report to the authorities.

BIS (2018) also found that banks communicate adequately between themselves, with the regulator and with national security agencies in the event of an attack. By contrast, there is typically much less communication going from the regulator back to banks, or between regulators across borders.

Some EU banks have indicated to us that they receive very little communication from authorities on cyber risks, in contrast to the detailed information banks are required to provide. Collaboration between the private sector and public authorities is important when it comes to information exchange and responding to ongoing attacks, as also emphasised by the NIS Directive.

2. When it comes to testing, the EU and the euro area in particular should consider holding regular preparedness exercises for the financial system.

The G7 under the French presidency undertook in summer 2019 a cyber attack exercise, but to our knowledge no such exercises for the financial system have been carried out at the EU or euro area level.

Clear assignment of responsibilities and rapid cross-border collaboration between national and European authorities and the private sector are critical to understanding how to reduce the damage and recover quickly.

While the European Union Cybersecurity Agency (ENISA) carries out exercises in other sectors[19], an EU-wide exercise focusing on the financial system seems warranted.

3. The tension between national sovereignty on security matters and shared responsibility for financial-system stability creates multiple challenges.

For example, responses to cyber incidents involve law-enforcement agencies, which do not necessarily follow a sufficiently integrated approach to account for the wider implications to the EU financial system.

Even more difficult is the question of political judgement and response to hybrid threats. Who analyses such risks and threats in real time from a truly EU-wide perspective? ENISA and the EEAS Hybrid Fusion Cell are useful institutional bases for a more systemic and EU wide response[20].

But both ENISA and the Hybrid Fusion Cell are institutionally rather small with limited mandates and capacity to analyse and react in real time. EU institutions themselves can become victims of cyber and hybrid attacks.

While the institutions have obviously put in place significant measures to protect themselves, the question is whether sufficient public sector security infrastructure can be provided to them, including at the political level. How quickly would the EU be capable of defining a political response to a successful cyber attack on, say, the ECB?

Some progress in strengthening the mandate and competence of EU-level security agencies was made recently but this cannot be the endpoint given the high degree of interconnectedness. It is a big endeavour to improve and upgrade the coordination of national security agencies and EU capacity at the level of shared institutions. However, we believe it is imperative in such a highly integrated financial system[21].

4. The issue of ownership of critical infrastructure, for example ownership of a stock exchange, a systemically important bank or even mobile networks, is left to EU member states. But if subject to cyber attacks, their ramifications could be felt across the EU financial system. To the extent that ownership has implications for management decisions and board procedures, foreign ownership of an important financial infrastructure could have implications for financial resilience against cyber attacks.

On 14 February 2019, the European Parliament adopted an EU framework for screening foreign direct investment (Regulation (EU) 2019/452). This law[22] introduces a mechanism for cooperation and information-sharing among member states but stops short of giving veto powers to the Commission.

The objective of the framework is greater coordination on national security-related screening of foreign investment. It will help increase awareness and increase peer pressure across the EU. But it does not establish an independent EU authority for investment screening and also falls short of a single EU framework for assessing security risks.

We consider the new framework to be a step in the right direction but ultimately not commensurate with the challenge created by an integrated single market and still essentially national screenings of investments for national security reasons.

The point here is not to say that foreign ownership is the problem; rather that a national sovereign decision can have significant implications for the entire EU financial system.

5. A more integrated and better-functioning insurance market for cyber risks can help manage the costs but also help understand the risks themselves. The insurance market against cyber risks is relatively small and suffers disproportionally from the problems any insurance market suffers from (information asymmetry, adverse selection).

In the EU, the issue is compounded by the lack of a central security authority and information sharing. Yet, creating the right conditions for an insurance market to develop can help in two ways. First, the ability to insure against cyber risks will help cushion the cost for any individual entity that comes under attack.

Second, allowing for a market, and therefore for a pricing system, to develop will help understand the extent and gravity of these risks. Helping therefore to define a methodology that is common across the EU could be an important contribution to the creation of an EU-wide insurance market. Also, creating uniform information and disclosure requirements will be a helpful step forward.

6. The response to a major systemic cyber or hybrid incident might also require a swift and decisive macro policy response. As we noted in section 2, the initial policy reaction to the 9/11 terror attacks involved significant liquidity provisioning by the Fed. Evidence suggests that this immediate and sizable response reduced the impact on the American economy[23]. The EU should be aware of this and be ready to act in a timely manner.

As cyber and hybrid risks increase, the EU's system of fragmentation on issues of security, but centralisation on financial and other economic issues, will be tested. This asymmetry was not an obstacle in a world in which security threats were more contained (or of a different nature) and the EU trusted the United States to be its security guarantor.

We believe that Europe will be increasingly asked to provide for its own security, and as a unit. At the very least, it will require a greater level of collaboration among national authorities. ■

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Endnotes

1. See for example https://www.bbc.com/news/39655415.

2. See https://www.bloomberg.com/opinion/articles/2014-07-01/bulgaria-s-a-soft-target-for-bank-runs, https://www.ft.com/content/40692919-312a-39e0-acd4-bce8c899ac66 and https://bruegel.org/2014/07/fact-of-the-week-a-spam-newsletter-caused-a-bank-run-in-bulgaria/.

3. See https://www.dw.com/en/argentina-uruguay-paraguay-suffer-massive-power-blackout/a-49225070 and https://www.dw.com/en/how-argentinas-nationwide-blackout-happened/a-49232203.

4. See https://www.reuters.com/article/us-ukraine-cyber attack-energy/ukraines-power-outage-was-a-cyber-attack-ukrenergo-idUSKBN1521BA.

5. The reported average loss increased 61 percent from 2018 to 2019, reaching $369,000 (Hiscox, 2019). The report surveyed 5,400 firms in the US, UK, Belgium, France, Germany, Spain and the Netherlands. Approximately three out of four businesses failed a cyber-readiness test. However, Hiscox (2019) notes many cyber incidents involve viruses/worms, which might not constitute an 'attack' on a specific company.

6. https://www.bitkom.org/Presse/Presseinformation/Attacken-auf-deutsche-Industrie-verursachten-43-Milliar-den-Euro-Schaden.html.

7. See for example https://www.nytimes.com/2019/07/17/world/europe/bulgaria-hack-cyberattack.html?searchResultPosition=3.

8. See Drakos (2004), Brounen and Derwall (2010) and Apergis and Apergis (2016).

9. See Chen and Siems (2003), Nikkinen and Vahamaa (2010), Maillet and Michel (2005) and Burch and Emery (2003).

10. See Chen and Siems (2003), Johnston and Nedelescu (2006) and Ferguson (2003).

11. Available at https://www.csis.org/programs/technology-policy-program/significant-cyber-incidents.

12. This followed on from various initiatives. The European Banking Authority (EBA) published a set of guidelines on ICT risk assessment in 2017, supplementing its own general Supervisory Review and Evaluation Process guidelines, which are used when the supervisor evaluates whether a bank meets capital requirements and manages risks. These guidelines refer

to measures to mitigate ICT risks, information security and recommend that measures be put in place. The Committee on Payments and Market Infrastructures and the International Organisation of Securities Commissions published guidance on cyber resilience for all FMIs in 2016, complementing its own Principles for Financial Market Infrastructures.

13. The ECB also emphasises the need for dynamism in approaching cybersecurity (Kopp et al, 2017). This requires promoting situational awareness and a process of continuous learning as cyber-related threats change and evolve.

14. Surveys from ACCA (2019), Kaspersky (2018) and TD Ameritrade Institutional (2019) show that cybersecurity is increasingly being prioritised by companies. Cybersecurity service providers are also expanding in revenue and achieving record product sales, while large technology companies, including BlackBerry, Symantec, IBM, BAE Systems and CISCO, are redirecting their investments towards cybersecurity.

15. The European Centre of Excellence for countering Hybrid Threats in Helsinki is an intergovernmental think tank, also supported by NATO and the EU. Other institutions with primarily analytical capacities exist, such as the European Union Institute for Security Studies.

16. See https://eeas.europa.eu/sites/eeas/files/joint_communication_increasing_resilience_and_bolstering_capabilities_to_address_hybrid_threats.pdf.

17. There are conflicting messages here. When we spoke to large individual financial firms, they were confident that they take adequate cyber security measures. However, a survey run by IMD International (Switzerland, World Competitiveness Center, www.imd.org/wcc) showed that business leaders in many countries increasingly believe that cyber security is not adequately addressed. Also there are strong theoretical arguments why individual institutions might underinvest in cyber security, as they have an incentive to capitalise on other firms' actions (Gordon et al, 2015).

18. BIS (2018) surveyed the range of practices in different jurisdictions in terms of managing cyber risks. They found that most regulators have taken action to promote the creation of frameworks that enhance the cyber resilience of those they regulate. They did that by either issuing principles-based guidance or prescriptive regulation. The Basel Committee commented on the lack of homogeneity in approach, style and regulatory requirements across the globe. And while most regulatory authorities expect entities to have a cyber security strategy, they do not actually require it. As the financial

sector is becomes increasingly digital there is a need for greater alignment of national regulatory and supervisors.
19. See www.cyber-europe.eu.
20. See for example EPRS (2019).
21. An alternative would be to reduce financial integration with a view to reducing the scope of spillover from cyber and hybrid threats onto the financial system (see Stiglitz, 2010, for a theoretical exposition of the argument for limiting integration). However, this option would be inconsistent with a highly integrated financial system at the core of a monetary union and an integrated single market.
22. See https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32019R0452.
23. See IMF (2001), Johnston and Nedelescu (2006), Maillet and Michel (2005) and Chen and Siems (2003).
24. For information on the rationale behind the factors, refer to Fama and French (1992). For information on the factors see Kenneth R French at https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data_Library/f-f_factors.html.

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ANNEX: THE IMPACT OF A GIVEN CYBER ATTACK ON COMPANIES' RETURNS: ECONOMETRIC EVIDENCE

The release of information on a cyber attack on a company – an unexpected event – might have an impact on its stock price, as financial markets update their expectations. If such events bring additional unexpected costs for the company (both direct and indirect), stock prices will move downwards. Cyber attacks are expected to have a one-off direct cost for companies when they take place, due mostly to interrupted business activity and costs to restart activity, and also an indirect one-off cost because of reputational damage and subsequent reduction in expected demand and brand value.

Any new information on cyber attacks can impact a company's returns upon its release, months or even years after the attack originally took place. New cost estimates, for instance, or news on legal proceedings, such as legal expenses or fines, are also expected to impact a company's stock price when made public.

Econometric approach

We fit to a company's monthly returns the standard asset pricing models defined in the financial econometrics literature (Fama and French (1992) 3-Factor model). To estimate the impact of cyber attacks on a company's returns, we extend the models by adding a variable representing the severity of a cyber attack event.

The models in question are the standard CAPM:

A.1

$$(Y_{it} - RF_t) = \alpha_i + \beta_i Mkt_t - RF_t) + \gamma c_{it}$$

And the Fama and French 3-Factor model:

A.2

$$(Y_{it} - RF_t) = \alpha_i + \beta_i Mkt_t - RF_t) + \beta_{SMB} SMB_t + \beta_{HML} HML + \gamma c_{it}$$

Where:

Y_{it} is the market return of company at time , ie. with representing the stock price of company at time ;
RF_t is the risk-free rate at time , the monthly-equivalent of the 10-year US Treasury Bond rate;
MK_t is the market return at time , the market return of the S&P500 Index;
SMB_t is the Fama-French monthly Small Minus Big Factor, meant to control for the excess returns of small (low market cap) stock portfolios compared to big stock (large market cap) portfolios;
HML_t is the Fama-French monthly High Minus Low Factor, meant to control for the excess returns of large book-to-value stock portfolios compared to low book-to-value portfolios[24];
C_{it} is the variable of interest, representing the severity of a cyber attack event on company i at time t.

The variable of interest is the number of times a company has been mentioned in the media, in a given month, in cyber attack news (see note to Figure 1 for definition of cyber attack news). Our assumption here is that more substantial attacks are more likely to be commented on by more media outlets and more frequently. The number of mentions in the media also directly correlates with dissemination of information to the public and thus brings higher reputation costs. Variable is therefore a proxy for the severity of the cyber attack.

The companies in questions are all those which over the 2011-2019 period were mentioned in the media as targets of cyber attacks.

We got the following key results:

1. A press mention of a company in the context of a cyber attack is not enough for a statistically significant decrease in its returns. Only if a company is mentioned more than 15 times in a month in the context of a cyber attack do we find a negative effect on monthly returns.
2. We estimate that 100 mentions of a cyber attack event on a company in the media in a given month is associated with a decrease of 2.6 to 3.2 percentage points on the company's monthly returns.
3. We do not find any evidence that financial companies are more affected than non-financial companies, nor banks specifically.

Malta: A high-value investment for your future

Q&A with Jonathan Cardona, Chief Executive Officer of the Malta Individual Investor Programme Agency, outlining the benefits Malta offers investors

A growing number of wealthy private individuals are looking at investment migration as a way of giving themselves, and their immediate family members, the opportunity to live a better life in a more stable environment, offering a vast array of business opportunities and intangible benefits. Moreover, such programmes give the applicant and dependents access to countries with financial and political stability, allowing them to achieve security and flexibility, freedom of movement and a safe harbour for business activities, families and individuals alike.

Jim Rogers, the well-known American investor, puts it like this: *"We're not going to have a very simple and stable world in the next 20 to 30 years, so you need to be able to be mobile,"* explaining that the threat of trade wars, environmental disaster, pollution and terrorism means *"everybody should have a 'plan B' to diversify their living possibilities."*

The trend for increased demand for second citizenship is continuing to grow amongst Ultra High Net Worth Individuals (UHNWI's) according to residential and commercial property consultancy Knight Frank in its latest Wealth Report.

World Commerce Review interviewed Jonathan Cardona, the Chief Executive Officer of the Malta Individual Investor Programme Agency (MIIPA), to find out how Malta is attracting individuals who are not only willing to invest, but who also believe in Malta, a small island nation with great potential.

Nowadays, more high net worth individuals are seriously weighing their options of resorting to investment migration in order to expand their business interests. This created an economic niche for citizenship by investment programmes. How is Malta tapping into this opportunity?

The Malta Individual Investor Programme (IIP) was created to attract highly successful individuals and families to live and invest in Malta. The programme was launched in February 2014 giving investors the opportunity to become Maltese citizens by naturalisation, whom were also able to share their networks, and develop their ideas on the Maltese Islands.

This caught the world's attention and managed to put Malta squarely on the map, creating a melting pot of business know-how, experiences, skills and funding. Their positive contribution to the Maltese society stimulates businesses, increasing job creation, and revenue, as well as augmenting the island's human capital.

This allows the country to break new ground through innovative foreign direct investment, garnering even more interest from all over the world for the ultimate benefit of the Maltese economy.

These programmes have attracted a fair bit of criticism, saying that citizenship has been commoditised. How has Malta overcome these attitudes?

Malta's ambition strives for quality rather than quantities. In turn, this proves to be beneficial to the parties on both ends, adding value to the country as much as to the individuals acquiring its citizenship, distinguishing the programme from the rest.

Moreover, seventy percent of the contribution paid by the applicants and the dependents are deposited into the National Development and Social Fund (NDSF). These funds are being used to address Government social projects.

In the past years, the Government has already confirmed projects related to healthcare, social housing, and sports. Applicants have also proved to be of great help to many philanthropic organizations through their donations, adding up to around €4 million.

Malta has a growing reputation for being one of the best countries to do business with stems from our competitive tax regime and well-developed legal system

Whether an individual seeks alternative citizenship or residence during their working years, post-retirement, or during a phase of succession planning, it is becoming ever clearer that, as a new asset class, residence- and citizenship-by-investment are no longer part of a bespoke service offering.

Investment migration is officially becoming mainstream. How does Malta ensure that only reputable applicants are admitted to its citizenship programme?

The programme's success and robustness rests on three mechanisms intertwined in such a way that none can thrive without the other, that is the due diligence, good governance and transparency. But our responsibility does not start and end with the programme we conduct.

Our programme is widely acknowledged as one of the leading investment migration programmes worldwide. It is also considered to be one of the most rigorous ones, putting an emphasis on the seriousness of due diligence processes.

We go through a high level of detail on each application, knowing that like all service industries, the programme's reputation is guarded with very stringent due diligence and high regulatory standards.

The Malta Individual Investor Programme Agency constantly seeks to make the programme more efficient and maintain the high reputation it gained.

Throughout the years, the programme has developed and evolved its internal processes and procedures by advocating for higher industry standards, thus renewing our commitment to keep strengthening its integrity across the board.

What role does the regulator take?

The role of the Office of the Regulator and the functions of their office are regulated by the provisions of Article 25 of the Maltese Citizenship Act (Cap 188). The Regulator shall provide advice and guidance on the procedures, interpretations and any other recommendations on the implementation of the programme.

However, the Regulator may request any documentation from the Agency and is also empowered to regulatory interventions, envisaged to be on the overall compliance and specific compliance.

The Regulator also compiles and presents an annual report, including an overview of the development of the programme; statistics on the number of applications received, processed and decided as well as a breakdown of the characteristics of successful CBI applicants.

What benefits do you offer that perhaps other programmes lack?

The Maltese Islands are quite a forward-looking state steeped in tradition and rich in culture, with a strong history of outreach and trade. We have seen Malta shifting from a strategic stronghold to an Independent state. It is also a member of the European Union and member of the Commonwealth, one of the only three member countries located in Europe.

Malta has one of the most productive economies in the EU. It is a stable country, recognised as a rising star for successfully weathering the global turmoil to become one of Europe's fastest growing economies.

In fact, Malta has a growing reputation for being one of the best countries to do business with stems from our competitive tax regime and well-developed legal system. This also includes having low operating costs, as well as a highly skilled yet versatile workforce that speaks proficient English.

Nonetheless, Malta's robust economic performance can also be attributed to the government's pro-business stance as it seeks to further foster favourable conditions in attracting foreign direct investment to its shores.

Over the past decades, the Maltese economy, backed by the necessary legislation, has diversified well in the high-end manufacturing and services industry, establishing itself as a sound financial jurisdiction, a popular tourist destination and a hub for the ICT and gaming industries.

We have engaged in new economic niches and are now in full force working to expand our potential to become leaders, amongst others in digital innovation technology, already being the first to push forward a regulatory framework for Blockchain technology and exploring on Artificial Intelligence as a new economic niche.

Most certainly, the government's growth-friendly measures, coupled with its sound fiscal policy, has transpired towards attracting HNWI not only to obtain the Maltese citizenship but also to invest and develop their business in Malta. ■

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Money and private currencies: reflections on Libra

The link between money and trust has lost none of its relevance. Yves Mersch considers Libra and calls for a global regulatory and supervisory response to mitigate risks

In 1787, during the debates on adopting the US Constitution, James Madison stated that *"[t]he circulation of confidence is better than the circulation of money."* It's telling that Madison chose to use public trust in money as the yardstick for trust in public institutions – money and trust are as inextricably intertwined as money and the state. Money is an *"indispensable social convention"* that can only work if the public trusts in its stability and acceptability and, no less importantly, if the public has confidence in the resolve of its issuing authorities to stand behind it, in bad times as well as in good.

Madison's 18th century remark on the link between money and trust has lost none of its relevance in the 21st century. The issue of trust in money has resurfaced in the public debate on privately issued, stateless currencies, such as bitcoin, and their promise to serve as reliable substitutes for public money. This is neither the place nor the time for me to repeat my past statements on the shortcomings of cryptocurrencies[1] and why they do not fulfil the basic tests of what constitutes 'money'.

Instead, I will talk about Libra, Facebook's newly announced private currency. It is scheduled for release in the first half of 2020 by the very same people who had to explain themselves in front of legislators in the United States and the European Union on the threats to our democracies resulting from their handling of personal data on their social media platform.

There are three key questions here. First, how does Libra differ from other private currencies and from public money? Second, what legal and regulatory challenges does it pose? And third, in the light of its mandate, what position should a central bank like the ECB take towards Libra?

The remainder of the article will be dedicated to these three questions, not with a view to conclusively answering them, but merely to raise awareness of some of the risks of Libra, to question its main premises and, in the process,

to highlight the perils of entrusting the smooth processing of payments, the savings of citizens and the stability of the global monetary and financial systems to unaccountable private entities with a questionable track record in matters of trust.

So let me turn to my three questions. First, how is Libra different from other private currencies and from public money?

I sincerely hope that the people of Europe will not be tempted to leave behind the safety and soundness of established payment solutions and channels in favour of the beguiling but treacherous promises of Facebook's siren call

Despite the hype surrounding it, Libra is, in some respects, no different from other, established private currencies. Similar to cryptocurrencies, Libra will be issued through a public ledger running on a form of blockchain technology. And similar to e-money, Libra will be distributed to end users electronically in exchange for funds denominated in fiat currencies.

But there are some notable differences that are extremely concerning. Libra's ecosystem is not only complex, it is actually cartel-like. To begin with, Libra coins will be issued by the Libra Association – a group of global players in the fields of payments, technology, e-commerce and telecommunications.

The Libra Association will control the Libra blockchain and collect the digital money equivalent of seignorage income on Libra. The Libra Association Council will take decisions on the Libra network's governance and on the Libra Reserve, which will consist of a basket of bank deposits and short-term government securities backing Libra coins. Libra-based payment services will be managed by a fully owned subsidiary of Facebook, called Calibra.

Finally, Libra coins will be exclusively distributed through a network of authorised resellers, centralising control over public access to Libra. With such a set-up, it is difficult to discern the foundational promises of decentralisation and disintermediation normally associated with cryptocurrencies and other digital currencies. On the contrary, similarly to public money Libra will actually be highly centralised, with Facebook and its partners acting as quasi-sovereign issuers of currency.

You may be wondering what the problem is with Libra's centralisation. If public money is also centralised, why should Libra be any different?

What the advocates of Libra and other private currencies conveniently gloss over is that, because of its nature as a public good, money has traditionally been an expression of state sovereignty. It is no coincidence that, throughout history, sovereign actors have underpinned all credible and durable currencies.

This historical fact, affirmed in GF Knapp's state theory of money and in the Chartalist school of economic thought, has had a lasting impact on orthodox perceptions of the concept of money as a public good and has found its way into statutory definitions of legal tender.

When it comes to money, centralisation is only a virtue in the right institutional environment, which is that of a sovereign entity and a central issuance authority. Conglomerates of corporate entities, on the other hand, are only accountable to their shareholders and members. They have privileged access to private data that they can abusively monetise. And they have complete control over the currency distribution network. They can hardly be seen as repositories of public trust or legitimate issuers of instruments with the attributes of 'money'.

The high degree of centralisation that is Libra's hallmark, and the concentration of its issuance and distribution networks, are not the only features inhibiting trust. Despite its audacious global currency aspirations, Libra lacks a global lender of last resort. Who will stand behind it in a liquidity crisis situation?

Libra is also devoid of the equivalent of a deposit guarantee scheme to protect its holders' interests during a crisis. Moreover, the limited liability of the Libra Association members raises serious questions about their resolve to satisfy the claims of Libra holders with their full faith and credit, as central banks do with public money.

Finally, the fact that Libra is backed by a basket of sovereign currency-denominated assets appears to defeat the very purpose of its issuance as a private currency. Why bank on a proxy when one can put one's trust in the genuine

article? And how will the potential volume of payment transactions settled in Libra affect the monetary aggregates of its underlying currencies, their objectives and intermediate targets?

Let me now turn to my second question, on some of Libra's legal and regulatory challenges. By straddling the divide separating currencies from commodities and payment systems, digitalised private currencies inevitably raise legal and regulatory questions. Libra is no exception. For brevity I will only address three of these challenges, but rest assured that there are many more.

The first challenge concerns Libra's fundamental legal nature. The choice is, essentially, whether to treat Libra as e-money, as a financial instrument or as a virtual currency. Libra does not appear to qualify as e-money, as it does not embody a claim of its holders against the Libra Association.

If Libra were to be treated as a transferable security or a different type of financial instrument, both the Libra Association and any other entities engaged in providing investment services through Libra coins would fall within the remit of the Markets in Financial Instruments Directive (MiFID II).

Alternatively, if Libra were to qualify as a virtual currency then, under the Fourth Anti-Money Laundering Directive, both Calibra and its authorised resellers would become subject to the Directive's anti-money laundering and counter-terrorism financing obligations, and to its registration requirement.

Given the different regulatory implications of Libra's legal characterisation, regulatory intervention is essential, to either confirm Libra's classification under one of the existing legal and regulatory frameworks, or to create a dedicated regime adjusted to its specificities.

A second challenge is to ensure that the relevant EU and member state regulatory and supervisory authorities can assert jurisdiction over Libra and its network. But how can this be done when the entities behind Libra are located outside the EU? One way would be to require national custody of a share of the Libra Reserve funds equivalent to the amount of Libra in circulation in any given EU member state.

But there may be other ways to ensure effective public control over Libra and its network, and these are worth exploring. Ensuring that payment systems are safe and accessible and exercising control over the financial market infrastructures that underpin our economies will remain public good objectives. And the conditions under which collateral or settlement finality are accepted will remain prerogatives of the regulatory or legislative authorities.

The third challenge is the need for cross-border cooperation and coordination. Because Libra will be used across borders, it is a matter of international interest. Its global nature would also call for a global regulatory and supervisory response to avoid regulatory arbitrage, ensure consistency of outcomes and guarantee the efficiency of public policy responses to Libra.

There are welcome signs that the global community is already working together to mitigate Libra's risks. Both the G7 and the Committee on Payments and Market Infrastructures have evaluated Libra, with an emphasis on its potential use in money laundering and terrorist financing. Further work is expected by the G20, the Financial Stability Board and other fora with a stake in the stability of the global monetary and financial system.

Finally, I would like to say a few words about the ECB's general stance towards financial innovations such as Libra. The ECB's Treaty-based tasks include defining and implementing the single monetary policy and promoting the smooth operation of payment systems. In the context of monetary policy, the ECB takes a close interest in market

innovations that could directly or indirectly affect the Eurosystem's control over the euro or shift some of its monetary policy to third parties.

Depending on Libra's level of acceptance and on the referencing of the euro in its reserve basket, it could reduce the ECB's control over the euro, impair the monetary policy transmission mechanism by affecting the liquidity position of euro area banks, and undermine the single currency's international role, for instance by reducing demand for it.

In the context of the smooth operation of payment systems, the ECB takes a close interest in market innovations that seek to replace the euro with alternative settlement currencies or create new and autonomous payment channels. Although some of Libra's aims are legitimate, reductions in cross-border fund transfer costs and other efficiency gains can also be obtained through established instant payment solutions.

The Eurosystem recently launched the TARGET Instant Payment Settlement service, or TIPS – a pan-European, 24/7 settlement service for instant payments. By operating in central bank money, and by being embedded in TARGET2, TIPS provides a high-performance payment solution that is safer and more economical than questionable, market-based retail payment innovations.

Let me conclude. In the field of money, history bears testament to two basic truths. The first is that, because money is a public good, money and state sovereignty are inexorably linked. So the notion of stateless money is an aberration with no solid foundation in human experience.

The second truth is that money can only inspire trust and fulfil its key socioeconomic functions if it is backed by an independent but accountable public institution which itself enjoys public trust and is not faced with the inevitable

conflicts of interest of private institutions. Of the various forms that money has taken throughout history, those that have best fulfilled their purpose and proven the most credible have invariably benefited from strong institutional backing. This backing guarantees that they are reliably available, that their value is stable and that they are widely accepted.

Only an independent central bank with a strong mandate can provide the institutional backing necessary to issue reliable forms of money and rigorously preserve public trust in them. So private currencies have little or no prospect of establishing themselves as viable alternatives to centrally issued money that is accepted as legal tender.

The stance of central banks towards modern forms of money is bound to evolve with time, and central bankers have embraced technological developments in the field of money and will continue to explore helpful new innovations. But the rise of cryptocurrencies and other forms of privately issued instruments that can only fulfil some, but not all, of the functions of money is unlikely to fundamentally upset the two truths I just described.

If anything, it will serve as a useful reminder of central banks' pivotal role as responsible stewards of public trust in money, and stress the need for vigilance towards phenomena capable of undermining public trust in the financial system. I sincerely hope that the people of Europe will not be tempted to leave behind the safety and soundness of established payment solutions and channels in favour of the beguiling but treacherous promises of Facebook's siren call. ■

Yves Mersch is a Member of the Executive Board of the ECB

Endnotes

1. See Mersch, Y (2018), "Virtual or virtueless? The evolution of money in the digital age", lecture at the Official Monetary and Financial Institutions Forum, London, 8 February.

This article is based on a speech delivered at the ESCB Legal Conference, Frankfurt am Main, 2 September 2019

Possible risks in Facebook's pursuit of a 'stablecoin'

Facebook's new cryptocurrency has the potential to be attractive to those countries that do not have strong sovereign currencies. Maria Demertzis and Jan Mazza write that regulators have so far treated cryptocurrencies as a minor risk to national economics, but Libra could change everything

Facebook recently unveiled its plan (white paper) to launch a new digital currency, called Libra, in the first half of 2020. The company's scale as the largest social media service in the world coupled with its failure to appreciate its influence over modern democracies, led to more fears of global dominance following the announcement.

The project is powered by the Libra Association, composed of 28 founding members, including large corporations active in payment systems aiming to reach 100 members by the date of the launch. The white paper also discusses the creation of Calibra, the digital wallet on which Libra will operate.

The Libra Association is set up as a non-profit Swiss-based foundation and is in charge of the management and policy of the whole infrastructure. Businesses can become members, insofar as they meet specific criteria and contribute with an initial investment of at least $10 million. In return, members are entitled to voting rights in the Libra Association Council (one vote each $10 million investment, up to a limit) and run a validator node of the permissioned blockchain. While the white paper discusses the broad philosophy of the new product, it is not a detailed description of how it will operate, leaving therefor a lot still quite open.

One important point revealed, however, is that the Libra aims to be a *stablecoin*. This is one of the most important problems of other cryptocurrencies like bitcoin. The value of the Libra will be based on a basket of stable assets. The composition of such a basket could vary over time in response to *"significant changes in market conditions."*

Libra creation should work as follows. Initial investors will create a pool of assets, the reserves. The Association then decides on the composition of the basket and pegs the Libra to it. For any Libra created (minted), there needs to be a unit of the corresponding basket of assets. Authorised resellers purchase Libra coins from the Association by

providing in exchange fiat assets to fully back such coins that are added to reserves. Users then can request Libras from the authorised resellers.

Reserves will then be fully invested in low-risk short-dated interest-bearing assets, the revenues of which will serve to cover operating costs and pay out dividends to founding members. The reserves and the promise to have a stable and thus well sought out currency is at the heart of Libra's business model.

The global regulatory environment had taken the view till now that the value of crypto assets in circulation in not sufficiently sizable to pose financial stability risks

But can Libra really be a stable coin? If the underlying assets are stable, the Libra will also tend to be stable. And yet, the price of the Libra will also depend on the commitment to supply coins at the speed demanded. This is not a trivial matter as the Association will have to back new coins with the underlying assets.

Consider an occasion in which a Libra hype leads to a very high demand for coins (not unlike what we have seen for bitcoins). To preserve the value of one Libra, the Association will have to mint new coins at the rate demanded and back them up by buying the assets in the underlying composition.

It is not obvious that suppliers will be willing to do that for any level demanded. Then one of two things can happen: either supply will not match the increased demand, in which case prices will go up. This by itself implies that Libra can be subject to bubbles. Or, the Association increases the value size of the underlying basket by changing the composition, equivalent to a currency appreciation in order to reduce demand.

Either way, the value of one Libra depends crucially on the Association's commitment to keeping it stable. But unlike central banks that have a public function, it is not clear that the Association has the same function and thus the same level of commitment.

Barry Eichengreen argues that *"…the Fed can raise and lower interest rates and thereby affect the value of the dollar. But what prevents Facebook and its 28 corporate partners — the likes of Uber — from changing the composition of the Libra basket and altering its value as they see fit? What prevents them from changing the rules of the game midstream?"* We will come back to this point further down again.

But what about risks? The fact is that we will not understand the risks in full until the Libra is up and operating. For the moment, the biggest risks that arise are also the features that make it potentially a big success: *scale* and

accessibility. There are 2 billion Facebook users worldwide that will be the potential user-base at Libra's disposal (Figure 1).

By comparison, Bitcoin owners were estimated in 2017 to be 7.1 million worldwide. Given such a scale, as indeed the Governor of the Bank of England Mark Carney said in the Monetary Policy Forum in June this year, the Libra could become *"instantly systemic"* on launch day and should, therefore, be put under tight regulatory scrutiny[1].

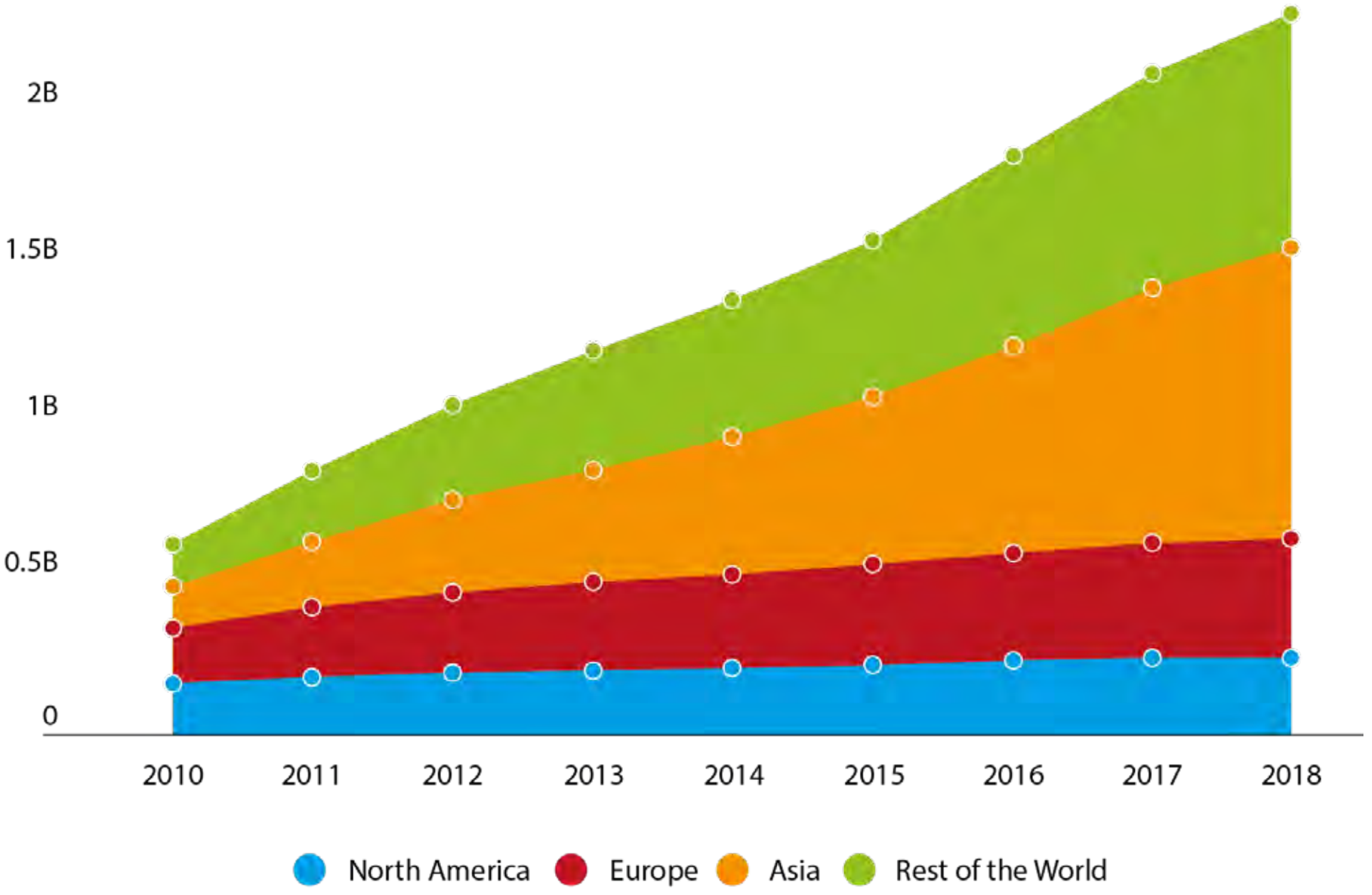
In a recent report, the BIS has discussed the complex trade-offs that will arise *"between financial stability, competition and data protection."* One such complex case arises from Calibra, the digital wallet (cryptocurrency exchange) on which Libra will be stored. Currently, there are around 200 cryptocurrency exchanges on which more than 1,600 cryptocurrencies are bought and sold. Libra has the power to push its users to apply its own digital wallet, just like Amazon had the power to push their Kindle ebook reader to all its customers that used its other services.

The potential for a massive user base can lead to monopoly power for the issuer, but can also lead to severe financial vulnerabilities from system failures (either deliberate and fraudulent or simply erroneous).

Furthermore, the white paper argues that users who store their Libras at Calibra will share no information with other Facebook extensions (such as Whatsapp or Instagram) about the content of outgoing and incoming transactions.

However, the single most important concern voiced in all reactions since the Libra announcement has been about distrusting the way Facebook operates, and particularly with regards to data privacy. Libra, therefore, appears to start with a sizable trust deficit that may hinder its promised popularity. There is substantial scope for regulation to prevent either unfair competition or indeed protect the consumer.

Figure 1. Monthly active Facebook users



Source: Bloomberg

But an important ambition outlined in the white paper is also increasing access. This payment service, the paper argues, will promote financial inclusion by *"banking the unbanked."* The paper describes the role Libra can play in third world countries by mentioning the vast pool of people sending or receiving remittances as one of the key targets of the venture, along with "*1.7 billion adults globally… outside of the financial system with no access to a traditional bank, even though one billion have a mobile phone and nearly half a billion have internet access.*"

Can the Libra deliver this 'access' by becoming a global currency, and still remain a stablecoin? We do not believe that cryptocurrencies are good candidates of replacing sovereign currencies, in particular in the developed world.

By contrast, such currencies, and in particular stablecoins, like the Libra, could be a good candidate for replacing (or at least running in parallel to) national money in countries with unstable and weak sovereigns. And in fact, since the intention according to the white paper is very much to reach those that are unbanked and stimulate financial inclusion, they may become quickly popular in developing countries.

We see three problems here. The first adds again to the possibility of reducing competition. There exist already a number of successful providers of mobile phone payments systems. However, while this industry is booming in Africa, the potential for scale might wipe out any competition, thwarting local financial innovation initiatives.

The second problem relates to the stability of the Libra. Can the authorised resellers accumulate third world currencies and provide basket assets to the Association in order to acquire Libras? The more popular Libras become in the developing world, the more difficult it will be to issue new coins against the stable basket. Or will profits generated in the developed world help subsidise payments in the developing world? All of these issues will still need to be clarified[2].

The third stems from the ambition to improve the user experience by making transactions easier and quicker. Libra should be used for *"paying bills with the push of a button, buying a cup of coffee with the scan of a code or riding your local public transit without needing to carry cash or a metro pass."*

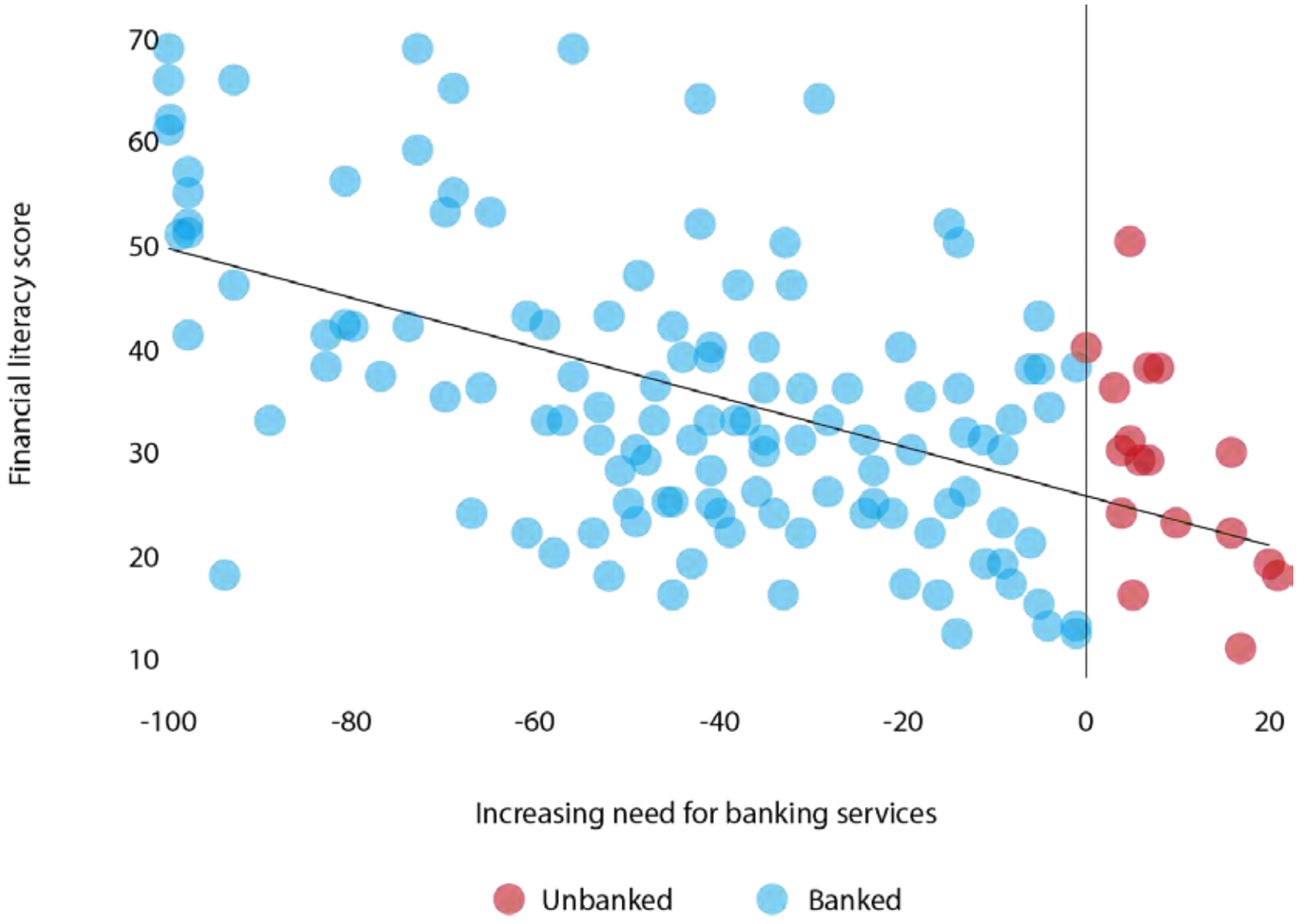
But the ease of transactions, comfortable though it is, comes with important risks. A recent study based on US survey data done at the Global Financial Literacy Excellence Centre, *" … show(s) that Millennials who use mobile payments are at a greater risk of experiencing financial distress and engaging in financial mismanagement."*

In fact, *"those who use mobile payments are nearly 16 percentage points more likely to overdraw their checking account and 23 percentage points more likely to turn to alternative financial services."* Annamaria Lusardi, one of the authors of this report, argues that *"Those who use mobile payments show lower levels of financial literacy and worse financial management practices than non-users."*

Therefore, reducing the threshold in terms of easiness of digital transactions may actually increase financial vulnerability, in particular amongst those that are the most financially illiterate. Libra needs to rethink how easy it wants transactions to be when the levels of financial literacy are very different within and between countries.

This is a particularly pertinent point as those who are likely to be attracted to the Libra, namely those who do not have a bank account and need to transfer or receive remittances, are also the most likely to be the least financially literate. Indeed figure 2 below shows that countries that have increasing needs to access banking services are also those that are the least financially literate.

Figure 2. Financial literacy and potential Libra users



Source: Bruegel based on S&P Global FinLit Survey and Global Findex dataset (World Bank).
Notes: "Increasing need for banking services" is measured as the difference between the % of people sending/receiving remittances in the previous year and the % of people that have a bank account.

One needs to be very cautious about drawing conclusions. There is ample evidence that developing countries have increased financial inclusion and have empowered many by providing simple financial solutions in mobile appliances.

However, these are very targeted solutions to specific problems. The uniformity of Libra may fail to capture the specific needs of various developing countries while exposing them to risks that relate to poor financial understanding.

The global regulatory environment had taken the view till now that the value of crypto assets in circulation in not sufficiently sizable to pose financial stability risks. They are, however becoming increasingly vigilant of the potential regulatory gaps that might need to be addressed.

The FSB Chair Randal K Quarles referred to the need to contain the risks that arise from financial innovation and particularly, *"…(a) wider use of new types of crypto-assets for retail payment purposes would warrant close scrutiny by authorities to ensure that that they are subject to high standards of regulation."* The issuance of the Libra may just accelerate that. ■

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Endnotes

1. And recently even President Trump talked about the need for regulating cryptocurrencies.

2. There is also the issue as to whether the Libra is convertible to all developed world currencies. If it is not then the issue of

financial inclusion is stopped in its tracks.

Facebook is a corporate member of Bruegel and contributes less than 1% to our annual budget. Facebook has not been involved in the writing of this post. This article was originally published on Bruegel

The incoming payment revolution and the future of central banking

Maylis Avaro and Vincent Bignon consider the lessons from the history of the Banque de France on financial instability and the payment revolution

The payment landscape is changing. This column goes back to late 19th century France to explore the implications of this more decentralised and less banked landscape for the design of central banks' interventions when fighting financial crises. The Banque de France operated a very wide discount window and used a variety of risk management techniques to effectively subdue risk-taking behaviours and to protect its balance sheet from taking any loss. This helped it to stabilise the economy and to overcome the consequences of negative income shocks.

The payment landscape is changing. Rapidly. More payment operators are non-banks who propose e-solutions to make payments both online and in real life. Some are big players, such as the 'Big Four' tech companies, and others are much smaller start-ups (Committee on Payments and Market Infrastructures 2015). These changes are creating a more decentralised payment landscape, qualified by some as a revolution in payments (Coeuré 2019, Mersch 2019).

Technologies have changed, but the pattern looks strikingly familiar to the students of European monetary history. To them, there is no natural law tying the payment instruments with their operation by the banking system. From the Middle Ages to WWI, the most common payment instrument outside coins and banknotes was operated by both banks and non-banks (Van der Wee 1977).

Similarly, banks and non-banks alike will operate e-payments. This makes history an interesting source of inspiration to search for institutional solutions in order to fix the impact of the payment revolution on financial instability caused by a lack of access to emergency liquidity assistance.

In recent work (Avaro and Bignon 2019), we explored the implications of this more decentralised and less banked payment landscape for the design of central banks' interventions when fighting financial crises. We take the example of the Banque de France because Bignon and Flandreau (2018) show that it was especially successful

in taming financial and banking panics. We add that this was achieved in a situation of significantly unbanked payments in which non-banks represented half of the borrowers at the Banque de France discount window.

Payment instruments, non-banks, and financial stability

One of the most radical transformations is observed in China, where payments with mobile phones using Quick Response code systems operated by new fintech giants Alipay and WeChat Pay reached $41 trillion in 2017 (eg. Klein 2019). The number of Chinese merchants refusing cash is taking off, forcing the People's Bank of China to issue a formal notice stating that renminbi cash is legal tender.

With the ongoing change in day-to-day payment habits towards more digital and unbanked solutions, central banks are not without weapons. They can turn to their own history to adapt their refinancing policy to the new environment

In India, where the yearly digital payment flows are expected to reach $1 trillion in a decade, the competition is raging among local start-ups and fintech giants. Outside Asian markets, the big tech players are also investing massively in digital payment technologies – Facebook and Telegram are running a close race to issue their own digital payment solutions.

Yet payment operators can fail when they do not have the liquidity required to meet payment ends. In such a case, users of those payment instruments will be unable to use them to pay, thus spreading the liquidity stress across the payment system. This was not a big deal in the 20th century during which payments were traditionally operated by banks. The institutional fix was the lender-of-last-resort lending by a central bank (sometimes called the 'discount window'). When injecting liquidity, a central bank swaps money against illiquid means of payments, thus cooling down financial stress, and reducing the number of fire sales and failures, and the interest rate at which people borrow.

The new solutions for digital payments are challenging this model. The new operators are outside the traditional scope of intervention of central banks, as a central bank is the bank of the other banks and not the bank of all payment operators. This is directly influencing the ability of central banks to fulfil their mandate of financial stability.

History can help us to think about solutions fit for the new system. Before 1914, the central bank opened up access to the central bank discount window to all payment operators, in an effort to limit the systemic cost related to the default of non-banks. This facility was widely used.

Many companies had secured access to the discount window, with about 5% of French companies eligible in 1898. Yet allowing access did not mean that everybody used it. In 1898, 0.05% of non-bank companies had effectively used it, which compares to 27% of banks which did.

Width of the discount window and the moral hazard issue

Theory suggests that operating a widely accessible discount window may expose the central bank to greater risks (Jensen and Meckling 1976, Rochet and Tirole 1996). The certainty of the access to the discount window may bring issues of moral hazard and induce financial intermediaries to increase their exposure to credit risk in the hope of selling the risky assets to the central bank when the crisis comes, in a mechanism akin to a risk-shifting strategy.

Yet the Banque de France was a very profitable central bank, suggesting that something prevented the theoretical fantasy to materialise. As suggested by theory, three mechanisms were effective in mitigating agency issues arising from the operation of a wide discount window:

- the pledging of collateral that was seized in case of default;
- the screening and monitoring of the risk appetite of the borrowers, and its use in the central bank decision to lend; and
- the use of some form of relationship lending by which the Bank tends to reward the building of a long-term reputation by the use of the discount window.

The screening of risk appetite by the Banque de France follows a review process similar to what rating agencies are doing today. It consists of an analysis of the risk culture, the credit risk and the internal governance of the entity. The central bank acquires and processes proprietary soft information to grade risk appetite and uses it to discriminate against different types of counterparties.

Very few non-banks were rated as risk-takers. With banks, the Banque de France uses its risk assessment to prioritise lending to risk averse counterparties, in a mechanism akin to the use of haircuts that differs depending on the ratings of the financial assets.

Cooling down stress in crisis times

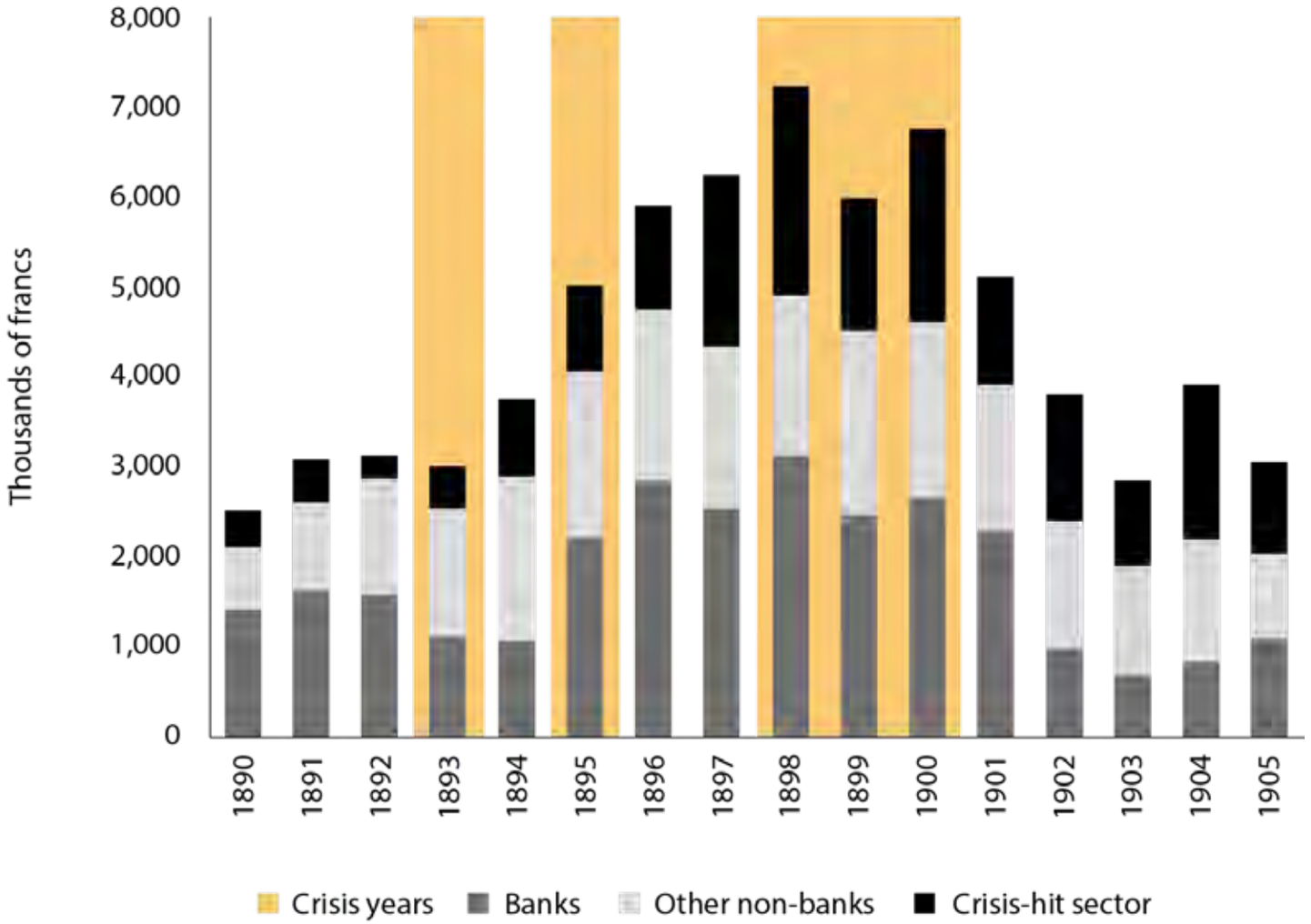
The central bank used all those risk management tools when it had to extend its discount operations to smooth negative local economic shocks. This was true both at the intensive and extensive margin. To show this, we study how crisis stress – such as the war in Cuba between Spain and the US, a cattle disease, or a bank run – impacted the discount activity in the 20 regional economies.

In crisis times, the Banque de France increases its liquidity support more to risk averse agents and to agents that had the ability to pledge more collateral. During a crisis, the central bank values more relationship lending and discounts with agents who had already used the discount window a year before.

The rationale is that the Banque de France had accumulated a backlog of information on them, most often because they use the discount window to transfer funds within France through the national payment system operated by the central bank.

Crises also bring new users to the discount window. In regional economies hit by a crisis, most newcomers to the discount window were non-banks. The region around Moulins in the centre of France – where young calves were fed to grow – exemplifies the case. Two droughts and a cattle disease had put a strain on the farmers. With the unfolding of the financial distress, the discount activity with banks had increased significantly, but a notable development was the discount to the landlords of grass fields who increased credit to their clients, the cattle farmers (see Figure 1).

Figure 1. Volume of liquidity provided by the Bank of France in Moulins, 1890-1905, by category of presenter



Source: Archives of the Banque de France, Banque de France supervisory report of Moulins (1890-1905).
Reading: In 1898, Banque de France counterparties borrowed 3,120, 000 francs, the suppliers of the crisis-hit sector borrowed 2,320,000 francs and the other non-bank counterparties received 1,800,000 francs.
Note: The category crisis-hit sector features mostly local landlords and some cattle farmers whose activity was hit by weather shocks and a cattle disease. 'Other non-banks' includes non-banks whose activity was not directly impacted by the crises. Shaded columns represent crisis years (weather shocks and a cattle disease).

To make sure that access to the discount was effectively opened to a diverse set of counterparties, the Banque de France accepted a broad and diverse set of guarantees to the discount operations. On top of marketable securities, it also accepted credit default swap-type instruments such as sureties, a special contractual form whereby the issuer promised to pay in lieu of the debtor in case of a failure.

Figure 2 shows that this was especially useful in crisis-hit regions where the proportion of discount operations guaranteed by credit default swap-type guarantees was more than twice the level of that in non-crisis regions.

Finally, our study indicates that the Banque de France made special use of its screening of risk appetite in distressed times. At the same time, new non-bank counterparties increased their probability of accessing the discount window in crisis times if the central bank deemed them to be risk averse.

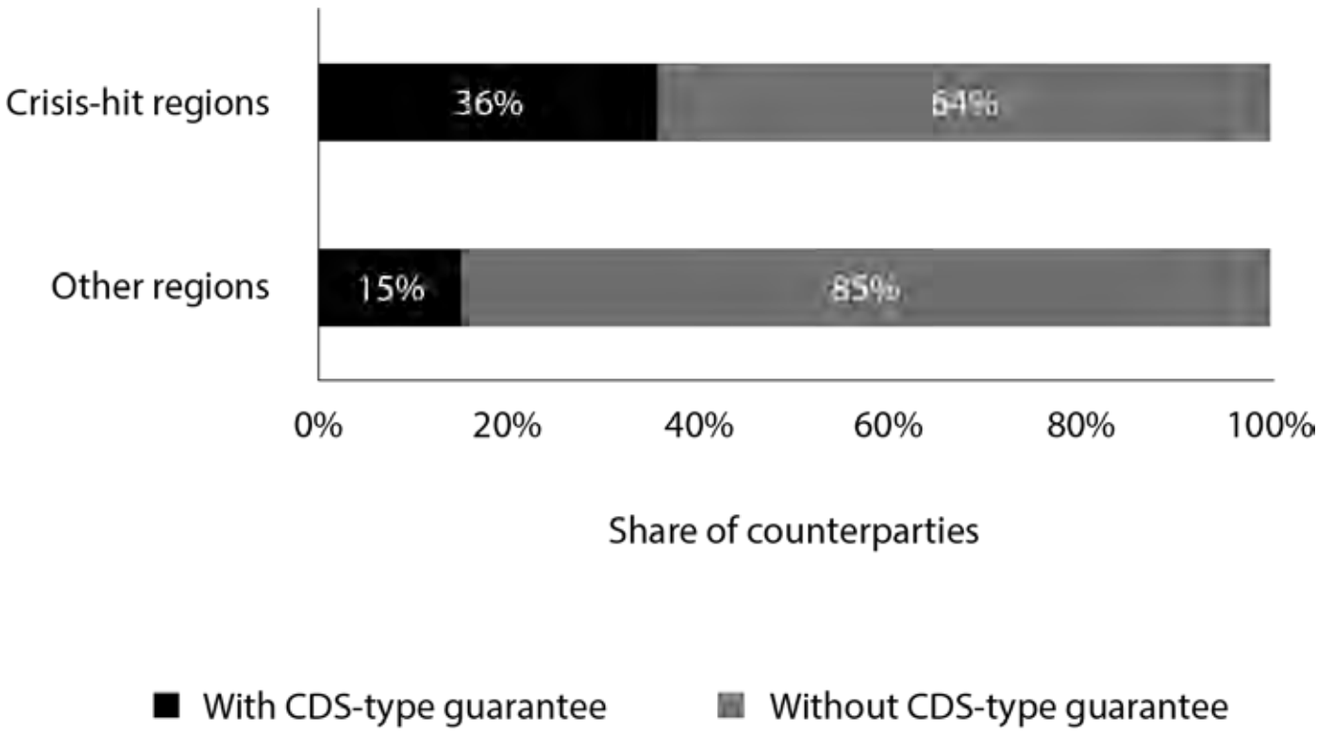
Although operating this risk management framework requires a lot of information gathering by front, middle, and back offices, it is worth noticing that the Banque de France did not lose money in crisis-hit regions despite an increased discount activity and a more diverse set of counterparties.

This illustrates how the central bank mastered the risk-taking channel of a wide discount window by adopting the right set of risk management tools, thus endowing it with a tool which was efficient in reducing payment system stress.

Lessons from the history of the Banque de France

With the ongoing change in day-to-day payment habits towards more digital and unbanked solutions, central banks are not without weapons. They can turn to their own history to adapt their refinancing policy to the new

Figure 2. Use of credit-default-swap type of guarantees among counterparties in districts hit or not hit by a crisis



Source: Archives of the Banque de France, rapports d'inspection 1898.
Reading: In 1898, 36% of counterparties from the regions hit by a crisis pledged a credit-default-swap type of guarantee.
Note: The category 'crisis' groups 20 regions – out of 94 – that were hit by an economic crisis triggered either by trade reduction caused by the Spanish-US war of 1898, by an agricultural disease or by a bank run.

environment. This may help them to adapt their toolkit to address potential additional risk to financial stability without requiring them to increase their risk load. ■

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Libra paves the way for central bank digital currency

Dirk Niepelt argues that while we may be witnessing a seismic shift in the monetary system, Libra's role in that shift will be an indirect one

Plans by Facebook and its partners to launch a global digital currency have the fintech sphere buzzing with rumours, and regulators, central banks, and 'old finance' worried. This column, part of the Vox debate on the future of digital money, argues that while we may be witnessing a seismic shift in the monetary system, Libra's role in that shift will be an indirect one.

By taking the status quo option off the table, Libra or its next best replica will force monetary authorities and regulators to choose between central bank-managed digital currency and riskier private digital tokens.

These plans by Facebook and its partners to launch Libra, a global digital currency, are at an early stage but they have focused minds. 'Old finance' frets about the prospective new competitor; the fintech sphere is buzzing with rumours; and regulators, central banks, and legislators alike are worried. Lack of detail in the Libra whitepaper adds to the nervousness.

Are we witnessing a seismic shift in the monetary system? Probably, but Libra's role in that shift is going to be an indirect one. Rather than the protagonist, Libra will be a catalyst for monetary change – a change that is driven, *nolens volens*, by regulators, central banks, and traditional financial intermediaries.

Digital currencies

What is a global digital currency of the type the Libra consortium wishes to issue? It is helpful to distinguish two aspects of such a 'stablecoin' (ie. an asset-backed digital token). The first relates to use: the token constitutes a versatile and efficient medium of exchange for domestic and international payments, both retail and wholesale.

Its digital nature keeps transaction costs low, thereby shifting bargaining power from existing payment service providers to their customers and offering the unbanked affordable access to basic finance.

It also allows payment and settlement systems to be better integrated. A successful digital currency exploits network externalities to their fullest extent, gaining stature due to its versatility and user base and broadening the user base because of its stature.

The second aspect relates to the assets that back the digital token. In Libra's case, these assets are to include securities and bank deposits denominated in the currencies of a few advanced economies. In other cases, stablecoins are backed by securities denominated in a single currency.

Libra will be a catalyst for monetary change – a change that is driven, nolens volens, by regulators, central banks, and traditional financial intermediaries

In their purest form, the latter stablecoins constitute claims on central bank money of a single monetary authority. If the claims are direct, then the tokens are central bank digital currency (CBDC) or 'Reserves for All' (Niepelt 2015). If they are indirect – ie. mediated by a bank or a fund – then they constitute 'synthetic CBDC' (Adrian and Mancini-Griffoli 2019)[1].

Inherent tradeoffs

Beyond the benefits for individual users, digital currencies can have wide-ranging macroeconomic implications. For a start, their introduction may affect banks in their role as issuers of money; if mismanaged, this can have repercussions for financial intermediation and stability. At the global level, a widely adopted digital currency alters the relative standing of national currencies.

Carney (2019) emphasises the upside of such an unravelling of the current international financial architecture with its outsized role of the US dollar. But there are also risks, at least for those countries that would see demand for their national currencies fall and capital flee. For them, a successful new digital currency would have similar macroeconomic implications as conventional dollarization (Niepelt 2016, Hamilton 2019, Adrian and Mancini-Griffoli 2019).

With any global digital currency of note, policymakers confront new tradeoffs: financial inclusion of the unbanked and enlarged financial choice sets for citizens suffering from financial repression come at the cost of lower government revenues (in the countries whose citizens benefit), possibly more volatile capital flows, and lower rents in the banking sector.

The benefits that arise from large network externalities are the mirror image of increased financial stability risks as well as the danger that transaction data are monopolised and consumer sovereignty curtailed. And a payment

system that aims at convenience and hassle-free cross-border payments likely compromises on the prevention of illicit transactions[2].

Inferior Libra

But with Libra, these tradeoffs are less favourable than with 'Reserves for All' or a synthetic CBDC, for several reasons. First, because central banks and regulators can more easily guarantee consumer protection, ensure privacy standards, and check the legitimacy of payments when they are directly engaged in the provision of a digital currency.

In principle, a private currency issuer such as the Libra consortium can be regulated and monitored to the same effect. But as experience shows (certainly in the case of Facebook), this is hard in practice when interests are sufficiently misaligned.

Similarly, tradeoffs that involve macroeconomic effects of a digital currency (and their international repercussions) can better be managed if the authorities traditionally in charge of macroeconomic and financial stabilisation – central banks, financial regulators, and finance ministries – are active players rather than passive bystanders[3].

In fact, central bank control over a digital currency lets the monetary authority effectively eliminate all macroeconomic downside risks that arise from the currency's introduction. Under general conditions, a central bank can always ensure, at a minimum, that a swap of CBDC for deposits does not have negative macroeconomic consequences (Brunnermeier and Niepelt 2019a, 2019b, 2019c).

Third, Libra would also offer smaller benefits to consumers and businesses than CBDC because the portfolio composition of the 'Libra Reserve' would expose them to excessive exchange rate risk. A means of payment is

particularly useful when it is denominated in the local unit of account[4]. This is why consumers and businesses in the US prefer to transact in US dollars, the currency everybody else in their neighbourhood uses, rather than in euros.

And it explains why, according to Koning (2019), global monies have a miserable track record. Libra according to current design would not offer the local-unit-of-account advantage because the 'Libra Reserve' would be invested in multiple currencies.

Even if the circulating Libras were always fully backed, their exchange rate relative to national currencies thus would fluctuate, exposing users to unwarranted risks[5].

Finally, the institutional setup behind Libra could put the currency's liquidity at risk, exposing users to additional uncertainty that a (synthetic or not) CBDC would not bring about. According to the whitepaper, only resellers, who stand between users and the 'Libra Reserve', were to redeem Libras against assets in the reserve; that is, only resellers could provide liquidity in times of falling aggregate Libra demand.

But whether resellers would actually have an incentive to provide this liquidity is unclear. Since Libras would constitute claims to the assets in the 'Libra Reserve' but not to the returns on those assets (which the Libra consortium plans to pocket), resellers might want to redeem at the earliest possibility and keep the assets for themselves (Zellweger-Gutknecht and Niepelt 2019).

Conclusion

Many other aspects of the proposed Libra architecture remain in the dark[6]. What is clear, however, is that CBDC dominates a Libra-type stablecoin in almost all respects[7].

When confronted with the choice between the status quo and a new financial architecture with CBDC, most central banks have responded cautiously. But Libra or its next best replica will take this choice off the table – the status quo ceases to be an option.

The new choice for monetary authorities and regulators will be one between central bank managed CBDC on the one hand and – riskier – private digital tokens on the other. Central banks have a strong interest to maintain control over the payment system as well as the financial sector more broadly and to defend the attractiveness of their home currency.

Nolens volens, they will therefore introduce 'Reserves for All' or promote synthetic CBDCs. In economics, things take longer than one thinks they will, as Rudi Dornbusch quipped, but then they happen faster than one thought they could. ■

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Endnotes

1. See also Brunnermeier et al. (2019) on the prospect of 'digital currency areas' as compared to traditional, geographically delimited currency areas.

2. For a discussion of some of these risks, see BIS (2019), Adrian and Mancini-Griffoli (2019), Cecchetti and Schoenholtz (2019), or Fatás and Weder di Mauro (2019).

3. See also Adrian and Mancini-Griffoli (2019) on the benefits of narrow-bank like synthetic CBDCs compared with money-market-fund like institutions akin to shadow banks.

4. However, see Brunnermeier et al. (2019).
5. Cecchetti and Schoenholtz (2019) and Fatás and Weder di Mauro (2019) offer an estimate of the magnitude of this risk and assess the welfare implications. Note that investors seeking to diversify their currency exposures do not need Libra. They can directly choose the currency composition of their portfolios, in a world with digital currencies for example by holding the CBDCs issued by different central banks.
6. These aspects include the database structure and actual technical implementation (eg. Lopp 2019) and legal questions regarding licensing in Switzerland (Zellweger-Gutknecht and Niepelt 2019). See also Eichengreen (2019) and Williamson (2019).
7. There is one factor that favours a private-sector, Libra type arrangement over a public sector solution, namely, political economy. For a discussion, see Niepelt (2018, 2020).

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This column is a lead commentary in the VoxEU Debate The Future of Digital Money

The rise of digital currency

Digital payments can bring significant benefits to customers and society. Tobias Adrian and Tommaso Mancini-Griffoli argue that accompanying risks should also be tackled

New entrants are vying to occupy the space once used by paper bills. This column, part of the VoxEU debate on the future of digital money, proposes a simple framework to make sense of who is attempting to pry our wallets open. It argues that the adoption of new digital means of payment could be rapid and bring significant benefits to customers and society, but that the risks must be tackled with innovative approaches and heightened collaboration across borders and sectors.

One approach is for central banks to engage in a public–private partnership with fintech firms to provide a safe, liquid, and digital alternative to cash: synthetic central bank digital currency.

A battle is raging…for your wallet. With sharp elbows, new entrants are vying to occupy the space once used by paper bills, or that reserved for your debit card.

Alipay, Libra, M-Pesa, stablecoins – we first need to make sense of just who is attempting to pry our wallets open. We propose a simple framework to do so.

We then argue that the adoption of new, digital means of payment could be rapid. It could bring significant benefits to customers and society, including efficiency gains in payments, greater competition, financial inclusion, and innovation in related sectors. But risks are also paramount to financial stability and integrity, monetary policy transmission, and anti-trust. These must be tackled with innovative approaches and heightened collaboration across borders and sectors.

Policymakers will not be able to remain bystanders. In fact, their actions will influence the adoption of new means of payment, and their design. One approach is for central banks to engage in a public–private partnership with

fintech firms to provide a safe, liquid, and digital alternative to cash – synthetic central bank digital currency, or sCBDC for short – which comes with its own benefits and risks.

The literature is quickly picking up on the potential disruption caused by new means of payment (eg. Duffie 2019, BIS 2019).

... existing players will be induced to offer new and more attractive services in the payments – and especially cross-border payments – space. From desktop publishing, the digital revolution has finally reached the shores of consumer finance too

A framework of analysis

To help make sense of the plethora of new entrants in the payments space, we offer a simple classification scheme that we call the 'Money Tree' (Adrian and Mancini-Griffoli 2019). At its heart are four key features that help distinguish different forms of money: type, value, backstop, and technology.

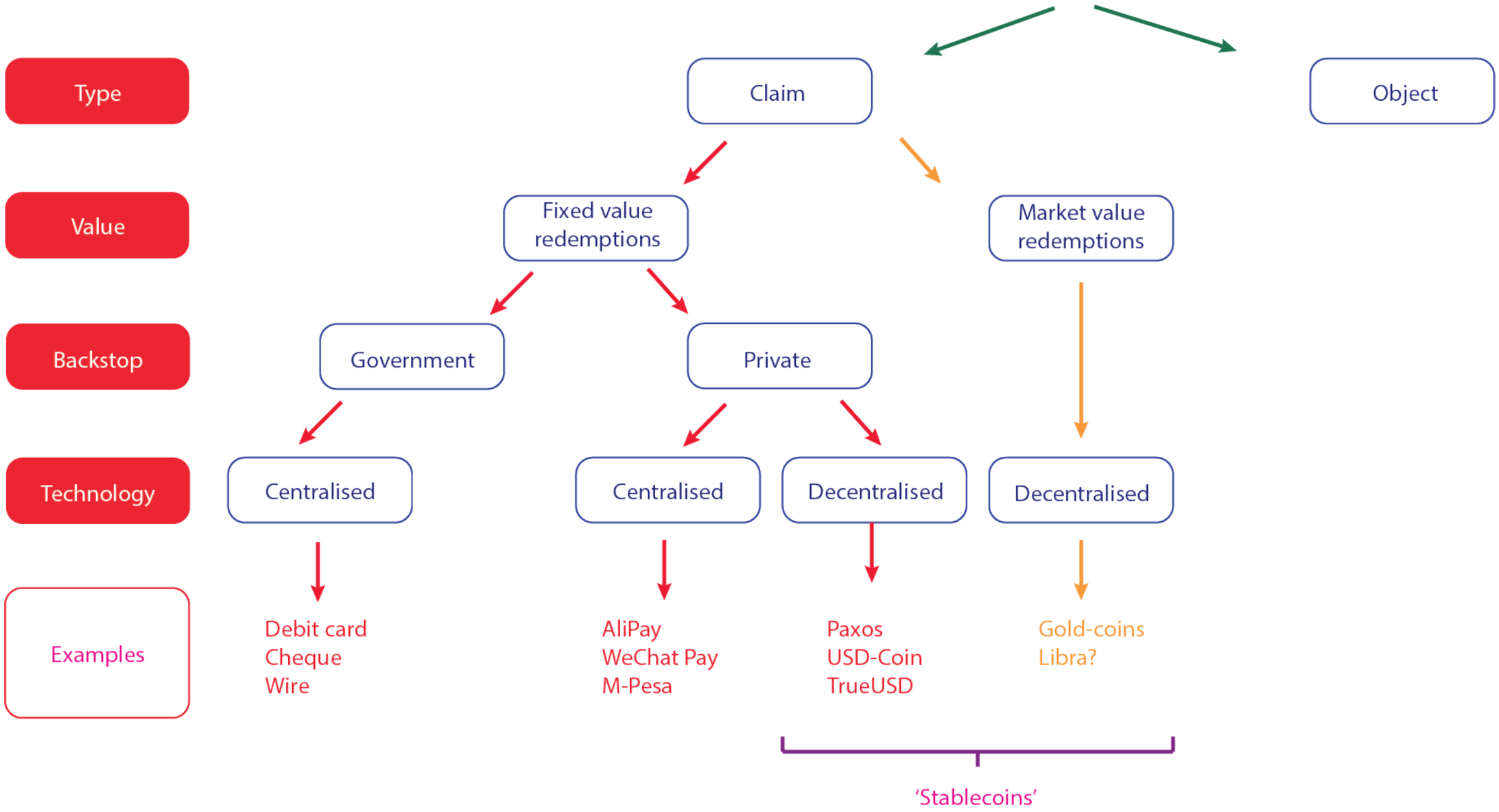
We illustrate this scheme in Figure 1 by contrasting bank deposits and stablecoins. Further details and discussions of other forms of money are in Adrian and Mancini-Griffoli (2019).

Bank deposits are the most popular means of payment in many countries. These are claims on banks, as opposed to objects with intrinsic value. Bank deposits have fixed value to the extent they can be redeemed into currency – or cash – at face value. Ten euros deposited in a bank can be redeemed against a ten-euro note with reasonable certainty in many countries. That is an incredibly useful feature, allowing payments in bank deposits to be made without concern for exchange rate risk.

Trust in the redemption guarantee rests on government backstops: deposit insurance, lender of last resort and emergency liquidity facilities, as well as careful supervision and oversight of banks. And finally, the settlement technology is usually centralised, as banks and central banks collaborate to maintain a shared ledger of account balances.

New means of payment such as stablecoins differ in important ways. Most stablecoins continue to be claims on the issuing institution. Many also offer redemption guarantees at face value – a coin bought for ten euros can be exchanged back for a ten-euro note (a sort of money-back guarantee).

Figure 1. Simplified money tree to classify different forms of money



However, trust in this pledge does not rest on government backstops. It must be generated privately by fully backing coin issuance with safe and liquid assets. Finally, the settlement technology is usually decentralised, based on the blockchain model.

Some stablecoins do not offer redemptions at fixed prices, but at market prices instead. We say their value is variable relative to the domestic unit of account. This is the case of commodity tokens, such as gold coins, and of coins that are exchanged or redeemed for the going value of the assets backing them. One example is mutual fund shares written to digital tokens that can be readily exchanged. Libra may fit this model.

Stablecoin adoption

Adoption of new forms of money will depend on their attractiveness as a store of value and means of payment. Cash fares well on the first count, and bank deposits on both. So why hold stablecoins? Why are stablecoins taking off? Why did USD Coin recently launch in 85 countries[1], Facebook invest heavily in Libra, and centralised variants of the stablecoin business model become so widespread? Consider that 90% of Kenyans over the age of 14 use M-Pesa and the value of Alipay and WeChat Pay transactions in China surpasses that of Visa and Mastercard worldwide combined.

The question is all the more intriguing as stablecoins are not an especially stable store of value. As discussed, they are a claim on a private institution whose viability could prevent it from honouring its pledge to redeem coins at face value. Stablecoin providers must generate trust through the prudent and transparent management of safe and liquid assets, as well as sound legal structures. In a way, this class of stablecoins is akin to constant net asset value funds which can break the buck – ie. pay out less than their face value – as we found out during the global financial crisis.

However, the strength of stablecoins is their attractiveness as a means of payment. Low costs, global reach, and speed are all huge potential benefits. Also, stablecoins could allow seamless payments of blockchain-based assets and can be embedded into digital applications by an active developer community given their open architecture, as opposed to the proprietary legacy systems of banks.

And, in many countries, stablecoins may be issued by firms benefitting from greater public trust than banks. Several of these advantages exist even when compared to cutting-edge payment solutions offered by banks called fast-payments[2].

But the real enticement comes from the networks that promise to make transacting as easy as using social media. Economists beware: payments are not the mere act of extinguishing a debt. They are a fundamentally social experience tying people together. Stablecoins are better integrated into our digital lives and designed by firms that live and breathe user-centric design.

And they may be issued by large technology firms that already benefit from enormous global user bases over which new payment services could spread like wildfire. Network effects – the gains to a new user growing exponentially with the number of users – can be staggering. Take WhatsApp, for instance, which grew to nearly 2 billion users in ten years without any advertisement, based only on word of mouth!

Risks of stablecoins

Risks are multiple, though that is not an excuse for policymakers to throw in the towel. On the contrary, they must create an environment in which the benefits of technology can be reaped while minimising risks, as discussed in Lipton (2019). Policymakers will need to be innovative themselves and to collaborate – across countries, but

also across sectors. Central bankers, regulators, ministries of finance, antitrust authorities, currency issuers, and technology experts will need to speak a common language for a common purpose.

The first risk is to the disintermediation of banks, which could lose deposits to stablecoin providers. However, banks will try to compete by offering their own innovative solutions and higher interest on deposits. And stablecoin providers could recycle their funds back into the banking system or decide to engage themselves in maturity transformation by turning themselves into banks.

Second, we could face new monopolies. Tech giants could use their networks to shut out competitors and monetise information. At the heart of this power is proprietary access to data on customer transactions. We need new standards for data protection, control, and ownership.

Third, there is a threat to weaker currencies. In countries with high inflation and weak institutions, people might give up local currencies for stablecoins in foreign currency. This would be a new form of 'dollarisation' and might undermine monetary policy, financial development, and economic growth. To avoid this, countries must improve their monetary and fiscal policies. The question is whether they can or should restrict foreign currency stablecoins in the interim.

Fourth, stablecoins could foster illicit activities. Providers must show how they will prevent the use of their networks for activities like money laundering and terrorist financing. This means complying with international standards. New technologies offer opportunities to improve monitoring. So, supervisors will need to adapt to the more fragmented value chain of stablecoins, including wallet providers, crypto exchanges, validation nodes, and investment vehicles.

The fifth risk is loss of 'seigniorage'. Central banks have long captured, on behalf of taxpayers, the profits stemming from the difference between a currency's face value and its cost of manufacture. Issuers could siphon off profits if their stablecoins do not carry interest but the hard currency backing them is invested at a return. One way to address this issue is to promote competition so issuers would eventually pay interest on coins.

Sixth, we must ensure consumer protection and financial stability. Customer funds need to be safe and protected from runs like the one that took down Lehman Brothers investment bank. In part, this calls for legal clarity on what kind of financial instruments stablecoins represent.

One approach would be to regulate stablecoins like money market funds that guarantee fixed nominal returns, requiring providers to maintain sufficient liquidity and capital. We could call this the 'shadow banking' approach, which attempts to extend prudential regulation beyond the classic banking perimeter.

Synthetic central bank digital currency (sCBDC)

Another option is the 'narrow banking' approach. In this case, the central bank could require stablecoin providers to back coins with central bank reserves. The approach is not unheard of.

The People's Bank of China requires giant payment providers AliPay and WeChat Pay to abide by these standards, and central banks around the world are considering giving fintech companies access to their reserves – though only after satisfying a number of requirements related to financial integrity, interoperability, security, and data protection, among others.

Clearly, doing so would enhance the attractiveness of stablecoins as a store of value. Competition with banks would only grow stronger. The social price tag is up for debate.

But there are also clearer-cut advantages of offering stablecoin providers access to central bank reserves:

- stability, given the backing in perfectly safe and liquid assets;
- regulatory clarity as narrow banks would fit neatly into existing regulatory frameworks;
- interoperability among stablecoins (as client funds would be exchanged between reserve accounts) and thus greater competition;
- support for domestic payment solutions rivalling foreign currency stablecoins offered by monopolies that are hard to regulate; and
- better monetary policy transmission, thanks to lower pressure on currency substitution, and more immediate transmission of interest rates if reserves held by stablecoin providers were remunerated.

A final consideration jumps out: if stablecoin providers held client assets in reserves at the central bank, clients would essentially be able to hold, and transact in, central bank liabilities. That, after all, is the essence of CBDC[3].

Bingo! We have thus manufactured what we call synthetic CBDC (sCBDC). We remain, however, fully aware that the stablecoins are the liability of private-sector firms despite the public determining the size of central bank liabilities.

sCBDC offers significant advantages over its full-fledged cousin. The latter, discussed widely in the literature and envisioned by central banks, requires getting involved in many of the steps of the payments value chain. This can be costly and risky for central banks.

Steps include interfacing with users and managing brand reputation; complying with integrity standards; offering clients an interface to hold and trade the payment instrument; picking, managing, and evolving technology; offering a settlement system; and managing data and monitoring transactions.

In the sCBDC model – which is a public–private partnership – central banks would go back to focusing on their core function: providing trust and efficiency by means of state-of-the-art settlement systems. The private sector – stablecoin providers – would be left to satisfy the remaining steps under appropriate supervision and oversight, and focus on their own competitive advantage – innovating and interacting with customers.

Whether central banks adopt CBDC at all is another matter and will result from carefully weighing pros and cons. But to the extent central banks wish to offer a digital alternative to cash, they should consider sCBDC as a potentially attractive option.

That is only one of the incarnations of stablecoins. Others will no doubt materialise and colour the future of payments and the financial industry. If anything, existing players will be induced to offer new and more attractive services in the payments – and especially cross-border payments – space. From desktop publishing, the digital revolution has finally reached the shores of consumer finance too. ■

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Editor's note: the views expressed are those of the author(s) and do not necessarily represent the views of the IMF and its Executive Board

Endnotes

1. See Coindesk (2019), "Coinbase rolls out trading in USDC stablecoin to 85 countries", 14 May.
2. Fast payments allow near-instantaneous and final settlement of transactions in central bank money. A prominent example is the euro area's Target Instant Payment Settlement (TIPS) service launched in November 2018.
3. Importantly, appropriate legal structures would be needed to protect client assets from the bankruptcy of stablecoin providers. See Mancini-Griffoli et al. (2018) for a detailed discussion of CBDC.

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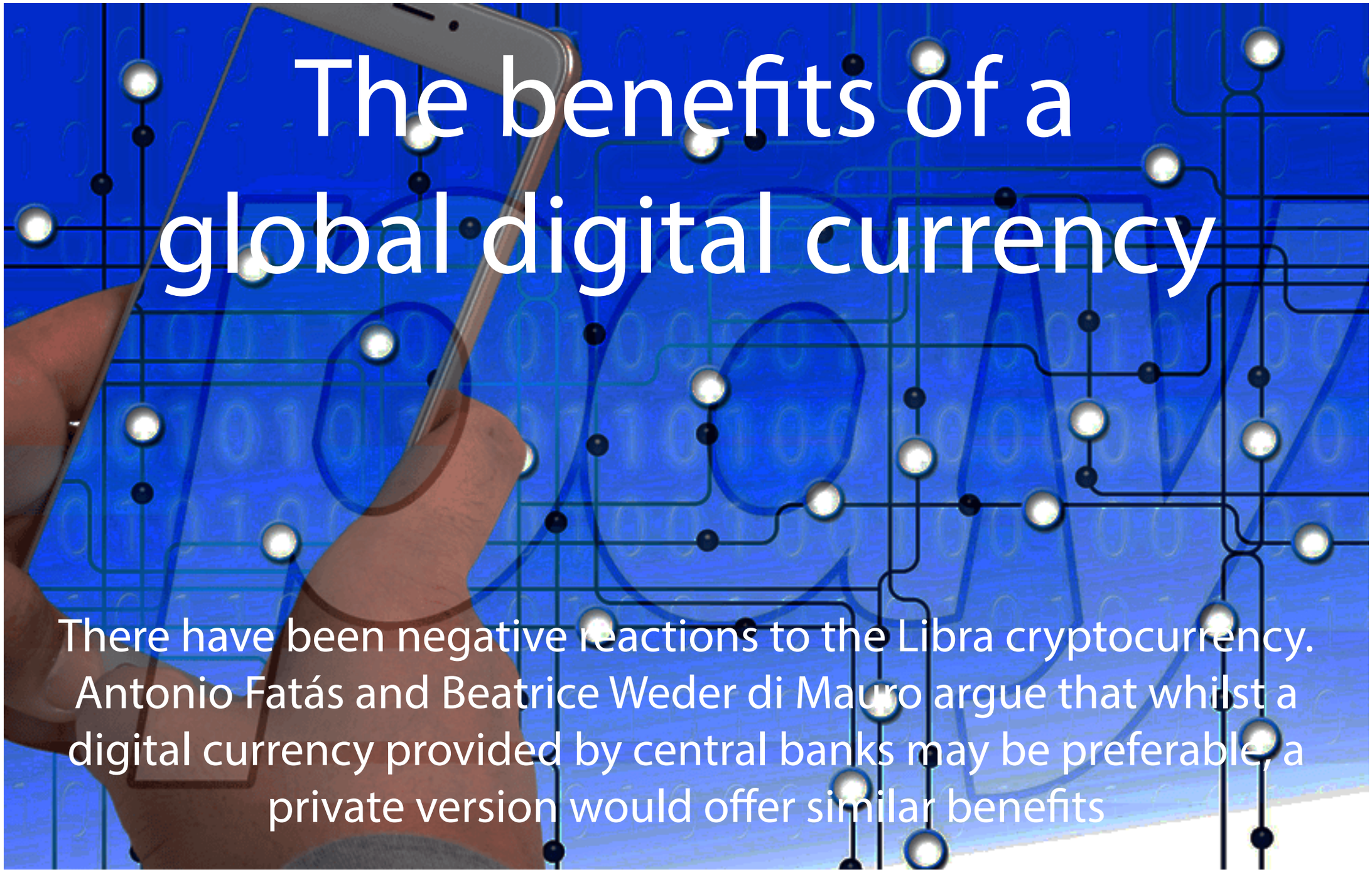
The benefits of a global digital currency



There have been negative reactions to the Libra cryptocurrency. Antonio Fatás and Beatrice Weder di Mauro argue that whilst a digital currency provided by central banks may be preferable, a private version would offer similar benefits

Economists have reacted negatively to the prospect of Facebook's Libra cryptocurrency. This column, part of the VoxEU debate on the future of digital money, outlines how if we focus exclusively on the efficiencies a currency like Libra brings to payment, there are arguments in its favour. A global digital currency provided by central banks may be preferable, but a private version would offer many of the same benefits.

The launch of the Libra cryptocurrency has produced immediate and strong reactions from economists, regulators and even the G7, the majority of them negative. Many worry that Facebook will violate privacy provisions and use the generated data commercially. Others fret that a dominant global private currency that is outside the control of central banks could undermine monetary policy, pose risks for financial stability, and facilitate crime.

We share these concerns. We are not convinced that the Libra project will succeed – or even that it should succeed. But, as a contribution to the debate, we decided to give the idea of a global private digital currency (in other words, a Libra-type project) a chance and have tried to make the best case we could think of, focusing on the most immediate use case: as an alternative means of payment.

The Libra white paper[1] addresses some areas where improvement is overdue, such as financial inclusion and reduction in transaction costs for cross-border remittances. Also, if adopted more widely, a global currency might also mitigate some of the weaknesses in the international monetary system, for example the dominance of the US dollar and the difficulties in external adjustment that this causes. This was highlighted in a recent speech at Jackson Hole by Mark Carney, governor of the Bank of England (Carney 2019)[2].

But the volatility of exchange rates means there is a cost in having two units of account. We focus on this trade-off, in particular from the perspective of payment. How large should the savings in transaction costs be to compensate

for the additional volatility associated to holding the currency? We use some of the details of the Libra white paper to illustrate our arguments, but our comments apply to any similar project.

Libra, currency boards, and fixed exchange rates

In response to the high volatility of Bitcoin and other cryptocurrencies, developers have created 'stable coins', currencies whose value is tied to a traditional currency. Libra belongs in this category. Economists are familiar with fixed exchange rates, so this is not new. The stability of Libra is guaranteed by a redemption mechanism supported by assets that back the value of the currency in circulation. This mechanism, used by other stable coins, is equivalent to a currency board.

While a global currency may be desirable, this currency does not have to be Libra. There are many other concerns not discussed here, such as privacy, data control, operational risk, regulatory consequences, or dominance

Libra is global, so it is pegged to a basket of currencies. There are precedents in this for fixed exchange rates, although it is not common for currency boards[3]. Of course, fixing the value of Libra to a basket of currencies implies that its value will fluctuate relative to any single currency.

Reducing the costs of payments

The most immediate use case for a Libra-type project would be for retail payments, in particular cross-border payments. They remain cumbersome, slow, and ridiculously costly. As an example, the World Bank estimates that the average cost of the $600 billion of annual global remittances is 6.84%[4]. Improvements in technology and processes mean the average cost of remittances is getting smaller, but at disappointing speed[5].

Transaction costs for local payments are smaller, although slow and costly means of payment are still common (for example, in some countries cheques are widespread, or there are high merchant fees for accepting credit cards). Hayashi and Keeton (2012) estimated the social costs of payment technologies in a sample of advanced economies to be between 1% and 3%[6]. Clearly there are potential efficiency gains here.

But do we need a new cryptocurrency to deal with all these cross-border and local payments inefficiencies, when existing providers could make use of similar technologies to become more efficient? Payment systems that rely on digitally supported instant-payment technologies are available. They are clearly superior to cash, cheques or credit cards. But their adoption is hampered by legacy systems, lack of incentives to adopt, and lack of competition. According to the World Bank initiative on remittances: *"the single most important factor leading to high remittance prices is a lack of transparency in the market."*

Technology adoption also depends on factors like perceived convenience, trust and – importantly – the network effects that determine the availability of these technologies. We are not convinced that Libra solves all these issues,

but it may have technology solutions that remove some of the barriers to adoption. If we ignore this potential, we will underestimate how disruptive Libra and similar currencies can be. Adrian and Mancini-Griffoli (2019) have made a similar point.

A global currency can also help individuals diversify risk if the correlation of its returns with other risks is low, or even negative. This is plausible: when the economy is doing poorly, it is common for exchange rates to depreciate. In this case, holding a foreign currency would offer an opportunity to reduce the exposure to this risk, something that many people may not easily be able to do at the moment.

We could also imagine that a successful global currency might be adopted much more widely for pricing. A liquid global currency, used for pricing financial assets, would provide diversification against capital flow volatility and balance-sheet risks. If it was used as a unit of account and for invoicing international trade, it could create more stable trade receipts and payments.

Most of these benefits apply equally to the IMF SDR, currently used as exchange rate anchor in a few countries and is also used for some commercial transactions (IMF 2018) but, clearly, the SDR is currently not a liquid global currency to rival the dollar.

Costs and benefits of a global currency for retail payments

To estimate how these potential efficiency gains compare to the risks of holding a foreign currency, we made a back-of-the-envelope calculation. We have taken the US as the domestic economy, and assumed that Libra will shadow the IMF SDR[7]. Between 1985 and 2019, the volatility of the SDR/USD exchange has been between 4% and 6%[8], at the low end in recent years.

The question is, how large must the benefits of lower transaction costs be to compensate for the increased risk of holding the currency? A simple mean-variance model of an optimal portfolio provides a straightforward trade-off for an investor between returns and volatility as a function of risk aversion[9].

The calculation has a complication: the 'return' when using Libra is proportional to the volume of payments (for example, if we think of savings in credit card fees), but the risk depends on the average holdings of Libra during the year. The relationship between these two amounts depends on how Libra would be used, that is, on the velocity of money. So we take the most pessimistic case and assume velocity of money to be equal to one: the average holding of money in any period is equal to the volume of transactions.

Table 1 summarises the results when volatility is in the historical range of 4% to 6%, and risk aversion varies between 1 and 10.

Table 1. Required savings to compensate for risk of holding Libra

	1	3	5	10
4%	0.16%	0.48%	0.80%	1.60%
5%	0.25%	0.75%	1.25%	2.50%
6%	0.36%	1.08%	1.80%	3.60%

Source: Authors' calculations, based on historical data for IMF SDR.

The (volatility) costs of holding Libra require savings between 0.16% and 3.60%. Some of these numbers might seem large, but they are small compared to the costs of remittances, credit card merchant fees, or the social costs of current payments. Recall also that the recent volatility of the SDR has been closer to 4% (as in the first row of Table 1) and, if we choose a relatively high-risk aversion (level 5), the efficiency gains would need to be only 0.80%[10].

Note we are looking at the worst-case scenario in the holding period. There is no need to maintain such a high balance of Libra to make all these transactions. The shorter the Libra holding period – the higher the velocity of money, in other words – the lower the risk. In the extreme, the holding period could be a millisecond before the transaction, and then the exchange rate risk would be zero. In this case Libra would be a vehicle currency, used for conversion purposes only. This would be technologically feasible.

Conclusion

Taking the Libra proposition at face value, we made the best economic case we could by focusing on it as a means of payment, domestically and internationally. We wanted to understand whether the potential benefits of a means of payment could compensate for the risks of holding a volatile asset.

Our estimates suggest that the overall risk of holding a global currency may not be large for plausible exchange rate volatility and risk aversion. On the other hand, the potential gain in lowering transaction costs in retail cross-border payments and even local payments are large.

While a global currency may be desirable, this currency does not have to be Libra. There are many other concerns not discussed here, such as privacy, data control, operational risk, regulatory consequences, or dominance.

In his speech at the 2019 Jackson Hole conference (Carney 2019), Carney discussed the benefits of a global currency that would be provided by a network of central banks, which he called a Synthetic Hegemonic Currency. But, without a coordinated effort by policymakers and regulators to create this currency, a private solution such as Libra might end up partially fulfilling this need. ■

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Endnotes

1. See https://libra.org/en-US/white-paper/

2. See also International Monetary Fund (2018) for a discussion of the weaknesses of the international monetary system that a basket currency like the SDR could mitigate.

3. Fixing the exchange rate against a basket of currencies makes the redemption mechanism more complicated. It might require a constant rebalancing of the asset side to ensure that the composition of currencies matches the composition of the basket. Otherwise, fluctuations in the exchange rates between those currencies could send the coverage rate below 100%.

4. https://remittanceprices.worldbank.org/en

5. The technology infrastructure behind Libra resembles that of blockchain while, at the same time, it promises to address some of its weaknesses, for example scalability. If properly implemented, moving balances from one Libra wallet to another across countries should be a smooth and costless transaction.

6. Social costs are broader than transaction fees. For instance, for a cash payment they include the resources spent by the buyer to retrieve the cash as well as by the seller to redeposit it.

7. As we write this post there are no details on the currencies that will be used in the basket, but the white paper refers to currencies from "stable and reputable central banks". The SDR is the best known international global reserve currency that works as a claim on the currencies of five IMF members (US, euro area, China, Japan, UK).
8. This is the standard deviation of annualised daily changes over a five-year window from Cecchetti and Schoenholtz (2019).
9. This model can be seen as the solution to the optimisation of an investor with a constant absolute risk aversion (CARA) utility function.
10. As a quick reality check, if we were using the S&P 500 as the risky asset, its volatility would be around 15%. With risk aversion of 5, it would imply a required risk premium of 6%, not far from the historical equity risk premium.

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Who needs a blockchain?

In a wide-ranging interview with WCR Lyle Wraxall explains how diversity will drive the adoption and understanding of blockchain across the Isle of Man's business communities and beyond

Blockchain is an immature technology. While companies are trying to understand how it can create value for their business, regulators are still trying to figure out what blockchain actually is and how it represents traditional financial instruments.

The likelihood is that the true value of blockchain lies beyond crypto and finance – these were merely the first areas that were looked at – and that ultimately it will be a technology used horizontally across all sectors.

This is something we're already beginning to see. Through the TradeLens supply-chain platform, for example, the world's largest container ship and supply vessel operator, Maersk, has – with the help of IBM – essentially put its global shipping network on the blockchain.

The result is a digital tracking system that promises more efficient and secure global trade through information-sharing and transparency.

One day, we will have full interoperability between all public, private and consortium blockchains variants, creating a vast network that has the potential to revolutionise financial transactions by uniting a currently fragmented space.

When that happens, the value for mainstream businesses may be more immediately obvious. In the meantime, however, the real testing grounds for blockchain innovation are small jurisdictions that can offer the regulatory agility to work with companies that are eager to innovate.

There's a lot we don't yet know about the capabilities of blockchain because it's still evolving. From a regulatory perspective [...] regulation is years behind the technology

Small is beautiful

In Europe, jurisdictions like Malta, Gibraltar and the Isle of Man have each embraced blockchain and are integrating the technology into their digital ecosystems and regulatory frameworks.

While some concentrate on one specific area, such as fintech or cryptocurrency, the Isle of Man is trying to build a diverse digital ecosystem across all its sectors, in which blockchain businesses can leverage one another, as well as other businesses across the island.

The self-governing British Crown Dependency in the Irish Sea between has a well-established and diverse financial sector, encompassing banking, insurance and wealth management, as well as strong infrastructure to support digital businesses, including its eGaming sector.

But according to Lyle Wraxall, chief-executive of Digital Isle of Man, of the blockchain-based businesses that have made the island their home, only around 40 per cent belong to the financial or eGaming sectors.

The remaining 60 per cent are a hugely diverse range of ventures – everything from environmental initiatives, to health, to education, to retail. Wraxall believes it's this kind of diversity that will ultimately drive the adoption and understanding of blockchain across the island's business communities and beyond.

"When I came to the island about a year ago, I looked at what was happening in the digital economy," says Wraxall. *"People were kind of interested in blockchain, they were talking about it. But the regulators and the government were nervous about it.*

"There was a big education piece that needed to be done across government, across regulators, to get them to understand what blockchain was and how it could add value to the island and what the risks were with supporting that."

The government agreed to adopt new policies at a national strategy level to support blockchain and declared the island a blockchain-permissive jurisdiction. Wraxall set up *Blockchain Isle of Man*, which opened earlier this year, as well as a sandbox that provides a collaborative space for companies to live-test their products, services or delivery mechanisms. It's a testbed that allows crucial experimentation in an environment where potential risks to financial customers can be strictly contained.

Blockchain Isle of Man, meanwhile, provides expertise, guidance and marketing support, facilitating and encouraging collaboration between companies. It can also guide blockchain businesses through current and future regulatory landscapes and create dialogue between companies and local and international regulators, if needed.

"We have the agility, from a regulatory perspective – we're doing that with our financial regulator and with our gambling regulator," says Wraxall. *"We're also involving our information commissioner from a data protection perspective. And I'd expect more regulators to get involved in the blockchain world as it matures.*

"And when we work with businesses, we're always trying to impress on them the fact that – yes – you may not be regulated right now, but you always need to create a platform with compliance in mind so that you're ready for regulation when it catches up with you so it doesn't destabilise your business or put you out of business completely."

Protecting consumers

Crypto has influenced blockchain's a reputation. Investing in cryptocurrencies is a volatile business and a lack of regulatory oversight can make the markets vulnerable to manipulation.

Meanwhile, amid shady ICOs and whispers of money laundering, investors have been targeted by several highly publicised scams, such as the OneCoin Ponzi scheme, which US authorities allege may have generated as much as $4 billion globally from its victims.

All this makes the need for regulatory protection for consumers increasingly important for governments, like the Isle of Man's, that have chosen to embrace blockchain.

But cryptocurrencies and blockchain are not the same thing and many of the Isle of Man's start-ups view blockchain not as an investment vehicle but as a business solution tool that will cut costs and simplify processes. Nevertheless, for companies eager to try out new things, there can be a lot of onerous red tape.

"This is where the Isle of Man's smallness is its strength," says Wraxall. *"These regulatory challenges need to be dealt with quickly and it's the smaller jurisdictions like the Isle of Man that have the capability and the agility to deal with those regulatory issues.*

"We're a small enough island that we have the advantage of doing tech trials really easily. We can do really good proof of concepts on the island, which again is more difficult to do in a city which is less well defined in terms of where your boundaries are – and getting a bit of legislation or a regulatory change just for that can be quite time-consuming and complex.

"Because we're currently working with smaller businesses and startups, we have a digital ecosystem and a financial ecosystem that are small enough that we can introduce these businesses to their respective customers, so they can have that dialogue.

"Yes, you can do that if you sit in the middle of London, and you can go out to the banks there and so on, but actually it's quite difficult as a small business to have the face time with senior folk within those organisations.

"In the Isle of Man that's entirely possible. We can set up meetings between senior folk within finance and insurance companies with blockchain businesses and start talking about how that can work."

Catching up with the tech

There's a lot we don't yet know about the capabilities of blockchain because it's still evolving. From a regulatory perspective, particularly in the finance world, regulation is years behind the technology, although jurisdictions like the Isle of Man are leading the battle to catch up.

"There are challenges around how consensus works, how much energy that takes, how long that takes, how do we increase the capacity of it, and you'll see that being tackled by the Facebook Libra campaign by creating a private blockchain before it goes public," says Wraxall.

"It's allowing technology to catch up to the point where it can sustain that level of transaction and speed. But it also enables Facebook to deal with one set of challenges first before taking on the second set of challenges."

Another challenge facing blockchain enterprises is that the tech is not yet well understood within many larger enterprises. That's partly because its difficult to get out of the mindset of thinking around centralized process, which is a huge barrier for some organisations, says Wraxall.

But it's also because the technology lacks credibility among mainstream companies in terms of its ability to deliver value. Wraxall agrees that blockchain has not yet achieved credibility but believes the Island's carefully managed

approach to cross-sector cooperation and experimentation – coupled with the idea of blockchain as a business solution – is gradually changing minds.

"It's about ensuring the ecosystem is diverse enough that it doesn't create little pockets of competition," he says. *"We look more for cooperation across these businesses and that they will support the existing kinds of businesses that we have on the island.*

"So, we can introduce people and create the right kind of landscape for people to try out new things. And it's by doing these things that we'll see companies – and we're seeing it already on the Island – begin to understand where the value is for their business and where they have opportunities to work with blockchain as a technology or work with other blockchain businesses to create value for their own.

"When you look at it holistically like that – which again is easier to do in a place with the scale of the Isle of Man – then it's worth more than the sum of its parts. That's really what we're looking to do.

"At this point in the lifecycle of blockchain, that seems to be what's working." ■

Incoterms® 2020 – updated rules for sale of goods certainty

The International Chamber of Commerce reviews the latest edition of the Incoterms® rules, that ensure a rules-based solution between trading partners worldwide

Each day, millions of transactions take place between importers and exporters around the world. Whether its ordering espresso, purchasing tofu from the local market, or adding an avocado to salad – global trade is at work. Products, like coffee, soybeans, and avocados, travel through various ports, entry ways, bodies of water, containers, and vessels before reaching their final destination.

Despite language differences, customs, and legal standards, these global transactions between businesses continue to flow seamlessly beneath our eyes due to the Incoterms® rules.

The Incoterms® rules were first introduced by the International Chamber of Commerce in 1936 to establish commonly accepted definitions and rules to related to the sale of goods between trading partners worldwide. Since then, ICC has periodically revised the Incoterms® rules to reflect changes in the international trade system.

The latest edition of the Incoterms® rules, launched in September, ensure a rules-based solution to commercial relations between businesses.

The merchants of peace

After its creation in 1919, one of ICC's first initiatives was to examine the use of commercial trade terms by merchants. As part of this review process, ICC commissioned a study on the use of commercial trade terms from 13 countries around the world.

The findings, which were published in 1923, identified just six commonly used terms between importers and exporters. The study also highlighted that misinterpretation of rules and responsibilities was common among participants.

Based upon the results of this initial study, a second highlighted a lack of common understanding between traders. Depending upon the country in context, traders utilised different interpretations, or different commercial trade terms, as part of the transaction process.

Following the results of this second survey, ICC realised the imperative to establish a common set of commercial trade terms to improve understanding worldwide. The first edition of the Incoterms® rules was published in 1936, including six terms: FAS, FOB, C&F, CIF, Ex-Ship, and Ex Quay.

As a result of the expansion of global trade in the mid-twentieth century, ICC added revisions to the Incoterms® rules to ensure their applicability and reduce costly misinterpretations between business.

These revisions to the Incoterms® rules will help preserve and modernise the global trading system

One of the most notable revisions occurred in 1967, when ICC added two new rules - Delivery at Frontier (DAF) and Delivery at Destination (DDP) – to resolve possible misinterpretations from the previous edition. Later in 1974, due to the rise in air transport, ICC created FRC (Free Carrier…Named at Point), which provided for goods not actually received by the ship's side but at a reception point on shore, such as a container yard.

Most recently, Incoterms® 2010 included a variety of modifications and changes to the Incoterms® rules to respond to inherent changes in global trade. In particular, Incoterms® 2010 consolidated the D-family of rules, removing DAF (Delivered at Frontier), DES (Delivered Ex Ship), DEQ (Delivered Ex Quay) and DDU (Delivered Duty Unpaid), and adding DAT (Delivered at Terminal) and DAP (Delivered at Place). These revisions sought to simply the Incoterms® rules for importers and exporters everywhere.

Past editions of the Incoterms® rules were introduced to respond to fundamental changes in global trade. Whether it was the increased popularity of air transport in the 1970's, or the rapid rise in global transactions at the turn of the 21st century, the Incoterms® rules have adapted to remain relevant for business.

Incoterms® 2020

As demonstrated by past revisions to the Incoterms® rules, changes and disruptions are commonplace within global trade. Due to the ever-changing nature of global trade, ICC believes that businesses must work together to create shared solutions to emerging challenges. The Incoterms® 2020 drafting process considered changing dynamics of today's global trade system, such as globalisation and technology.

The latest edition of the Incoterms® rules reflect the interconnectedness of global trade. The Incoterms® 2020 Drafting Group, formed by ICC in 2016, comprised nine experts from around the world: three from Asia, two from

America and four from Europe. The Drafting Group combined both users of the Incoterms rules and commercial lawyers, who specialised in international trade.

Bob Ronai, a trade specialist and member of the Incoterms® 2020 Drafting Group said: *"The biggest hurdle is the process. We [the Incoterms® 2020 Drafting Group] had to dissect Incoterms® 2010, make suggested improvements, then disseminate them … and wait,"* he said. *"We got hundreds of responses - the Incoterms® rules are universal. They are not single country, or single customs union-type problems."*

By understanding the feedback of the global business community, Mr Ronai and the other members of the Incoterms® 2020 Drafting Group were equipped to implement the necessary changes to the Incoterms® rules.

Enabling the benefits of digital technology

As global trade becomes more digital, so do the Incoterms® rules. Because the Incoterms® rules are used daily in contracts for the sale of goods around the world, ICC has taken steps to ensure that Incoterms® 2020 is convenient and accessible for all users.

In line with ICC commitments to make technology work for all, access to essential information has been made easier via a dedicated Incoterms® 2020 mobile application. The application includes a wide variety of informative features, including latest news updates, event information and training opportunities. Within the application, users will be able to access a digital version of the Incoterms rules, which can be made available offline.

In this manner, Incoterms® 2020 will always be available for business of any size. From multinational corporations to micro-, small-, and medium-sized enterprises (MSME) – Incoterms® 2020 will be easily accessible for all.

By harnessing the power of digital technology, the wider accessibility of Incoterms® 2020 will help reduce barriers in global commerce and enhance opportunity for all.

"I think that's another benefit that Incoterms® 2020 has over Incoterms® 2010. The ubiquity of the internet – which wasn't there for Incoterms 2010," said Mr Ronai. *"Now, everything is at our fingertips, on the Internet, on our mobile phones. That's a huge boon … to get these rules out there and known by probably five to 10 times the number of people that knew Incoterms® 2010."*

In addition, ICC is working alongside Perlin, a Singapore-based distributed ledger technology company, to develop customisable, self-executing digital sales agreements, to incorporate into the Incoterms® rules.

The platform will utilise sensor data and application programme interfaces (APIs) to prompt triggers for self-execution, sustainability, and other environmental, social and governmental (ESGs) performance indicators to improve trade facilitation.

Trade that works for all

"Incoterms 2020 make business work for everyone by facilitating trillions of dollars in global trade annually," said ICC Secretary General John WH Denton AO. *"They help importers and exporters around the world to understand their responsibilities and avoid costly misunderstandings, the rules form the language of international sales transactions, and help build confidence in our valuable global trading system."*

Incoterms® 2020 features more informative descriptions to provide the users of the Incoterms® rules with further clarity. For starters, the introduction to Incoterms® 2020 includes a more detailed explanation on how to choose the most appropriate Incoterms® rule for a given transaction, or how a sales contract interacts with ancillary contracts.

In addition, Incoterms® 2020 features more detailed explanatory notes with enhanced graphics to illustrate the responsibilities of importers and exporters for each Incoterms® rule.

Some of the latest technical revisions to the Incoterms® rules include:

- Provision for demonstrated market need in relation to bills of landing (BL) with an on-board notation and the Free Carrier (FCA) Incoterms® rule.

- Alignment of different levels of insurance coverage in Cost Insurance and Freight (CIF) and Carriage and Insurance Paid To (CIP).

- Arrangements for carriage with own means of transport in FCA, Delivery at Place (DAP), Delivery at Place Unloaded (DPU), and Delivered Duty Paid (DDP).

- Change in the three-letter name for Delivered at Terminal (DAT) to DPU.

- Security-related requirements within carriage obligations and costs.

These revisions to the Incoterms® rules will help preserve and modernise the global trading system, by ensuring the free flow of goods between importers and exporters around the world.

Incoterms® 2020 will help avoid costly disputes between trading partners, reduce barriers between MSME's and their competitors, contribute to stability and enhance economic growth.

ICC's worldwide network of offices will be offering 28 translated versions of the Incoterms® rules, as well as training sessions, to benefit the understanding of users around the world. ■

For more information visit: https://2go.iccwbo.org

A delicate balancing act

The quantum of information that flows across borders has given rise to concerns for national governments. Shagufta Gupta writes that a delicate balancing act is needed to ensure India's digital sector keeps its global lead

Cross-border data flows have engendered a seismic shift in the way the world functions. Consumers and businesses benefit greatly from the free flow of data across borders. For consumers it gives them access to information across the world via the internet, new communication channels have opened to facilitate connectivity across the globe, they have more choice on what they can buy and where they can buy goods and services and the products and services are now more personalised to consumer's tastes.

For businesses cross border data flow opens new markets, provides access to innovative operations solutions at low cost and facilitates cutting edge research and development. India's digital sector has benefited from and leveraged cross border data flows to become not only a leader in Information Technology (IT) and Information Technology enabled Service (ITeS) exports but also a top destination for technology hubs.

India's digital sector has grown phenomenally since its foundation was laid in early nineties. Its size stood at US$413 billion in 2016-17 which was 15-16 per cent of the nation's GDP. The Ministry of Information and Technology estimates it to grow to US$1 trillion by 2025 (18-23 per cent of GDP)[1].

IT and ITeS contribute greater than 60 per cent of this US$413 billion figure. Within IT and ITeS sector, exports constitute a bulk, more than 80 per cent, of the revenue and are growing fast[2].

Enablers of this digital ecosystem, inter alia, include a developing physical infrastructure, availability of relevant skilled workers and conducive policy environment. Additionally, the ability to seamlessly transfer data across borders has been crucial for the sector's growth, which has been primarily driven by exports.

This exponential growth has also consolidated India's position as a top destination for Global Capability Centres (GCCs). Their market size touched US$28.3 billion in 2019, this component of India's digital sector grew even faster

than the IT-ITeS sector over the last four years. More than 1,200 trans-national corporations have their GCCs in India, which employ about a million people[3].

These GCCs are fast developing into centers of innovation and research & development, rising higher in the global value chain, from cost saving centers to strategic and value creation centers. Cross border data flow is an essential component of innovation and research and development and in today's world a critical mechanism of work procurement and delivery as well for these GCCs.

The delicate balancing act required from the Indian government will be the key to sustaining and improving our long-term position in the global digital economy

The explosion of data across the world and the quantum of information that flows across borders has given rise to certain legitimate concerns for national governments.

Issues of privacy and protection of citizens' data, risk of foreign actors accessing data of citizens, national security, law enforcement agencies' (LEA) access to data, spurring of local data economy by promoting local businesses and promoting local innovation are some such issues that nations are grappling with. Data economy has assumed strategic importance and countries are now striving to gain control of this new resource called 'data'.

Various countries have tried to deal with the issues mentioned above in their own ways. Some like US and Japan favor data free flow across borders. These countries were instrumental in promoting the 'Osaka track' on digital economy that was signed by 24 countries and groupings at the G20 summit at Osaka in July 2019.

The declaration supports plurilateral negotiations on digital trade which include data flows, data localisation and cloud computing. Developing countries such as India, China, South Africa and Indonesia opposed this declaration citing the digital divide between developed and developing countries.

According to them, to be able to take advantage of free flow of data, developing countries' digital economy needs to first come to the same level as developed countries. For that to happen, it was necessary for local companies to grow and to be able to compete with global digital companies. Hence, these countries have adopted or seek to adopt a more inward-looking policy on data flows.

With the above mentioned viewpoint the Indian government had introduced the draft Personal Data Protection Bill in 2018[4]. The bill talks at length about privacy, consent and choice issues in the context of the data principals. At the other end it lays out a framework of principles regarding collection and processing of data for the data fiduciaries.

The bill also provides for a national Data Protection Authority to supervise and regulate data fiduciaries. In addition to rights of data principals and obligations of data fiduciaries, the bill requires that a serving copy of personal data be stored within the territory of India, this is referred to as data localization.

The bill also makes it mandatory to store certain critical personal data solely within the country. However, what categorises as personal data and critical personal data has not been unambiguously defined in the bill.

This provision of data localisation has proved to be a highly debated subject in business and policy circles. Sectors such as IT and ITeS exports and GCCs, inter alia, that are dependent on cross border data flows have urged the government to re-strategize; the government at its end is trying to chart the way forward in consultation with stakeholders.

The driving factors behind the Indian government's move towards data localization can be broadly traced to its intention to achieve 'data sovereignty'. Data localisation is believed to assist in this objective via three means.

The first will be by securing the privacy of citizens. If the personal data of citizens are kept within the borders of the country, it would render them less likely to be the subject of unauthorised foreign surveillance. Chances of data breaches by foreign actors, both private and government, will be reduced.

Secondly, ensuring accessibility to law enforcement and regulatory agencies to this data for discharge of their functions will be enhanced due to data localisation.

The third way in which the provision purportedly helps achieve 'data sovereignty' would be via harnessing the latent economic potential in data by local businesses. This would not only open a new sector of data storage for

local businesses but would also lead to more innovation within the country if the locally stored data is processed and analysed by local companies.

There have been many studies across the globe that quantify the economic costs of data localization. One such study by Cory (2017)[5] estimated the cost of barriers to cross border data flow to India (among other countries in his sample) in 2017 at 1-0.7 % of GDP. It is important to bear in mind that the laws governing data localization were not as restrictive and all-encompassing in 2017, as are being proposed in the draft PDP.

The proposed enhanced localization requirement could multiply this cost to the economy. The costs incurred by businesses can arise out of greater compliance costs, reduced efficiency due to disruption of global value chains, increased cost of data storage etc.

India's digital sector is at a particular risk on account of their reliance on cross border data flows not only for their inputs but also as a mode for service delivery. In addition to the economic costs mentioned earlier, there is an increased perceived risk of retaliatory provisions by other countries whose businesses are part of the global digital value chain and might be adversely impacted by data localization requirements in India.

There have been several alternatives suggested that can achieve the objectives cited by the government without disrupting businesses and value chain ecosystems. Privacy and protection of personal data of citizens is more a function of regulatory frameworks in place rather than where the data is stored. The government has proposed to put a privacy and data protection framework in place via the draft bill, by defining the rights of data principals and responsibilities of data fiduciaries.

But its implementation will decide the extent of progress we make in this regard. Having said that, unless the data is completely cut off from outside world it is still prone to attacks by foreign actors in spite of data localization.

In fact, a centralized location is at a greater risk since a single point of failure can lead to entire repository being compromised. Companies distribute their data across different geographical locations to minimize points of failure which will not be possible after data localization.

Other instruments available to ensure data protection are contractual conditions for data processors and adequacy tests for data destinations, as in the European Union's General Data Protection Regulation (GDPR).

Legitimate concerns of law enforcement's and regulator's access to data spring from the failure of currently existing mutual legal assistance treaties (MLATs). These treaties have failed to cut red tape and burdensome protocols and hence have led to huge delays in providing data access to LEAs in critical national security and terrorism related cases. However, data localization which comes at various other costs needs to be carefully weighed against various other options at disposal.

The CLOUD Act of the United States of America provides an alternative framework which does not rely on cooperation of foreign governments. It provides the US government with tools, in the form of warrants or subpoenas, for gaining access to data stored by American companies outside the US jurisdiction.

A balanced response is desired from the government wherein avenues for multilateral cooperation should not be considered closed and should be leveraged to their full potential.

The case for data localization to spur domestic economy and innovation also needs to be revisited. Yes, mandatory localisation would require data storage centers which will increase investment and jobs at least in the initial phases, when the infrastructure is being built. In the long term data centers are almost self-running operations and do not create as many jobs[6]. A careful analysis of jobs gained vs jobs lost will be able to paint a clearer picture.

The second economic argument for data localization stems from the theory that localization will lead to increase in technical and analytical activities by businesses especially by startups, leading to innovation. In addition, access to data will provide them with the fuel that is required to develop Artificial Intelligence and Machine Learning systems.

It could be an important way to bring domestic companies at par with global tech companies. However, this is a protectionist measure that will bring other negative repercussions as part of the deal.

The debate on data localization is highly nuanced and much more involved to be captured in this article. The point that is sought to be made through this piece is that given India's prominent position in the global digital landscape any provision that will shake the ecosystem needs to be carefully evaluated. It is pertinent that the costs and benefits are appropriately studied and alternatives explored before any regulation is passed and implemented.

India's IT and ITeS exports and its position as leading GCC hub is at risk. The lead in this sector that has been painstakingly achieved by our businesses has to be secured. The delicate balancing act required from the Indian government will be the key to sustaining and improving our long-term position in the global digital economy. ■

Shagufta Gupta is a Director at CUTS International & Centre Head, CUTS C-CIER

Endnotes

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An easier consumer journey when buying online

Helping consumers to make informed choices benefits consumers, companies and markets. Pedro Oliveira charts how European business organisations have developed a tool to better inform consumers

The way consumer information is presented and structured can make all the difference. Using icons, Q&As, illustrations and comics can increase comprehension rates of consumers by 30%.

Helping consumers to make informed choices improves their confidence which ultimately benefits companies and markets. Sixteen European business organisations joined forces to develop a voluntary tool to help companies find good ways to present their information to consumers.

In July 2019, European business organisations representing a wide range of sectors, from retail, telecommunications, tourism, e-commerce to door-to-door selling, presented their voluntary tool to better inform consumers when they are shopping online. The tool, facilitated by the European Commission, was co-developed by BusinessEurope and an expert group from the European business organisations in the spirit of the 'EU New Deal for Consumers'.

Legal requirements regarding mandatory consumer information can be very detailed and difficult to understand. To conduct an online sale of, for example a piece of electronics or clothing, by law, a trader has to provide several dozens of consumer information items. And if the product falls into a special category, like pharmaceuticals, detergents or cosmetics, the amount of information is even bigger. In addition to mandatory information, traders have to stipulate standard Terms and Conditions that may also be complex and difficult to understand for consumers.

Navigating through this amount of legal information is difficult both for consumers (to find or understand the right information) and for traders (to find good ways to pass on the information). This is where the recent initiative tries to fill the gap by producing a set of easy-to-use best practices on HOW to better present information.

Co-developers of the voluntary tool

AIM European Brands Association

BUSINESSEUROPE

DIGITALEUROPE

ECOMMERCE EUROPE

ECTAA
THE EUROPEAN TRAVEL AGENTS' AND TOUR OPERATORS' ASSOCIATIONS

EGDF
European Games Developer Federation

etno

ETTSA
EUROPEAN TECHNOLOGY & TRAVEL SERVICES ASSOCIATION

EUROCHAMBRES

EuroCommerce
for retail & wholesale

FEDMA

GSMA

Independent Retail Europe

seldia
The European Direct Selling Association

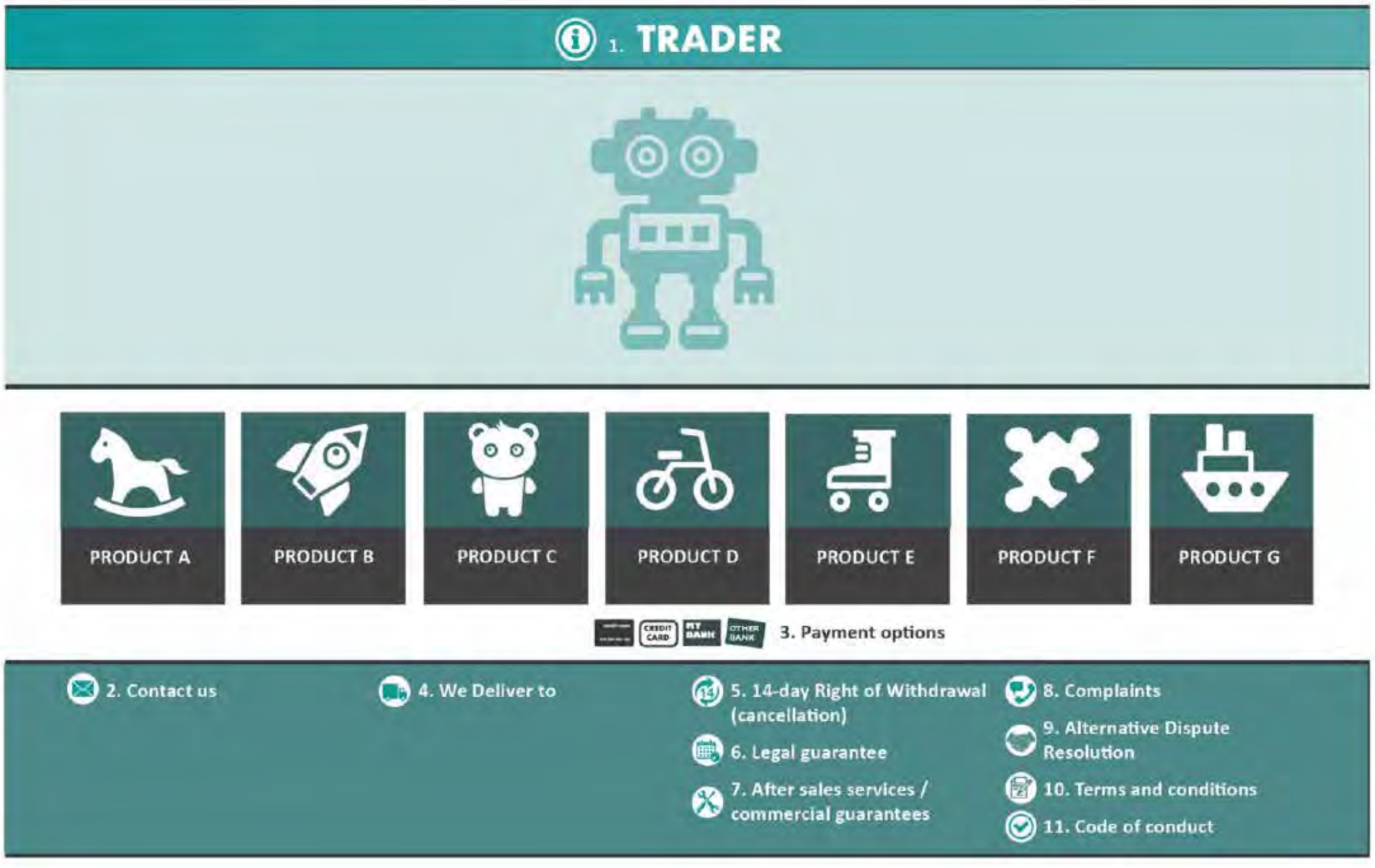
sme united
CRAFTS & SMEs IN EUROPE

It is not about WHAT information should be given, the law journals and numerous websites and information campaigns already provide it. This is the first of its kind initiative at European level, to our knowledge, the UK Government has taken up a similar initiative, but at a national level.

These recommendations primarily apply to an online context where there is no direct physical interaction with a consumer. They put forward practical ideas, such as breaking information into layers to improve accessibility and understanding, especially when the available space is limited, like on a smartphone screen.

Also, it advised to use easy-to-read font size with appropriate contrast and colour of the font and the background. Tables, illustrations or Q&As can be used for listing several information items, such as breakdown of delivery

Illustration of a 'Consumer Journey'



costs per weight or delivery areas. It is better to use bold font for important terms or put them up front to attract consumers' attention, for example those imposing obligations, setting deadlines or excluding or limiting rights.

The voluntary tool then visualises these practical examples through a 'Consumer Journey' – a graphic that helps businesses understand at which stage the information should be given and how it could look like to be easily understandable, including mandatory consumer information.

Companies are free to adjust the tool to their business identity and branding which is often what helps them stand out on the market. Otherwise websites would all look alike and thereby not meet customers' specific needs and expectations.

The objective now is to ensure a wide use and awareness of this tool by businesses. BusinessEurope and other participating organisations recommend their members, especially companies, to take these suggestions into account when designing their websites, and will revisit the initiative as the rules evolve. ■

Pedro Oliveira is the Legal Affairs Director at BusinessEurope

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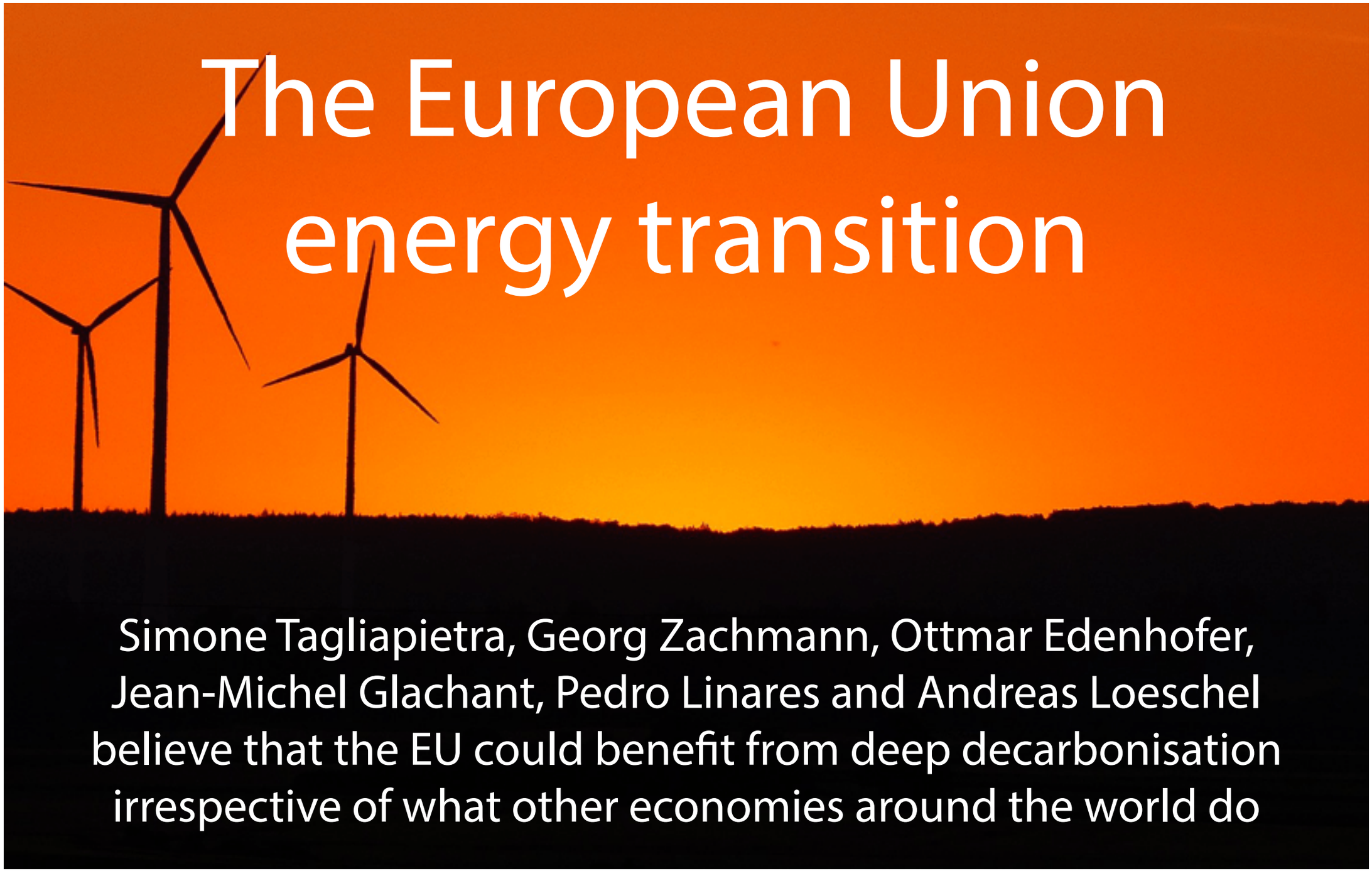
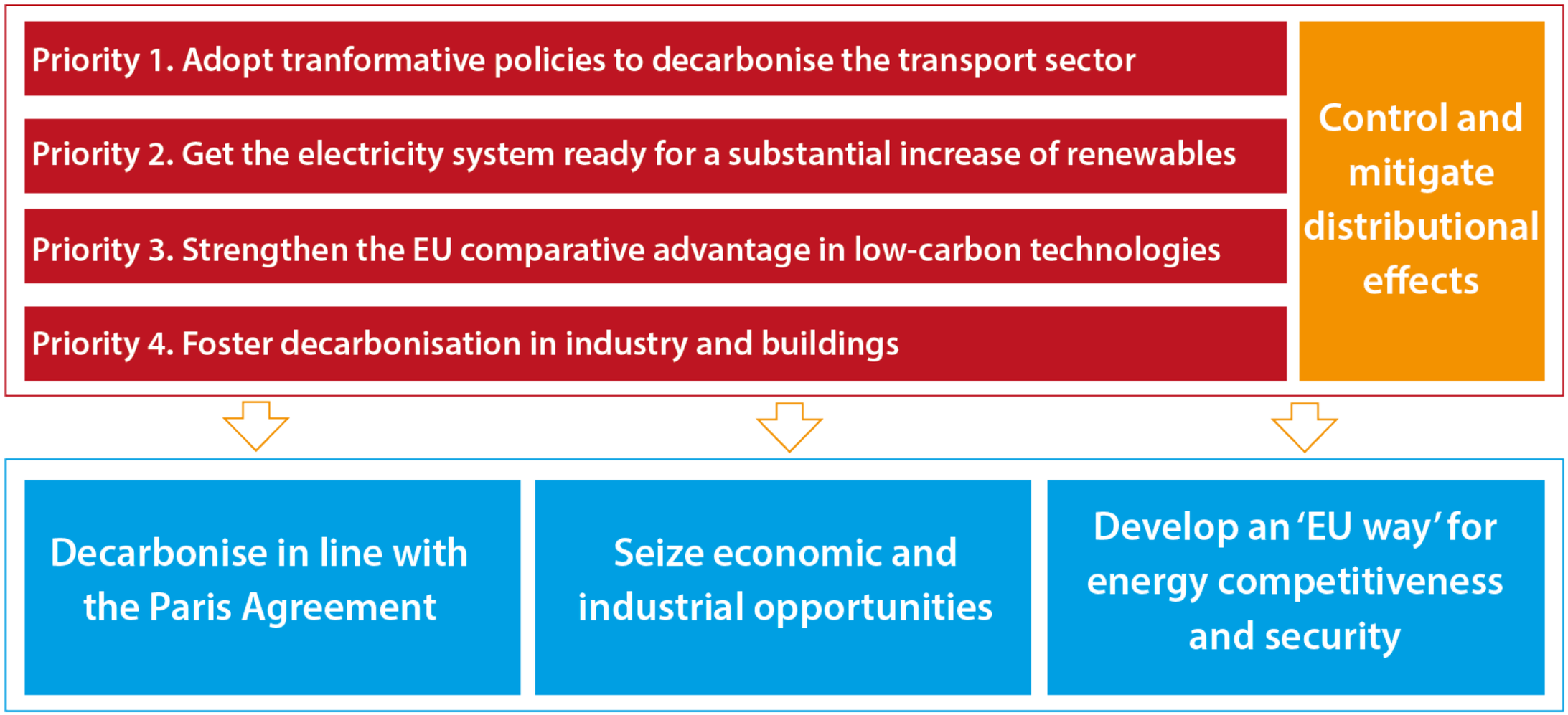


The European Union energy transition

Simone Tagliapietra, Georg Zachmann, Ottmar Edenhofer, Jean-Michel Glachant, Pedro Linares and Andreas Loeschel believe that the EU could benefit from deep decarbonisation irrespective of what other economies around the world do

FOUR PRIORITIES UP TO 2024 TO FOSTER THE EU ENERGY TRANSITION



The issue

Over the last decade, the European Union has pursued a proactive climate policy and has integrated a significant amount of renewable technologies – such as solar and wind – into the established energy system. These efforts have proved successful and continuing along this pathway, increasing renewables and improving energy efficiency would not require substantial policy shifts.

But the EU now needs a much deeper energy transformation to:

i) decarbonise in line with the Paris agreement;

ii) seize the economic and industrial opportunities offered by this global transformation; and

iii) develop an EU approach to energy competitiveness and security, as the EU has neither the United States' shale potential nor China's top-down investment possibilities.

Policy challenges

A full-fledged energy transition is becoming economically and technically feasible, with most of the necessary technologies now available and technology costs declining. The cost of the transition would be similar to that of maintaining the existing system, if appropriate policies and regulations are put in place.

In short, the EU could benefit from deep decarbonisation irrespective of what other economies around the world do. The transition can also be socially acceptable, if the right policies are put in place to control and mitigate the distributional effects of deeper decarbonisation.

The time to act is now, because energy is a rigid system in which infrastructure and regulatory changes take a decade to be fully implemented, while competition is not sleeping – as Chinese solar panels and the rise of the electric vehicles industry clearly show. Policy choices made up to 2024 will define the shape of the EU energy system by 2050.

Setting the right energy priorities for the new EU institutional cycle

The new members of the European Parliament and European Commission who start their mandates in 2019 should put in place major policy elements to unleash the energy transition. Political capital is – as always – limited, but four

The deep decarbonisation of electricity, transport, industry and buildings is an environmental imperative for Europe, and a unique economic opportunity

priorities are crucial to foster the EU energy transition: i) adopt transformative policies to decarbonise the transport sector; ii) prepare the electricity system for a substantial increase in renewables[1], at acceptable cost and without compromising security; iii) strengthen the EU's comparative advantage in low-carbon technologies; and iv) foster the decarbonisation of industry and buildings.

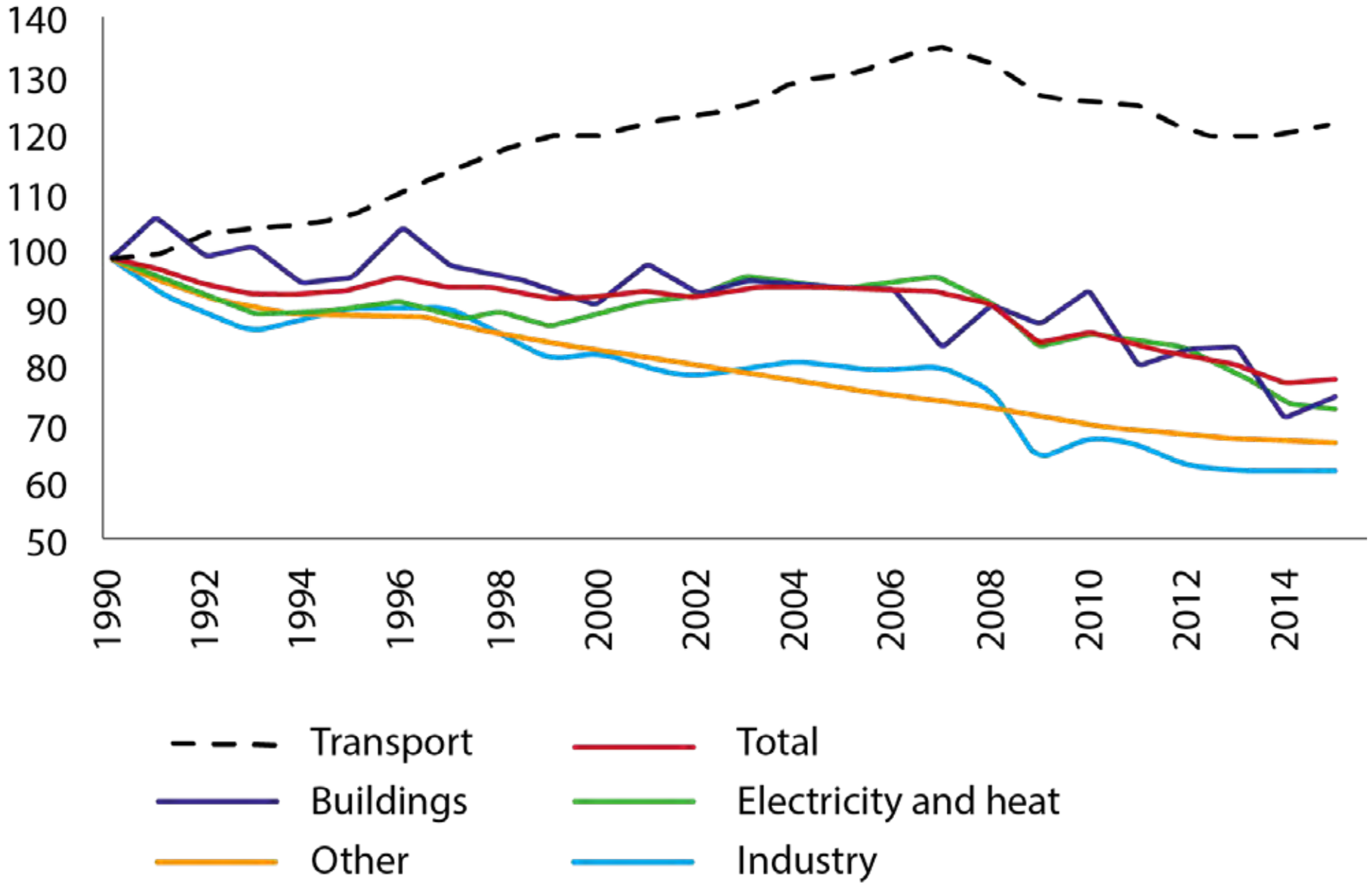
The deep decarbonisation of electricity, transport, industry and buildings is an environmental imperative for Europe, and a unique economic opportunity. Decarbonising the European economy would make a significant contribution to the fight against global warming, as well as cleaning-up the air European citizens breath every day. Air pollution continues to be an invisible killer in Europe, causing each year almost half a million premature deaths (European Environment Agency, 2018a).

Decarbonising the European economy also signifies investing in the industries of tomorrow. Europe has the potential to be a global leader in the manufacture of products such as wind turbines, electric cars and new-generation batteries. Investing in these industries can ensure the European manufacturing system's long-term economic competitiveness and sustainability[2].

Decarbonisation policies should be carefully crafted because without extensive consideration of their distributional consequences there is a risk of social backlash[3]. Avoiding this risk is possible, but it is crucial that the EU and national governments properly assess the distributional effects of their energy and climate policies, and take adequate measures to address them (Tagliapietra and Zachmann, 2018).

This also applies to carbon pricing: the gap between actual prices and those required to achieve ambitious climate change mitigation could be closed by promoting public acceptance of carbon pricing through the effective use of the substantial revenues raised (Klenert *et al*, 2017).

Figure 1. EU greenhouse gas emissions by sector, 1990-2016



Source: Bruegel based on European Environment Agency (2018). Note: 1990 = 100.

Key policy priorities to foster the EU energy transition

Priority 1: adopt transformative policies to decarbonise the transport sector

Between 1990 and 2016, the EU's greenhouse gas emissions decreased significantly in all sectors with the exception of transport, which saw a 20 percent increase (European Environment Agency, 2018b) (Figure 1). Transport is thus becoming a key obstacle to EU decarbonisation. A particular focus should be placed on decarbonising road transport because it is responsible for more than 70 percent of overall transport emissions.

Decarbonising road transport would also improve air quality in cities, which remains a fundamental challenge for better public health in Europe. All this should be done by assessing and addressing the distributive effects of transport decarbonisation policies, notably by taking into account that countries are made up of regions and constituencies with varying characteristics, including large semi-rural territories populated by low-income individuals deprived of public transport options and heavily sensitive to direct/in-direct transport taxation (Zachmann *et al*, 2018; Danesin and Linares, 2018).

To achieve the EU vision of a carbon-neutral economy by 2050 (European Commission, 2018), much stronger policies are thus required for transportation. Otherwise, under current policies, transport emissions might well exceed 1990 levels by 15 percent in 2050 (European Environment Agency, 2016).

Decarbonisation of transport will involve a range of policies. First, to replace the kilometres travelled by road vehicles, public transport, alternative transport modes such as walking and cycling, and more integrated modes of mobility should be promoted. New mobility such as 'mobility-as-a-service' can be enabled by ongoing developments in digital technologies. For instance, smartphone apps can allow information about transportation services from public and private providers to be better combined through a single gateway that creates and manages the trip, for which users can pay via a single account.

New approaches could help overcome a major comparative disadvantage of public transport – the longer door-to-door travel times – which mainly arise from the first and the last mile in the transport chain.

The environmental impact of freight transport could be reduced by promoting a switch from road to rail and maritime, and including the environmental cost of transport in the final purchase price of goods. To unleash the enormous decarbonisation potential of these options, new policies are needed, including economic incentives such as congestion charges, public investment in railways and urban public transport, and new approaches to urban planning and development licencing.

For aviation, modernisation of airport operations and air traffic control can deliver major efficiency gains. It should also be noted that very busy European air routes, such as Berlin to Frankfurt or Paris to Amsterdam, are suitable for international high-speed trains.

A second approach to the decarbonisation of transport is promotion of clean vehicles. The average age of the private car fleet in the EU is 7.5 years. This has been increasing since 2000, and in many EU countries this age even reaches 10 years (European Environment Agency, 2018c). The average car in Europe is, typically, high-emitting. Policies should therefore promote the accelerated substitution of the existing fleet by new, more advanced, low-emitting cars.

From an economist's point of view, the first option would be to internalise fully into fuel prices the external costs of transport emissions, to disincentivise the use of older cars. However, public protests over fuel prices have shown that the political economy of these measures is very complex.

A combination of policies is therefore required, including carrots and sticks, starting from the key EU policy tool in the field: emission standards. In December 2018, the EU reached an agreement to reduce per kilometre carbon dioxide emissions from new cars by 37.5 percent by 2030 compared to 2021 (European Council, 2018).

This represents a positive step, but it not enough to ensure the deep decarbonisation of the sector by 2050. Other tools to phase-out polluting cars could include: i) gradual, long-term increases in fuel taxes that internalise fully external costs (including congestion charges) but give consumers time to adapt; ii) higher registration taxes that deter consumers from buying high-polluting cars; and iii) limitations on high-polluting vehicles accessing metropolitan areas.

To foster this transition and ensure its social acceptability, the following measures could be adopted: i) subsidies that help low-income consumers buy new cars and scrap their old ones; ii) policies that support the deployment of clean public transport (which may be crowded out by car-sharing options); and iii) R&D support for alternative vehicles.

Electric vehicles have emerged as a promising option to decarbonise the energy input into transportation. With smart charging, electric vehicles might also add additional flexibility to the power system, and thus contribute to the further integration of even greater wind and solar energy production.

But other technologies might also contribute to this decarbonisation, including lower-emission combustion vehicles in the short term or hydrogen in the longer term. EU policy should be flexible enough to be able to take advantage, in a cost-effective way, of all the alternatives available.

For long-distance and heavy transport, technological uncertainty is far greater – not to mention maritime and air transport. In these cases, various options could contribute to decarbonisation, including advanced biofuels, green gas and synthetic fuels.

Priority 2: prepare the electricity system for a substantial increase in renewables

In the EU, most of the expansion of renewable energy generation arises from utility-scale projects. Wind is more important in Europe than solar, and for wind the average project size is increasing. The most promising developments in recent years have been the technology and cost breakthroughs related to offshore wind, which have made possible really large-scale developments.

Progress has been made in integrating utility-scale renewables, but it is still an unfinished journey: transmission needs to be expanded both onshore and offshore, more flexibility needs to be added and ultimately a better market design is needed.

Furthermore, the European electricity sector is on the verge of structural change, towards more digitalisation and decentralisation. The last fundamental change in the EU energy industry was the establishment of wholesale markets in the 1990s. That change, together with the entry of new players and new technologies[4], required new common EU rules on efficiency, competition and security. The European electricity transmission industry reorganised accordingly, creating a 'smart grid 1.0'[5] to make all this work.

The ambitious EU vision of a carbon-neutral economy by 2050 calls for new fundamental changes, involving notably the greening of all the supply, activation of all demand-side management solutions, reviewing the stock of appliances, engines and their standards, sharing of all the assets, codes and data. This can only be achieved with

a digitalised and decentralised energy system. Greater decentralisation and digitalisation would foster renewable energy deployment in a more efficient and cost-competitive way.

In this context, decentralisation of the energy sector would happen in various areas and for different reasons. Renewables generation would bring down the size of generating units: a nuclear power plant can have a capacity of 2 gigawatts and coal or natural gas-fired power plants a capacity of several hundred megawatts, but the capacity of an onshore wind turbine averages to 3 megawatts and the capacity of a solar panel amounts to some kilowatts.

A similar transformation would occur on the demand side, where operators would aggregate kilowatt units of consumption to enter the wholesale market. Decentralised generation, aggregated demand and individual storage would take place 'behind the meter,' in other words in a domestic or small-scale context, such as rooftop solar panels generating electricity for domestic use or batteries used to power electric cars. These domestic appliances are thus not covered by traditional energy regulation (Glachant and Rossetto, 2018).

The EU should act to accelerate this convergence between decentralisation and digitalisation. This should primarily happen in the distribution system, which is the place where the numerous distributed actions, behind and beyond the meter, physically interact by combining on a local level consumption, storage and generation.

The distribution system should become an open platform, through which the various decisions of the multiple players can interact in a transparent and flexible manner. Such an open platform would require a common distribution operation code, focusing on connected electricity devices, to allow a more flexible flow of electricity.

Secondly, it would need a framework for common data coding and sharing, offering protection from fragmentation, cyber threats or dominance abuse. A third layer would be the tariffs charged by the distribution platforms, but this

might be left entirely to national legislation, with a safeguard in EU competition law against abuse of dominant position by any distribution platform.

As decentralisation and digitalisation accelerates, each European country would be free to pick the kind of industry arrangement it prefers to deliver the high EU decarbonisation target. The options would be: i) A takeover by the dominant tech companies (such as Google), which would become operators of national distribution platforms; ii) Transformation of the existing grid operators into digital companies; iii) A blossoming of start-ups that would reinvent the energy sector; iv) The growth of distributed solutions such as energy communities.

Whatever choice each member state makes, the EU will need to put in place a pan-European framework that establishes a coherent multi-level architecture for data exchange and power-flow operation. This will enable the proper interaction of transmission and distribution networks, microgrids and communities, smart buildings and the Internet of Things (Schmitt, 2019).

Priority 3: strengthen the EU's comparative advantage in low-carbon technologies

The Paris Agreement should accelerate the global transition to a low-carbon economy. Global investment in low-carbon technology sectors – driven by investment in renewable electricity generation – has increased substantially and this trend is likely to continue.

The strengthening of the EU's comparative advantage in low-carbon technologies would provide future job and growth opportunities. To achieve the EU's energy and climate policy targets, a wide range of low-carbon innovation is needed in different sectors including electricity, heat and cooling, transportation (see priority 1), the built environment and energy-intensive industrial sectors including iron and steel, metals, cement, pulp and paper and chemicals.

Compared to the rest of the world, the EU is highly specialized in research and innovation in renewables and energy efficiency in buildings, and has increased its specialisation in renewable fuels, bioenergy, batteries and e-mobility (Zachmann and Kalcik, 2018).

A country's competitive advantage in a particular sector often coincides with an R&D specialisation in the same area. For example, countries that specialise in patenting in a certain low-carbon sector are also specialised in exporting in this sector. A number of factors can drive such R&D specialisation, including policy factors such as 'technology-push' measures including innovation subsidies, and 'demand-pull' measures including public procurement. Factors such as path dependencies also play an important role for both clean and dirty technologies.

Past developments are less important for immature technologies and there is therefore an opportunity to shape the comparative advantage of many early stage low-carbon technologies. The major benefits associated with low-carbon innovation justify support throughout the innovation process from research to development and to deployment.

Public funding is particularly important in early stages of the innovation cycle. Public investment in low-carbon research and innovation and private investment (which accounts for about 80 percent of total expenditure) increased substantially in the last decade. This led to an overall increase in low-carbon technology patents (International Renewable Energy Agency, 2019).

However, there are substantial differences between the sectors: private investment in the EU focuses mainly on batteries and e-mobility, renewable energy technologies and energy efficiency in industry. Renewable fuels and integrated and flexible energy systems attract larger shares of public investment. There is practically no EU research and innovation investment in energy efficiency in buildings, in carbon capture and storage or in the

decarbonisation of industrial processes, even though these are potential game changers necessary for deep decarbonisation in the coming decades and thus should be R&I priorities.

It should be noted that it is mainly applied research done outside universities and national laboratories that is responsible for technology development in energy efficiency. Energy efficiency patents are positively associated with other non-energy innovations, and so general policies to promote innovation will also foster energy conservation inventions (Rexhäuser and Löschel, 2015).

Other examples for strategic R&D are potential breakthroughs in electrochemical or alternative storage technologies, the hydrogen economy or carbon capture and utilisation. A smart low-carbon transformation with low regulatory uncertainty and ambitious goals would increase the EU's competitiveness in the global marketplace.

As well as basic research into immature technologies, learning-by-doing of near-commercial technologies can substantially drive down technology costs. Clear and stable market signals such as a minimum price on carbon that increases over time in all sectors of the EU economy will accelerate the deployment of these technologies.

Renewable support schemes that focus on market integration of renewable energy generation would foster more flexible energy systems. Standards are essential for developing smart and flexible grid systems in the EU.

Priority 4: foster the decarbonisation of industry and buildings

Industry currently produces 25 percent of Europe's GHG emissions (European Environment Agency, 2018b), and is subject to the EU emissions trading system (ETS) and thus exposed to a carbon price. This, together with the fact that industry is generally considered the most energy-efficient sector, has led to no particular policies being proposed beyond carbon trading for the decarbonisation of industry.

However, there are four elements that would justify a more active stance: i) Industry does not feel the full impact of the carbon price because of the protective measures devised by the EU to prevent loss of competitiveness. Many industrial sectors still receive free carbon allowances; ii) The EU would like to see growth in the manufacturing sector; iii) When it comes to full decarbonisation, industry faces many more technical challenges than other sectors, in particular in relation to process emissions (that is, emissions not associated with energy use); iv) The circular economy will also induce a significant move in the EU industrial sector towards more recycling, which might be used also as a lever for decarbonisation.

Therefore, stronger policies are needed to promote the long-term decarbonisation of industry in Europe. Priority should be given to the following: i) Enhance recycling of materials, through the extension of the ecodesign directive (2009/125/ EC), which should include stronger requirements for products to be more durable, repairable and easily recyclable; and by adding to producers' responsibility for the management of their end-of-life products; ii) Create markets for climate-friendly options: guaranteeing carbon prices for selected industrial processes; increasing green public procurement (using shadow carbon prices when evaluating offers, or setting limits on carbon intensity), harmonising labelling; or setting embedded carbon consumption taxes; iii) Create investment incentives while ensuring carbon leakage protection by spreading carbon pricing globally, adjusting carbon prices at the border and abandoning free allowance allocation, and applying consumption charges.

The building sector is generally regarded as difficult to decarbonise, notably because energy efficiency ambitions have proved challenging to achieve (European Commission, 2017). In this sector, similarly to transport, a robust energy efficiency effort will be the foundation of decarbonisation, with efforts led by the energy performance of buildings directive (2010/31/EU). For new buildings, Europe already has strong efficiency standards and performance is improving.

Unfortunately, because of the slow turnover of the building stock, this is unlikely to be sufficient (Buildings Performance Institute Europe, 2018). The refurbishment rate of existing buildings needs to be scaled up by at least a factor of two and the average refurbishment needs to deliver deeper energy demand reductions. This will require a combination of efficiency standards, targeted financing policies and cooperation between central and municipal governments.

Key actions for the new EU commissioners and lawmakers

The members of the European Parliament and European Commission who will start their mandates in 2019 have the historical task of unleashing the deeper transformation of the EU energy system in line with the Paris Agreement, while seizing the economic and industrial opportunities of this transformation and developing an EU approach to energy competitiveness and security. To summarise, we propose four key actions to move forward.

Key measures to decarbonise the transport sector

Replace the kilometres travelled by road vehicles by putting in place economic incentives such as congestion charges, public infrastructure investment in railways and urban public transport, while also refocusing urban planning and development licencing on sustainability. Promote the use of clean vehicles through a combination of stricter emissions standards and gradual increases in road fuel taxes to internalise fully the environmental costs of road transport.

This notably implies increasing fuel taxes and car registration taxes for polluting vehicles. Other externalities including congestion and accidents also need to be addressed. To ensure social acceptability, targeted subsidies should be put in place to support low-income consumers in the transition. The EU and its members must work more on fairness and social acceptance in an accelerated transition, and should carefully study the positive results coming from field experiments and best practices, such the Copenhagen or Amsterdam smart city plans.

Key measures to prepare the electricity system for a substantial increase in renewables
Accelerate the convergence between decentralisation and digitalisation, notably by transforming the energy distribution grid into an open platform, via which multiple players (for example, domestic renewable energy producers, community renewable energy generators or storage provided by electric vehicles) could interact in a transparent and flexible manner. This can be started by defining a common distribution operation code and by creating a common data coding and sharing framework.

The next step would be to create a pan-EU framework establishing a coherent multi-level architecture for data exchange and power-flow operation to enable the proper interaction of transmission and distribution networks, microgrids and smart buildings. This will help to further integrate utility-scale renewables, by expanding transmission both onshore and offshore, and by enhancing flexibility. The EU electricity market design should also be reformed, to make it fully supportive of a high renewables system.

Key measures to strengthen the EU's comparative advantage in low-carbon technologies
Target public sector research and innovation funding at the early stages of the innovation cycle, notably in areas in which the EU has the potential to maintain or develop a comparative advantage – such as in renewables, energy efficiency in buildings, bioenergy, batteries and e-gas and e-liquids. Develop a predictable market environment for new low-carbon technologies to foster the emergence of a corresponding industrial ecosystem.

Key measures to foster decarbonisation in industry and buildings
In industry, promote the recycling of materials, also by extending producers' responsibility for the management of their end-of-life products. Create lead markets for climate-friendly options by guaranteeing carbon prices for selected industrial processes, increasing green public procurement and harmonising labelling. In buildings, make

robust energy efficiency efforts, notably through a combination of efficiency standards, targeted financing policies and cooperation between central and municipal governments. ■

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Endnotes

1. Over the last decade, renewables have become substantially more important in the EU energy mix. In 2017, the share of energy from renewable sources in EU gross final energy consumption reached 17.5 percent, up from 8.5 percent in 2004 (Eurostat, 2019).

2. See Fredriksson et al (2018) for an in-depth discussion of the case of electric vehicles.

3. As illustrated by France's 'Gilets jaunes' movement, which kicked-off when the government announced its intention to rise fuel prices for environmental reasons, and then rapidly targeted overall high cost of living, claiming that a disproportionate burden of the government's tax reforms were falling on the middle classes.

4. For example, combined cycle gas turbine plants.

5. Smart grids and smart meters '1.0', for instance, allow distribution companies and energy suppliers to reduce the cost of metering consumption and to detect electricity thefts better. They do not create a universal, interconnected space of operation, and – more importantly – they do not offer radically new services or personalised options to consumers.

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Global trade protection and the role of NTBs

Luisa Kinzius, Alexander Sandkamp and Erdal Yalcin demonstrate that trade protection in the form of non-tariff barriers started many years ago

Since the inauguration of Donald Trump as the president of the US, the world has observed an unprecedented rise in border tariffs. This column shows that trade protection had in fact started much earlier, in the form of non-tariff barriers. An empirical analysis reveals that the average trade dampening effect of such barriers is comparable to that of trade defence instruments such as anti-dumping duties. However, this negative effect can be mitigated by free trade agreements.

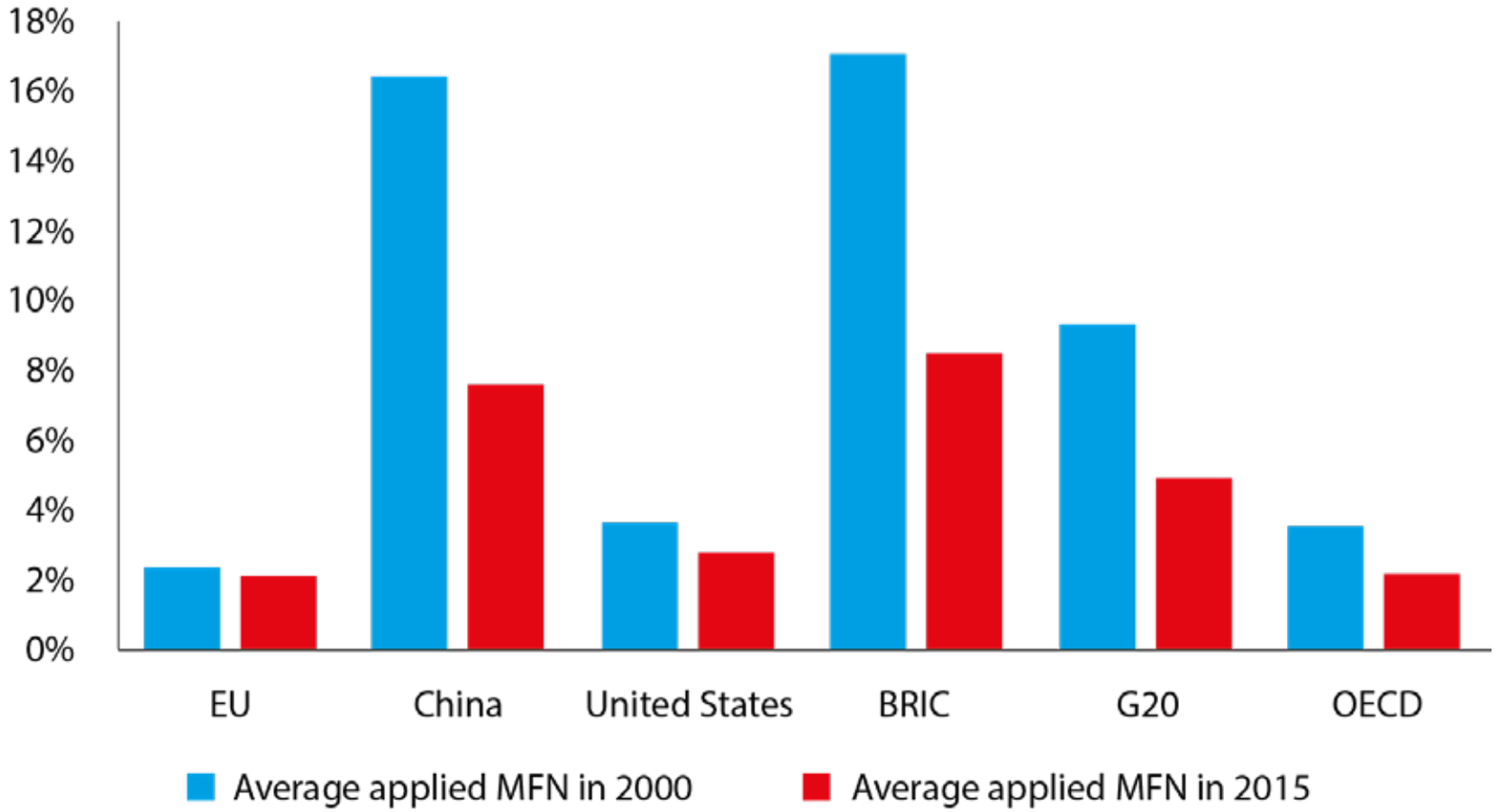
Over the past three years there has been a steady increase in international anti-trade rhetoric around the world, resulting in a real trade conflict between leading economies, including the US, China, and the EU (Bown 2017, Bown and Zhang, 2019).

The threat to free trade is, however, not new. Following the dramatic collapse of international trade in the wake of the financial crisis in 2007-8, there was a common fear that governments may respond to domestic economic challenges by increasing customs duties (tariffs) and other trade barriers to protect their economies. Such an uncoordinated restrictive trade policy might possibly have satisfied domestic interests in the short run as a symbolic reaction. At the same time, it would have resulted in an even stronger slowdown in economic growth.

Indeed, one big difference in how countries reacted to the global financial crisis of the 21st century in contrast to the great recession of the last century has been a stronger cooperation in international trade policies under the shelter of the WTO that has successfully prohibited a surge in border tariffs.

Figure 1 illustrates the successful prohibition of tariffs across important countries and country groups. Average tariffs in all considered countries and regions have been declining. The extent of average tariff cuts varies across regions, partly due to the large differences in the level of customs duties in 2000.

Figure 1. Average tariff developments across the world



Source: WITS Database.
Note: The figure presents average applied most favoured nation tariffs for the EU, China, the US, BRIC (Brazil, Russia, India, China), G20 countries and OECD member countries for the years 2000 and 2015.

Advanced economies tend to have significantly lower average tariffs than emerging countries. These figures support the conclusion that the WTO successfully managed to maintain a trade liberalization process after the latest financial crises in 2009 and thereby supported the recovery of the world economy.

The new face of trade protectionism in the 21st century

The above assessment of global trade protection neglects other important trade policy instruments that have been increasingly used to protect domestic markets from international competition. In our latest empirical analysis (Kinzius *et al*. 2019), we illustrate the increasing relevance of so-called non-tariff barriers (NTBs) based on the Global Trade Alert database (Evenett and Fritz 2018) covering the years 2009 to 2014.

NTBs are not clearly defined and incorporate a variety of measures, including import controls, state aid and subsidies, as well as public procurement and localisation policies

NTBs are not clearly defined and incorporate a variety of measures, including import controls, state aid and subsidies, as well as public procurement and localisation policies. Unlike tariffs, which are transparent and accessible via each countries' customs authority, NTBs are often much more hidden and therefore hard to assess.

The GTA database offers a systematic identification and provision of NTBs for a large number of countries. The database collects protectionist policies that were implemented worldwide since 2009. It covers an outstanding range of NTBs, which makes a detailed and up-to-date assessment of implemented NTBs possible.

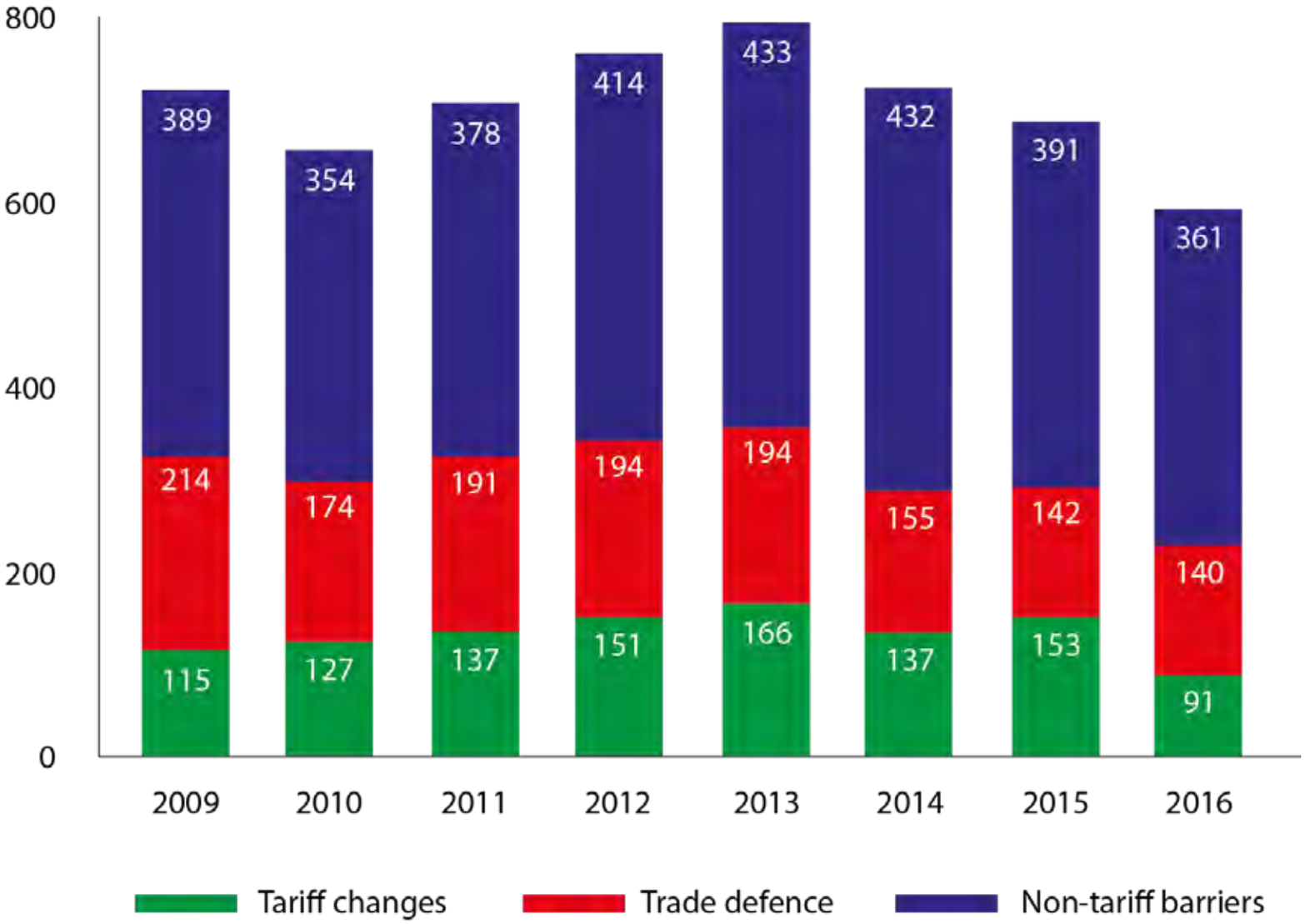
Figure 2 illustrates that over the past years tariffs were not the major trade policy tool to protect domestic economies. Instead, NTBs have been most often applied. Since 2009, only 20% of all implemented protectionist interventions could be attributed to an increase in tariffs.

In contrast, NTBs accounted for on average 55% of the implemented protectionist interventions. The use of NTBs increased steadily relative to trade defence measures which are normally used for a restricted time, for example in the form of anti-dumping duties.

Moreover, while in 2010 54% of all protectionist interventions were NTBs, their usage increased to 61% in 2016. Trade defence measures observed a slight backdrop. In 2009, 30% of all applied protectionist policies could still be attributed to either anti-dumping duties, safeguards or countervailing duties.

These measures dropped to only 21% in 2015, while increasing slightly again in 2016 – potentially driven by the increasing amount of anti-dumping disputes in industries with over-capacities like the steel sector.

Figure 2. Number of newly implemented protectionist interventions by type, 2009-2017



Source: GTA.
Note: Numbers in the bars represent a rise in protection by specific policies: we count the change in tariff increases (tariff changes), newly introduced anti-dumping, anti-subsidy and safeguard measures (trade defense), and newly introduced non-tariff barriers (non-tariff barriers) eg. new national regulations.

The usage of NTBs across the world points towards industrial and emerging economies as the main users of NTBs. Overall, the above numbers illustrate the increasing utilization of NTBs as trade policy instruments over the past years across the world. However, it remains unclear in how far such new measure influence international trade.

Quantification of NTB effects on trade

We estimate a structural gravity equation with tariffs pooled across different products based on Yotov *et al*. (2016). To identify the effect of NTBs on trade, we exploit the fact that for each implemented protectionist measure the GTA database has information about the detailed type of policy measure, trading partners that are most likely affected, products that are affected (at the CPC product level) and the year of implementation.

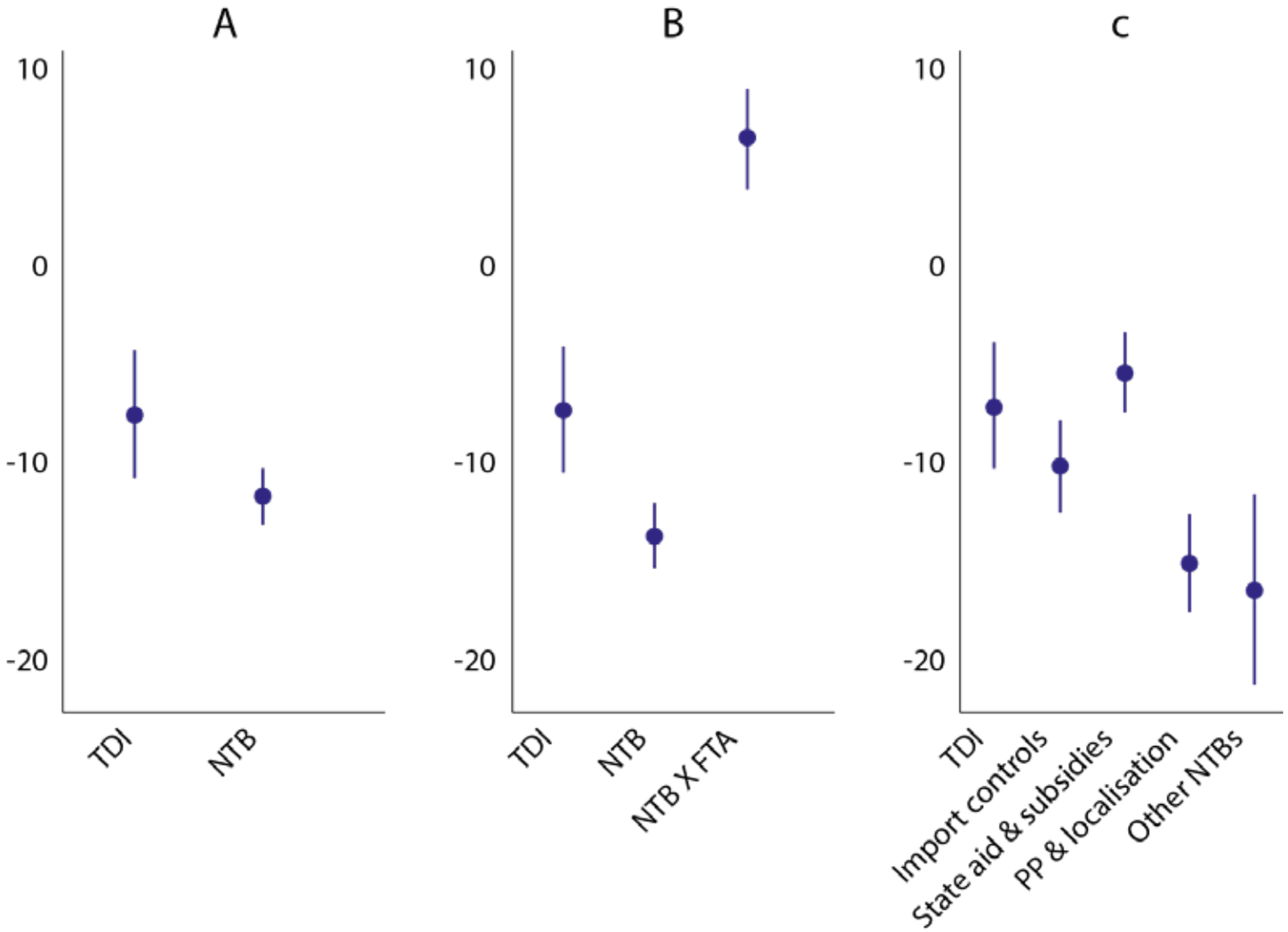
We use this information to construct dummies for different types of protectionist policies. In the following, we present our three main specifications. The results are illustrated graphically in Figure 3.

In the baseline specification, we distinguish two groups of protectionist policies: trade defence measures and NTBs (Panel A of Figure 3). Imports decrease on average by 11.8% following the implementation of at least one NTB. This effect is significant at the 1% level. TDIs have a similarly large effect on bilateral trade flows.

On average, imports of a particular product from a targeted country fall by 7.6% if at least one TDI is implemented against this product. The coefficients are significantly different from each other (5%), indicating that NTBs have on average a larger trade dampening effect than traditional TDIs.

It is reasonable to assume that NTBs have a smaller impact on imports from countries that have an FTA with the importer. For example, common sanitary and phytosanitary measures (SPS) of two countries that have an FTA would mean that such NTBs only affect countries outside the FTA. To investigate whether common FTA membership

Figure 3. Gravity estimation results using OLS dummies of NTBs



Source: Kinzius et al. (2019).
*Note: All regressions include exporter–importer-product, importer-product-time, exporter-product-time and exporter–importer-time fixed effects. Standard errors are clustered at exporter–importer-product level. Tariff rates are controlled for but not reported. Variables for NTBs, TDIs and tariffs are lagged by 1 year. Except for tariffs all explanatory variables enter the regression as dummies. Estimates are transformed so that the y-axis shows the percentage change in bilateral trade in a particular sector following the imposition of at least one TDI/NTB. ***p < 0.01, **p < 0.05, * p < 0.1.*

reduces the trade dampening effect of NTBs, the NTB dummy is interacted with a dummy identifying common FTA membership of the importer and the exporter.

The results of the second specification are illustrated in Panel B of Figure 3. The NTB coefficient identifies the effect of NTBs on imports from non-FTA exporters while the coefficient of the interaction term NTBxFTA identifies the difference in the trade effect of NTBs between non-FTA and FTA members. It is positive and statistically significant, indicating that imports from FTA members fall by less following an implementation of an NTB than imports from non-FTA countries.

In the third specification, we split NTBs into four subgroups: (1) import controls; (2) state aid and subsidy measures; (3) public procurement and localisation requirements; and (4) other NTBs, which include SPS, technical barriers to trade (TBT) and capital controls. As illustrated in Panel C of Figure 3, estimated coefficients are significantly negative for all four types of NTBs.

Beyond the above results, we also find that an individual NTB does not reduce trade as much as a traditional TDI. However, taking into account the number of implemented NTBs, their effect on trade is comparable to that of traditional TDIs such as anti-dumping, countervailing duties or safeguards.

Import controls significantly reduce imports across all specifications. Specifically, the implementation of one additional import control reduces trade by 2–8%, so that imports fall on average by 2–11% if at least one import control is implemented. Public procurement and localization policies have an even larger average effect (8–16%), although evidence is less robust when it comes to marginal effects of one additional such policy. State aid and subsidies as well as other NTBs (SPS, TBT and capital controls) also reduce imports by up to 6 and 17% respectively.

Conclusion

Overall, the empirical analysis demonstrates the importance of exploiting new data on NTBs to reveal the significant protectionist impact of non-standard trade policies. For the period from 2009 to 2014, our baseline results show that implementation of at least one NTBs by a country reduce imports of affected products from targeted exporters by 4–12%, depending on the estimation method used.

This negative effect can, however, be mitigated through FTAs. The results imply that the WTO should follow recent developments in bilateral trade agreements by accounting for NTB rules. More precisely, it should shift its focus towards multilateral agreements that aim at limiting the use of NTBs to avoid the increase in hidden protectionism that might otherwise result in lower levels of trade. ■

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- 24/7 emergency response
- Out of hours registrations
- Transparent charging structure with a single annual fee
- Network of surveyors in key global locations
- Appointed representatives in Greece, Singapore and Japan
- First place ranking on the 2018 Paris MoU White List
- Strong PSC Performance – Tokyo MoU White List & USCG Qualship 21
- Awarded 'Best Shipping Registry 2019' by World Commerce Review

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For the Federal Reserve these challenges flow from our mandate to foster maximum employment and price stability. From this perspective, our economy is now in a favourable place, and I will describe how we are working to sustain these conditions in the face of significant risks we have been monitoring.

The current US expansion has entered its 11th year and is now the longest on record[1]. The unemployment rate has fallen steadily throughout the expansion and has been near half-century lows since early 2018. But that rate alone does not fully capture the benefits of this historically strong job market. Labour force participation by people in their prime working years has been rising. While unemployment for minorities generally remains higher than for the workforce as a whole, the rate for African Americans, at 6 percent, is the lowest since the government began tracking it in 1972.

For the past few years, wages have been increasing the most for people at the lower end of the wage scale. People who live and work in low- and middle-income communities tell us that this job market is the best anyone can recall. We increasingly hear reports that employers are training workers who lack required skills, adapting jobs to the needs of employees with family responsibilities, and offering second chances to people who need one.

Inflation has been surprisingly stable during the expansion: not falling much when the economy was weak and not rising much as the expansion gained strength. Inflation ran close to our symmetric 2 percent objective for most of last year but has been running somewhat below 2 percent this year.

Thus, after a decade of progress toward maximum employment and price stability, the economy is close to both goals. Our challenge now is to do what monetary policy can do to sustain the expansion so that the benefits of the strong jobs market extend to more of those still left behind, and so that inflation is centred firmly around 2 percent.

I will explore what history tells us about sustaining long, steady expansions. A good place to start is with the passage of the Employment Act of 1946, which stated that it is the *"continuing policy and responsibility of the Federal Government ... to promote maximum employment, production, and purchasing power."*[2]

Some version of these goals has been in place ever since. I will divide the history since World War II into three eras organised around some well-known 'Greats'. The first era comprises the postwar years through the Great Inflation. The second era brought the Great Moderation but ended in the Great Recession. The third era is still under way, and time will tell what 'Greats' may emerge.

As we look back over the decade since the end of the financial crisis, we can again see fundamental economic changes that call for a reassessment of our policy framework

Each era presents a key question for the Fed and for society more generally. The first era raises the question whether a central bank can resist the temptations that led to the Great Inflation. The second era raises the question whether long expansions supported by better monetary policy inevitably lead to destabilising financial excesses like those seen in the Great Moderation. The third era confronts us with the question of how best to promote sustained prosperity in a world of slow global growth, low inflation, and low interest rates. Near the end of my remarks, I will discuss the current context, and the ways these questions are shaping policy.

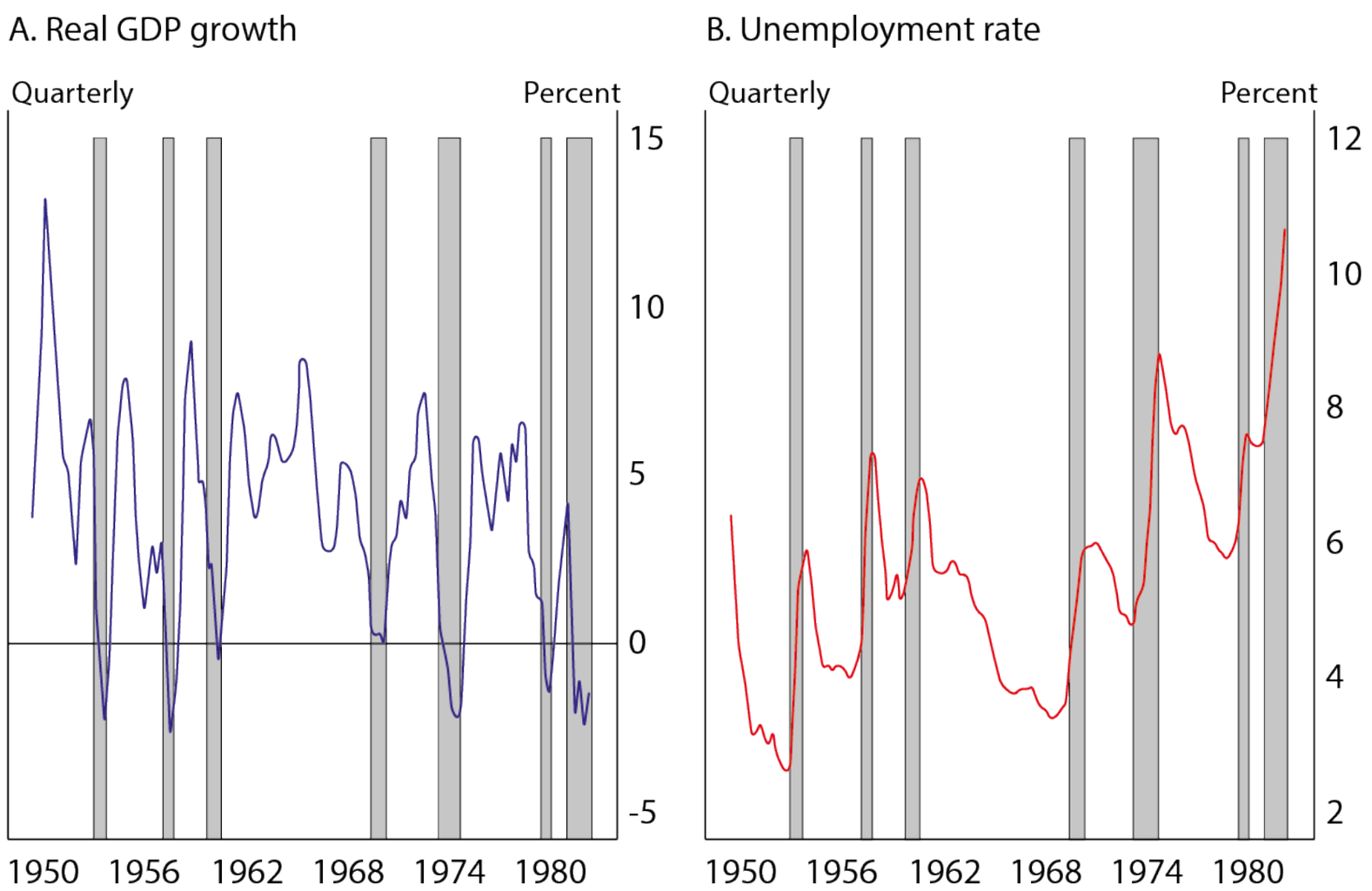
Era I, 1950–1982: policy breeds macroeconomic instability and the Great Inflation

The late 1940s were a period of adjustment to a peacetime economy. As the 1940s turned to the 1950s, the state of knowledge about how best to promote macroeconomic stability was limited. The 1950s and early 1960s saw the economy oscillating sharply between recession and growth above 6 percent (figure 1, panel A). Three expansions and contractions came in quick succession. With the benefit of hindsight, the lack of stability is generally attributed to 'stop and go' stabilisation policy, as monetary and fiscal authorities grappled with how best to modulate the use of their blunt but powerful tools[3].

Beginning in the mid-1960s, 'stop and go' policy gave way to 'too much go and not enough stop'—not enough, that is, to quell rising inflation pressures. Both inflation and inflation expectations ratcheted upward through four expansions until the Fed, under Chairman Paul Volcker, engineered a definitive stop in the early 1980s (figure 1, panel C). Each of the expansions in the Great Inflation period ended with monetary policy tightening in response to rising inflation.

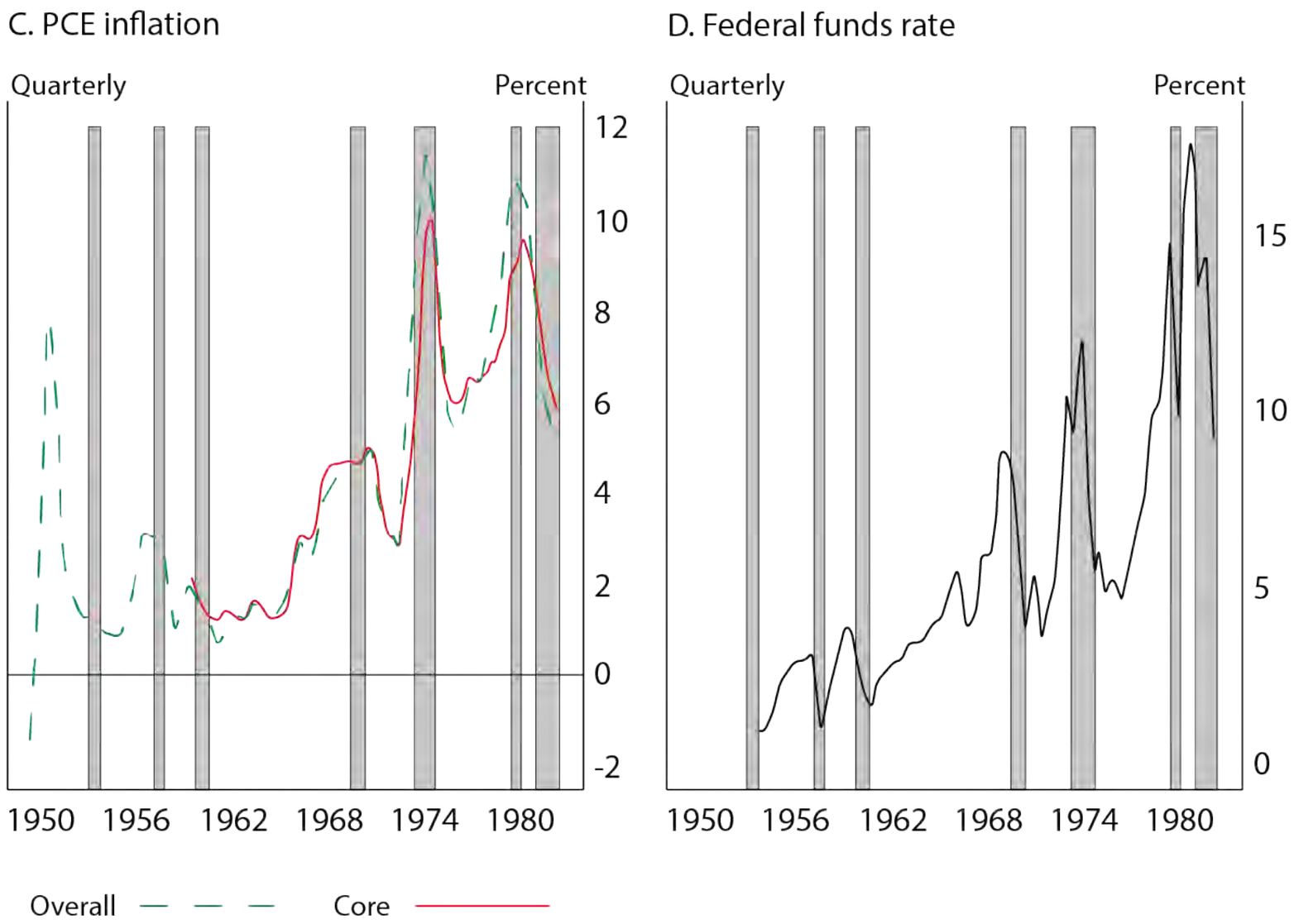
Policymakers came out of the Great Inflation era with a clear understanding that it was essential to anchor inflation expectations at some low level. But many believed that central bankers would find it difficult to ignore the temptation of short-term employment gains at the cost of higher inflation down the road[4].

Figure 1. Era 1: 1950-82



Note: Unemployment and federal funds data are quarterly averages; overall personal consumption expenditures (PCE) are the four–quarter change in the PCE price index; core PCE is the four–quarter change in the PCE price index less food and energy; real gross domestic product (GDP) growth is the four–quarter change in the level of real GDP; federal funds data start in July 1954; core PCE data start in January 1960; all data extend through 1982:Q4. Shaded bars indicate periods of business recession as defined by the National Bureau of Economic Research: 1953:Q2-1954:Q2, 1957:Q3-1958:Q2, 1960:Q2-1961:Q1, 1969:Q4-1970:Q4, 1973:Q4-1975:Q1, 1980:Q1-1980:Q3, and 1981:Q3-1982:Q4.

Figure 1. Era 1: 1950-82 continued



Source: For overall PCE, core PCE, and real GDP growth, the Bureau of Economic Analysis; for the unemployment rate, Bureau of Labor Statistics; for the federal funds rate, Board of Governors of the Federal Reserve System; all series retrieved from the Federal Reserve Bank of St. Louis, FRED.

Era II, 1983 through 2009: the Great Moderation and Great Recession

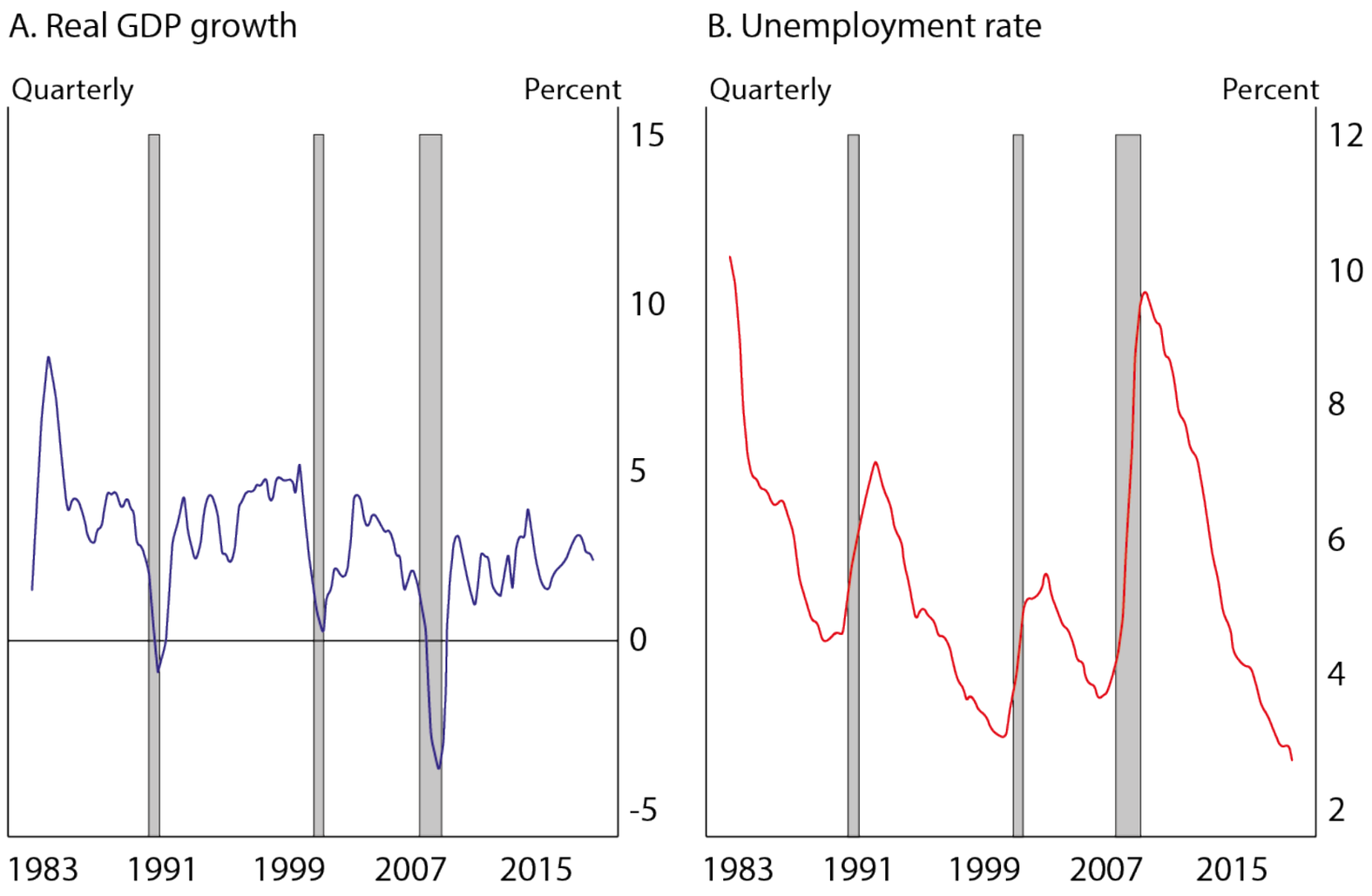
As the second era began, inflation was falling, and it continued to fall for about a decade (figure 2, panel C). In 1993, core inflation, which omits the volatile food and energy components, first fell below 2.5 percent, and has since remained in the narrow range of 0.9 percent to 2.5 percent[5]. Greater success on price stability came with greater success on employment. Expansions in this era were longer and more stable than before (figure 2, panel A). The era saw two of the three longest US expansions up to that point in history[6].

Anchored inflation expectations helped make this win-win outcome possible, by giving the Fed latitude to support employment when necessary without destabilising inflation. The Fed was cutting, not raising, rates in the months prior to the end of the first two expansions in this era, and the ensuing recessions were mild by historical standards. And twice during the long expansion of the 1990s, the Federal Open Market Committee (FOMC) eased policy in response to threats to growth.

In 1995, responding to evidence of slowing in the United States and abroad, the FOMC reduced the federal funds rate over a few months. In 1998, the Russian debt default and the related collapse of the hedge fund Long-Term Capital Management rocked financial markets that were already fragile from the Asian financial crisis. Given the risks posed to the US economy, the FOMC again lowered the federal funds rate over a period of months until events quieted. The 10-year expansion weathered both events with no discernible inflation cost[7].

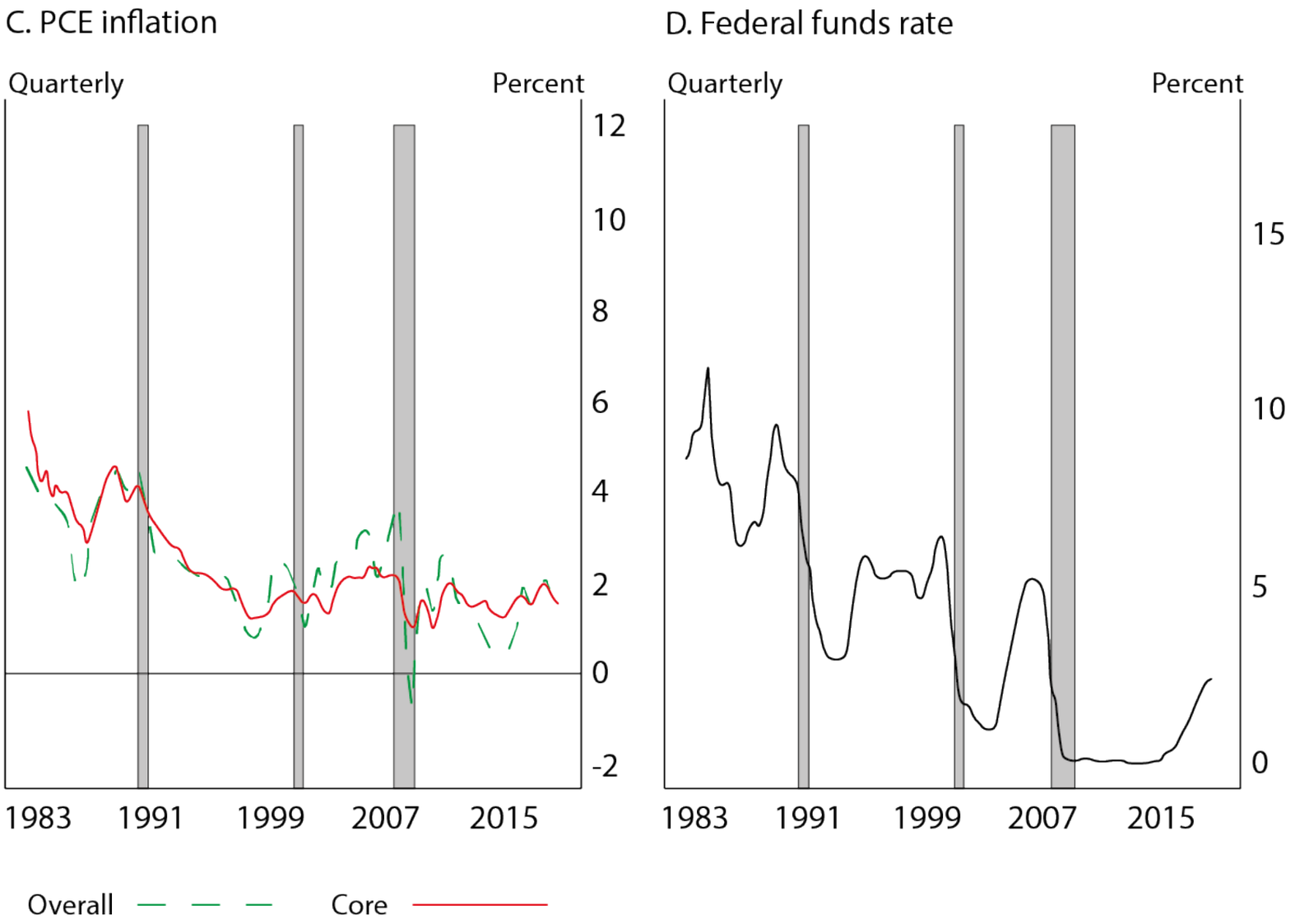
By the turn of the century, it was beginning to look like financial excesses and global events would pose the main threats to stability in this new era rather than overheating and rising inflation. The collapse of the tech stock bubble in 2000 and the September 11, 2001, terrorist attacks played key roles in precipitating a slowdown that turned into a recession[8].

Figure 2. Eras 2 and 3: 1983-2009 and 2010-present



Note: Unemployment and federal funds data are quarterly averages; overall personal consumption expenditures (PCE) are the four-quarter change in the PCE price index; core PCE is the four-quarter change in the PCE price index less food and energy; real gross domestic product (GDP) growth is the four-quarter change in the level of real GDP; all data extend through 2019:Q2. Shaded bars indicate periods of business recession as defined by the National Bureau of Economic Research: 1990:Q3-1991:Q1, 2001:Q1-2001:Q4, and 2007:Q4-2009:Q2.

Figure 2. Eras 2 and 3: 1983-2009 and 2010-present continued



Source: For overall PCE, core PCE, and real GDP growth, the U.S. Bureau of Economic Analysis; for the unemployment rate, Bureau of Labor Statistics; for the federal funds rate, Board of Governors of the Federal Reserve System; all series retrieved from the Federal Reserve Bank of St. Louis, FRED.

And the next expansion, as we are all painfully aware, ended with the collapse of a housing bubble and the Global Financial Crisis. Thus, this second era provided good reason for optimism about the Fed's ability to deliver stable inflation, but also raised a question about whether long expansions inevitably lead to destabilising financial excesses.

Era III, 2010 and after: monetary policy and the emerging new normal

The third era began in 2010 as the recovery from the Great Recession was taking hold. My focus in discussing this era will be on a 'new normal' that is becoming apparent in the wake of the crisis. I will fast-forward past the early years of the expansion and pick up the story in December 2015[9].

The unemployment rate had fallen from a peak of 10 percent to 5 percent, roughly equal to the median FOMC participant's estimate of the natural rate of unemployment at the time. At this point, the Committee decided that it was prudent to begin gradually raising the federal funds rate based on the closely monitored premise that the increasingly healthy economy called for more-normal interest rates.

The premise was generally borne out: growth from the end of 2015 to the end of 2018 averaged 2.5 percent, a bit above the 2.2 percent rate over the previous five years (figure 2, panel A). The unemployment rate fell below 4 percent, and inflation moved up and remained close to our 2 percent objective through much of 2018 (figure 2, panels B and C).

That brings us to 2019. Before turning to issues occupying centre stage at present, I want to address a long-running issue that I discussed at Jackson Hole last year: tracking the 'stars' that serve as guideposts for monetary policy[10]. These include u*, the natural rate of unemployment, and r*, the neutral real rate of interest. Unlike celestial stars,

these stars move unpredictably and cannot be directly observed. We must judge their locations as best we can based on incoming data and then add an element of risk management to be able to use them as guides.

Since 2012, declining unemployment has had surprisingly little effect on inflation, prompting a steady decline in estimates of u* (figure 3)[11]. Standard estimates of r* have declined between 2 and 3 percentage points over the past two decades. Some argue that the effective decline is even larger[12].

Incorporating a lower value of u* into policy-making does not require a significant change in our approach. The significant fall in r*, however, may demand more fundamental change. A lower r* combined with low inflation means that interest rates will run, on average, significantly closer to their effective lower bound.

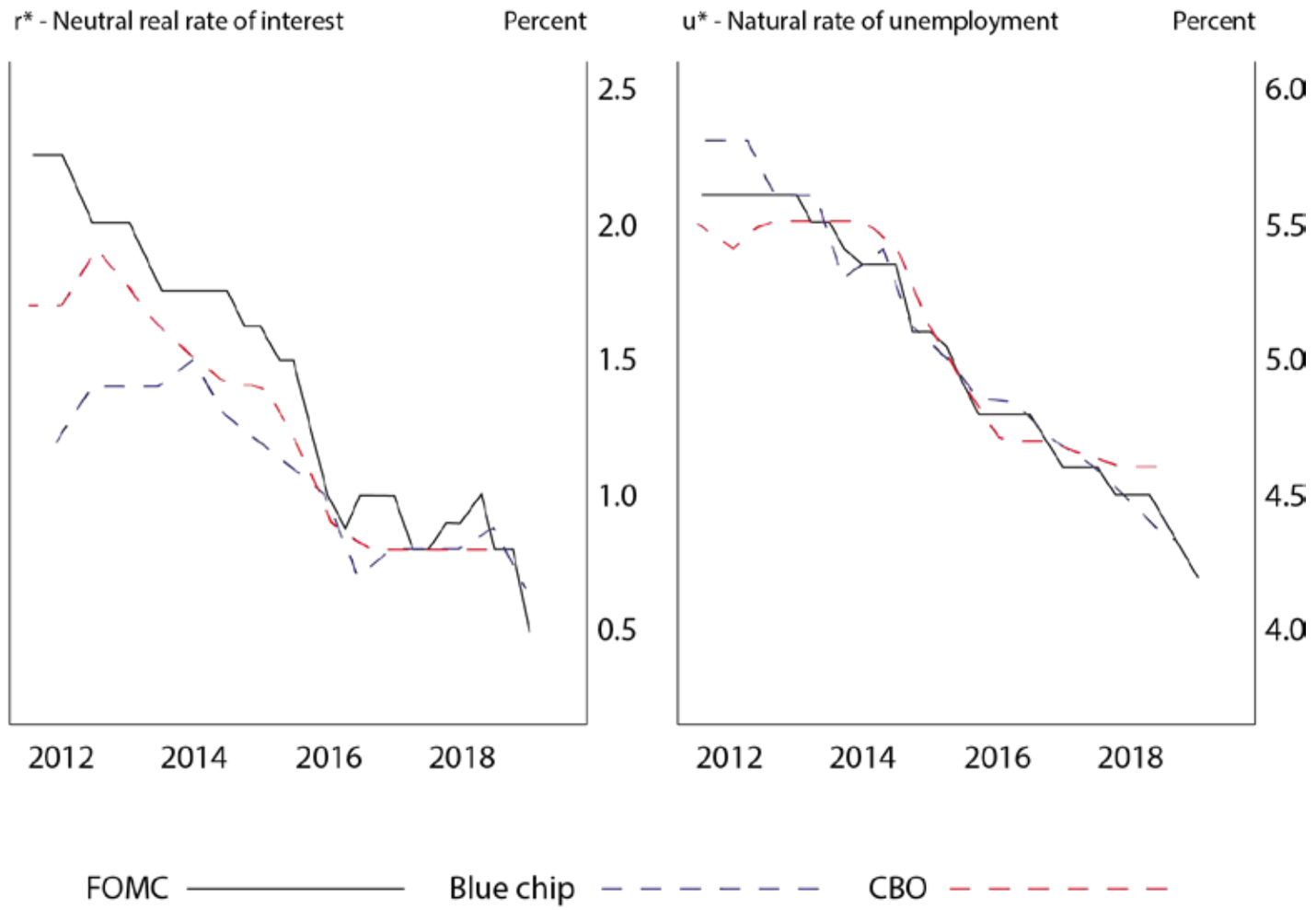
The key question raised by this era, then, is how we can best support maximum employment and price stability in a world with a low neutral interest rate.

Current policy and the three key questions

Let me turn now to the current implications for monetary policy of the questions raised by these three eras. The first era raised the question of whether the Fed can avoid excessive inflation. Inflation has averaged less than 2 percent over the past 25 years, and low inflation has been the main concern for the past decade. Low inflation seems to be the problem of this era, not high inflation. Nonetheless, in the unlikely event that signs of too-high inflation return, we have proven tools to address such a situation.

The second era's question—whether long expansions inevitably breed financial excesses—is a challenging and timely one. Hyman Minsky long argued that, as an expansion continues and memories of the previous downturn

Figure 3. Real-time estimates of r* and u*



Note: The Federal Open Market Committee (FOMC) data are quarterly, extend through June 2019, and are projections of longer-term normal. The Blue Chip data are biannual, extend through June 2019, and are projections for 6 to 10 years in the future. The Congressional Budget Office (CBO) data are biannual and extend through January 2019. For the left panel, the projections are for 10 years in the future; the right panel shows the natural rate projection for the current quarter at the time of the projection. The neutral real interest rate is the 3-month Treasury bill rate projection (CBO) or the federal funds rate projection (FOMC and Blue Chip) minus the source's inflation projection.
Source: For FOMC, Summary of Economic Projections, available on the Board's website at https://www.federalreserve.gov/monetarypolicy/fomccalendars.htm; for Blue Chip, Wolters Kluwer, Blue Chip Economic Indicators and Blue Chip Financial Forecasts; for CBO, Congressional Budget Office (The Budget and Economic Outlook) and Federal Reserve Bank of St. Louis (ALFRED).

fade, financial risk management deteriorates and risks are increasingly underappreciated[13]. This observation has spurred much discussion.

At the end of the day, we cannot prevent people from finding ways to take excessive financial risks. But we can work to make sure that they bear the costs of their decisions, and that the financial system as a whole continues to function effectively. Since the crisis, Congress, the Fed, and other regulatory authorities here and around the world have taken substantial steps to achieve these goals. Banks and other key institutions have significantly more capital and more stable funding than before the crisis.

We comprehensively review financial stability every quarter and release our assessments twice a year to highlight areas of concern and allow oversight of our efforts. We have not seen unsustainable borrowing, financial booms, or other excesses of the sort that occurred at times during the Great Moderation, and I continue to judge overall financial stability risks to be moderate. But we remain vigilant.

That leaves the third question of how, in this low r* world, the Fed can best support the economy. A low neutral interest rate presents both near-term and longer-term challenges. I will begin with the current context. Because today's setting is both challenging and unique in many ways, it may be useful to lay out some general principles for assessing and implementing appropriate policy and to describe how we have been applying those principles.

Through the FOMC's setting of the federal funds rate target range and our communications about the likely path forward for policy and the economy, we seek to influence broader financial conditions to promote maximum employment and price stability. In forming judgments about the appropriate stance of policy, the Committee digests a broad range of data and other information to assess the current state of the economy, the most likely outlook for the future, and meaningful risks to that outlook.

Because the most important effects of monetary policy are felt with uncertain lags of a year or more, the Committee must attempt to look through what may be passing developments and focus on things that seem likely to affect the outlook over time or that pose a material risk of doing so. Risk management enters our decision-making because of both the uncertainty about the effects of recent developments and the uncertainty we face regarding structural aspects of the economy, including the natural rate of unemployment and the neutral rate of interest.

It will at times be appropriate for us to tilt policy one way or the other because of prominent risks. Finally, we have a responsibility to explain what we are doing and why we are doing it so the American people and their elected representatives in Congress can provide oversight and hold us accountable.

We have much experience in addressing typical macroeconomic developments under this framework. But fitting trade policy uncertainty into this framework is a new challenge. Setting trade policy is the business of Congress and the Administration, not that of the Fed. Our assignment is to use monetary policy to foster our statutory goals.

In principle, anything that affects the outlook for employment and inflation could also affect the appropriate stance of monetary policy, and that could include uncertainty about trade policy. There are, however, no recent precedents to guide any policy response to the current situation.

Moreover, while monetary policy is a powerful tool that works to support consumer spending, business investment, and public confidence, it cannot provide a settled rulebook for international trade. We can, however, try to look through what may be passing events, focus on how trade developments are affecting the outlook, and adjust policy to promote our objectives.

This approach is illustrated by the way incoming data have shaped the likely path of policy this year. The outlook for the US economy since the start of the year has continued to be a favourable one. Business investment and manufacturing have weakened, but solid job growth and rising wages have been driving robust consumption and supporting moderate growth overall.

As the year has progressed, we have been monitoring three factors that are weighing on this favourable outlook: slowing global growth, trade policy uncertainty, and muted inflation. The global growth outlook has been deteriorating since the middle of last year. Trade policy uncertainty seems to be playing a role in the global slowdown and in weak manufacturing and capital spending in the United States. Inflation fell below our objective at the start of the year. It appears to be moving back up closer to our symmetric 2 percent objective, but there are concerns about a more prolonged shortfall.

Committee participants have generally reacted to these developments and the risks they pose by shifting down their projections of the appropriate federal funds rate path. Along with July's rate cut, the shifts in the anticipated path of policy have eased financial conditions and help explain why the outlook for inflation and employment remains largely favourable.

Turning to the current context, we are carefully watching developments as we assess their implications for the US outlook and the path of monetary policy. The weeks since our July FOMC meeting have been eventful, beginning with the announcement of new tariffs on imports from China. We have seen further evidence of a global slowdown, notably in Germany and China. Geopolitical events have been much in the news, including the growing possibility of a hard Brexit, rising tensions in Hong Kong, and the dissolution of the Italian government.

Financial markets have reacted strongly to this complex, turbulent picture. Equity markets have been volatile. Long-term bond rates around the world have moved down sharply to near post-crisis lows. Meanwhile, the US economy has continued to perform well overall, driven by consumer spending. Job creation has slowed from last year's pace but is still above overall labour force growth. Inflation seems to be moving up closer to 2 percent.

Based on our assessment of the implications of these developments, we will act as appropriate to sustain the expansion, with a strong labour market and inflation near its symmetric 2 percent objective.

The three questions in the longer run

Looking back over the three eras, monetary policy has evolved to address new challenges as they have arisen. The inflation targeting regime that emerged after the Great Inflation has led to vastly improved outcomes for employment and price stability around the world.

One result has been much longer expansions, which often brought with them the build-up of financial risk. This new pattern has led us to understand that assuring financial stability over time requires much greater resilience in our financial system, particularly for our largest, most complex banks.

As we look back over the decade since the end of the financial crisis, we can again see fundamental economic changes that call for a reassessment of our policy framework. The current era has been characterised by much lower neutral interest rates, disinflationary pressures, and slower growth. We face heightened risks of lengthy, difficult-to-escape periods in which our policy interest rate is pinned near zero.

To address this new normal, we are conducting a public review of our monetary policy strategy, tools, and communications—the first of its kind for the Federal Reserve. We are evaluating the pros and cons of strategies

that aim to reverse past misses of our inflation objective. We are examining the monetary policy tools we have used both in calm times and in crisis, and we are asking whether we should expand our toolkit. In addition, we are looking at how we might improve the communication of our policy framework.

Public engagement, unprecedented in scope for the Fed, is at the heart of this effort. Through Fed Listens events live-streamed on the internet, we are hearing a diverse range of perspectives not only from academic experts, but also from representatives of consumer, labour, business, community, and other groups. We have begun a series of FOMC meetings at which we will discuss these questions. We will continue reporting on our discussions in the FOMC minutes and share our conclusions when we finish the review next year.

I will conclude by saying that we are deeply committed to fulfilling our mandate in this challenging era, and I look forward to the valuable insights that will, I am confident, be shared. ■

Jerome H Powell is Chair of the Board of Governors of the Federal Reserve System

Endnotes

1. The National Bureau of Economic Research (NBER) has classified business cycle turning points back to 1854 (see https://www.nber.org/cycles.html).

2. See Declaration of Policy, section 2 of the Employment Act of 1946, Pub. L. 79-304, ch. 33, 60 Stat 23 (1946), available at https://fraser.stlouisfed.org/scribd/?title_id=1099&filepath=/files/docs/historical/congressional/employment-act-1946.pdf. A modified version of those goals formally became the Fed's dual mandate in 1977. For further discussion, see "Full Employment and Balanced Growth Act of 1978 (Humphrey-Hawkins)" on the Board's website at https://www.

federalreservehistory.org/essays/humphrey_hawkins_act.

3. Romer and Romer (2002) document that the Federal Open Market Committee understood the essence of sound policy. Nonetheless, as Nelson (2013) discusses, many authors argue that the way those principles were applied contributed to the fluctuations of the time.

4. As discussed by Faust (1996), the structure of FOMC governance was motivated by the traditional view that governments are tempted to resort to inflation in times of stress. With the post–World War II emphasis on full employment and understanding the role of inflation expectations, this tendency was reformulated as seeking near-term gains on employment at the cost of long-term inflation (Kydland and Prescott, 1977; Barro and Gordon, 1983).

5. Overall inflation, which is the subject of our symmetric 2 percent objective, has been somewhat more volatile, but it is neither practical nor wise to try to smooth purely transitory inflation fluctuations. As such transitory fluctuations are frequently driven by volatile food and energy prices, I am citing the stability of core inflation on a four-quarter basis as a proxy for Fed performance in achieving the relevant sense of stability.

6. Analysts debate the role that monetary policy and other factors, such as luck and structural change in the economy, played in bringing about the Great Moderation. For example, Ahmed, Levin, and Wilson (2004) find an important role for luck. Stock and Watson (2003) attribute much of the change to an unexplained improvement in the tradeoff between inflation and output variability. Like Bernanke (2004), I believe that better policy was an important factor behind the better outcomes, perhaps allowing other factors to show through.

7. Indeed, as I noted at this symposium last year, inflation ran surprisingly low in the second half of the 1990s (Powell, 2018).

8. This was an odd recession to classify. The collapse of the tech bubble was followed by several quarters of generally slow positive growth. Regarding declaring the 2001 recession, the NBER Business Cycle Dating Committee stated, "Before the [September 11] attacks, it is possible that the decline in the economy would have been too mild to qualify as a recession" (NBER, 2001, p. 8).

9. Ben Bernanke (2012) surveyed the early years of the recovery at this symposium in 2012.

10. Powell (2018).
11. The fact that inflation did not react much to changing unemployment also led some to reassess other structural features such as the slope of the Phillips curve.
12. As discussed in Rachel and Summers (2019), many factors combine to determine the normal growth rate of the economy and r. Persistent movements in longer-term interest rates in a stable inflation environment are one indicator of r* movements.*
13. See, for example, Minsky (1991).

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This article is based on a speech delivered at the 'Challenges for Monetary Policy' symposium, sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming, August 23, 2019

TechAwards and TechWeek get together to celebrate innovation

The Bermuda Department of ICT Policy and Innovation write that leadership in fintech regulation has allowed Bermuda to develop the new economy

The TechAwards joined the Bermuda TechWeek line-up to highlight Bermuda's role as the *Silicon Valley of the Atlantic*. Thanks to Bermuda's leadership in fintech regulation and for its creation of a welcoming and stable environment for innovation, the Island continues to attract worldwide attention for its original approach to the new economy.

From October 14-18, Bermuda hosted Bermuda TechWeek 2019, *"an inaugural week of fintech events featuring thought-leadership sessions and networking opportunities with technologists and innovators from around the world."*[1] Of the many events associated with TechWeek, the popular TechAwards helped to kick-off the week of activities and discussions.

In 2007, the TechAwards was launched to celebrate innovative technology-supported solutions developed in Bermuda or by Bermudians. The TechAwards are nomination-based and fall into four categories; *International Innovation of the Year*, *Local Innovation of the Year*, *Best New Mobile App*, *Best Youth Technology Programme*. This year, a 'Trailblazer Award' was added to celebrate a notable innovation which did not fall into any of the categories above.

Selected nominees were invited to showcase their projects and innovations to an independent panel of judges who are themselves leaders in the local IT sector.

The winners in each category were selected by consensus. TechAwards winners only found out that they were the best of the year at the same time as those who attended the evening reception.

The TechAwards is coordinated, organised and hosted by the Department of ICT Policy & Innovation (IPI), which operates within the Office of the Premier, Government of Bermuda.

The mission of IPI is to develop sound policies and regulatory frameworks that promote and enable innovative, cyber-secure ICT-enabled industries and to facilitate the adoption and growth of a secure and advanced digital economy.

IPI is primarily outward-facing and is involved in the areas of cyber security, e-commerce, e-business, cyber safety, privacy, technology literacy and development, and internet governance.

IPI strives to ensure that technology plays its part in empowering every student, teacher, entrepreneur, and thought leader in Bermuda. It also brings local and international recognition to their work and in many ways supports harnessing the power of technology and integrating it to positively impact lives.

Year after year, the TechAwards continue to show that in the right context, where opportunity meets hard work, technology enables creativity and innovation. That is what was evidenced clearly during Bermuda TechWeek. ■

Department of ICT Policy and Innovation, Government of Bermuda

Endnote

1. www.bermudatechweek.bm

1st Place, Best Youth Technology Programme, Connectech's Youth Coding Programmes, with Wayne Smith, Head of the Fintech Business Development Unit (l) and Vice Chair, E-Commerce Advisory Board, Michael Tucker (r)

1st Place, Local Innovation of the Year, Five Star Home Delivery, with Wayne Smith, Head of the Fintech Business Development Unit (l) and Vice Chair, E-Commerce Advisory Board, Michael Tucker (r)

1st Place, Best New Mobile App, Aye Yo! Bermuda, with Wayne Smith, Head of the Fintech Business Development Unit (l) and Vice Chair, E-Commerce Advisory Board, Michael Tucker (r)

Making HR future proof

Amber Wigmore Alvarez asks if we are educating tomorrow's talent effectively

Across the globe, we are witnessing the unravelling of traditional HR selection processes. Until now, much of the design of academic institutions' Career Services has been around Career Education and Career Advising only then to be followed by Recruiter Relations.

The time has come to disrupt this model and reverse the mindset. Much like switching to a new routine or changing a workflow coaxes the brain into making new connections (neuroplasticity), we need to rethink the concept of 'placement'.

Only by having a complete grasp of organisations' hiring needs, campaigns and profiles with their multitude of intricacies, can we successfully be exposed to a new set of triggers and then design programmes that truly match the needs of business.

Recruiter ('Talent Spotter') perspective

The once widespread practice of companies' and organisations' HR departments targeting and working with the same small group of academic institutions is quickly becoming a thing of the past. And while some top employers target Tier 2 and Tier 3 schools (their words) to identify exceptional candidates in less competitive environments, achieving the right balance between 'talent potential' and 'competition ratio' is still a struggle.

Simply put, using traditional HR methods, companies find themselves lacking the resources to target every school on their radar.

Add to that the key terms recruiters across all industries and cultures have incorporated into their hiring objectives (STEM, talent and diversity, and inclusion) plus stringent work authorisation requirements (the US and UK being the most relevant at this time) and the potential for success requires complex orchestration and profile positioning.

All this is underlined by HR tech, which is no longer an emerging trend but rather has mushroomed in the past few years so that entire conferences around the world are dedicated to this aspect of HR.

Interestingly enough, most of the HR tech providers come from a non-HR background. In fact, sourcing and recruiting is considered by some to be one of the least complex areas and where it is easiest to demonstrate value creation (cost/time/quality of hire).

Simply put, using traditional HR methods companies find themselves lacking the resources to target every school on their radar

Academic perspective

Given the strategic relevance of academic institutions' overall missions and goals, it is important that professionals and staff are equipped to liaise with and effectively cater to key stakeholders, including students, alumni, faculty and others as well as companies and organisations that are both corporate partners and recruiters.

Career Services need to become aware of the established providers in the assessments arena (Cut-e, Arctic Shores and Pymetrics to name a few) in order to best prepare their talent, understanding that HR functions must match the success their companies have seen in the Customer Experience arena.

There is a need for academic institutions to seek to partner with HR functions. All key stakeholders in higher education management should learn how the future of selection processes and the candidate experience is more data-driven, flexible, continuous and development oriented.

The talent perspective

While at times struggling to get closer to the student mindset, recruiters appreciate insight into candidates' job search behaviour and preference in order to devise their strategy in the global war for talent.

After a detailed analysis of nearly 100,000 active student/graduate users located in 98 countries and from 387 business schools using the Highered EFMD Career Services platform in 2018, we have gained valuable insight into candidate job search behaviour on a global basis. Our findings support the optimisation of campus recruitment strategies to attract top talent in 2019.

It is crucial to assess recruitment cycles and candidate job search behaviours. Summarising 1,907 internship and part-time job postings on the Highered EFMD site during 2018 with nearly 240,000 position views from candidates, we find that Q1 (January to March) is the peak season for companies posting opportunities.

While academic institutions frequently cluster their campus recruitment activities in Q4, available job ads on the Highered EFMD platform were more than twice the number of ads in Q1 versus September to November. Correspondingly, Q1 also attracts the most candidate views of positions.

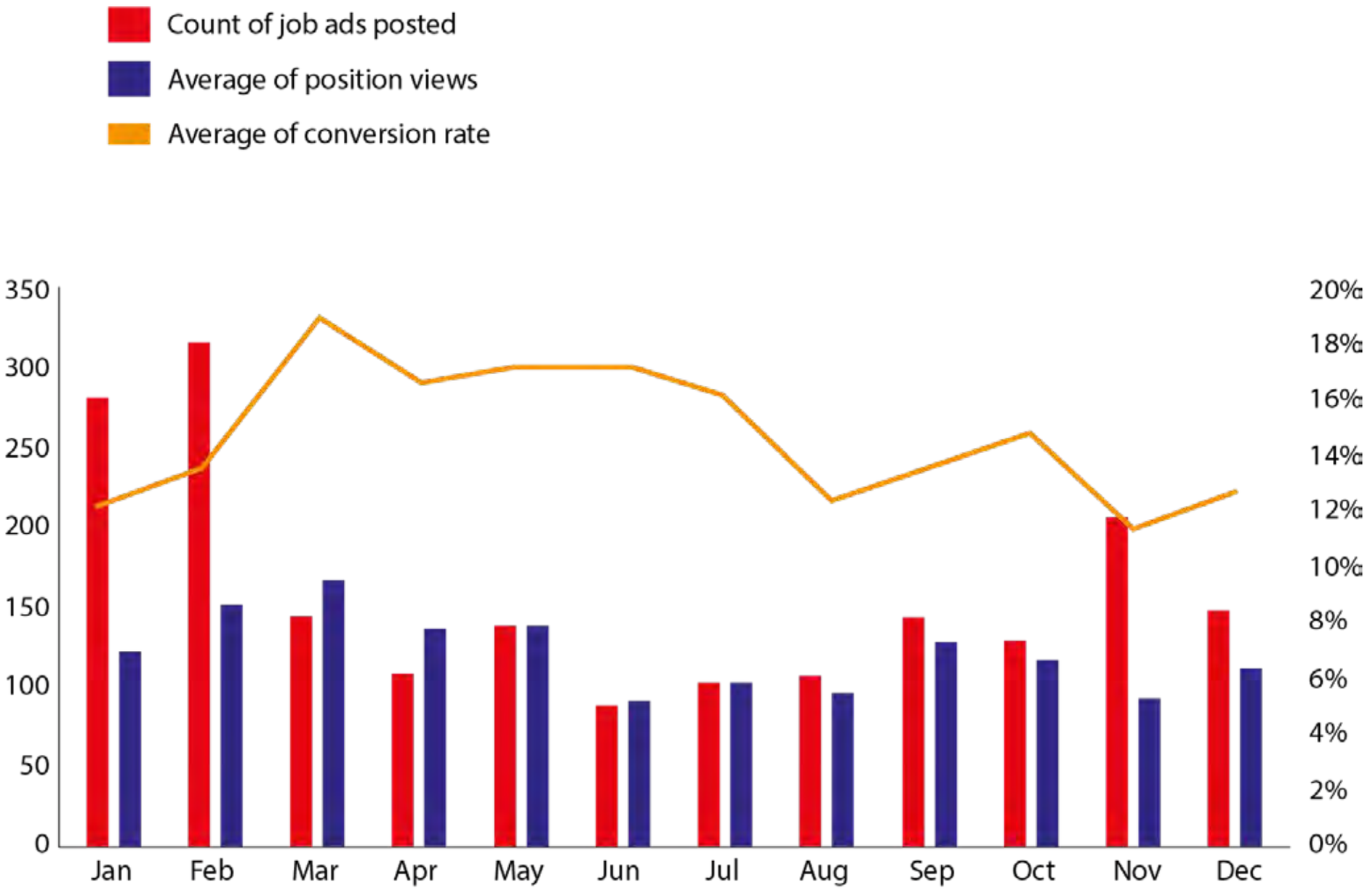
With regards to internships/part-time opportunities, students are most actively searching for these in March, followed by February, with the highest conversion rates of position views/applications taking place in March, followed by April, as reflected in Figure 1.

Although a notable number of job opportunities are posted during September and December, candidate engagement is relatively low. Yet between April and July, high conversion rates with regards to applications can be seen, despite the fact that fewer jobs are posted.

This provides a hiring opportunity for companies as overall fewer new jobs are posted during the period, translating into less risk of cannibalisation from competitors' job ads.

Also, as students show relatively strong interest in searching for roles, a higher engagement rate is expected. Therefore, companies demanding interns should continue to focus on Q1 in order to increase their employer brand awareness while attracting more students to apply and, in the meantime, explore opportunities in Q2.

Figure 1. Internship and part-time positions performance in 2018



Following an analysis of 3,612 graduate and full-time job postings on the Highered EFMD platform during 2018, with nearly 250,000 position views from candidates, we find that graduate jobs are available throughout the year, with season peaks around April to June and August to September. Q2 is the busiest season, followed by Q3, with both quarters accounting for 75% of all full-time job postings during the year, as reflected in Figure 2.

Average conversion rates are relatively stable throughout the year. Candidates appear to be most actively seeking in March and May, browsing across different positions while a critical mass of new opportunities appear on the Highered EFMD platform. Candidates are also aware of the autumn recruitment season, showing an increase in job search activity in October.

Interestingly, while few full-time job ads are posted in February, students show strong intent to apply for jobs that month, posing an opportunity for companies with less rigid recruitment schemes to avoid intense competition with other employers during peak seasons.

Therefore, rather than lapsing repetitively into their usual recruitment calendar by default, we urge employers to align whenever possible with candidates' job search behaviour – start earlier, optimise the spring recruitment season and increase engagement with talent during autumn.

Following an analysis of the recruitment cycle and its relevance to job search behaviours, we now shift to assess candidates' job search preferences. Among all position postings on the Highered EFMD Global Career Services platform in 2018, 20% are finance and accounting, 12.6% are Marketing and Communications and 11.7% are Sales, as reflected in Figure 3.

Figure 2. Graduate and full-time positions performance in 2018

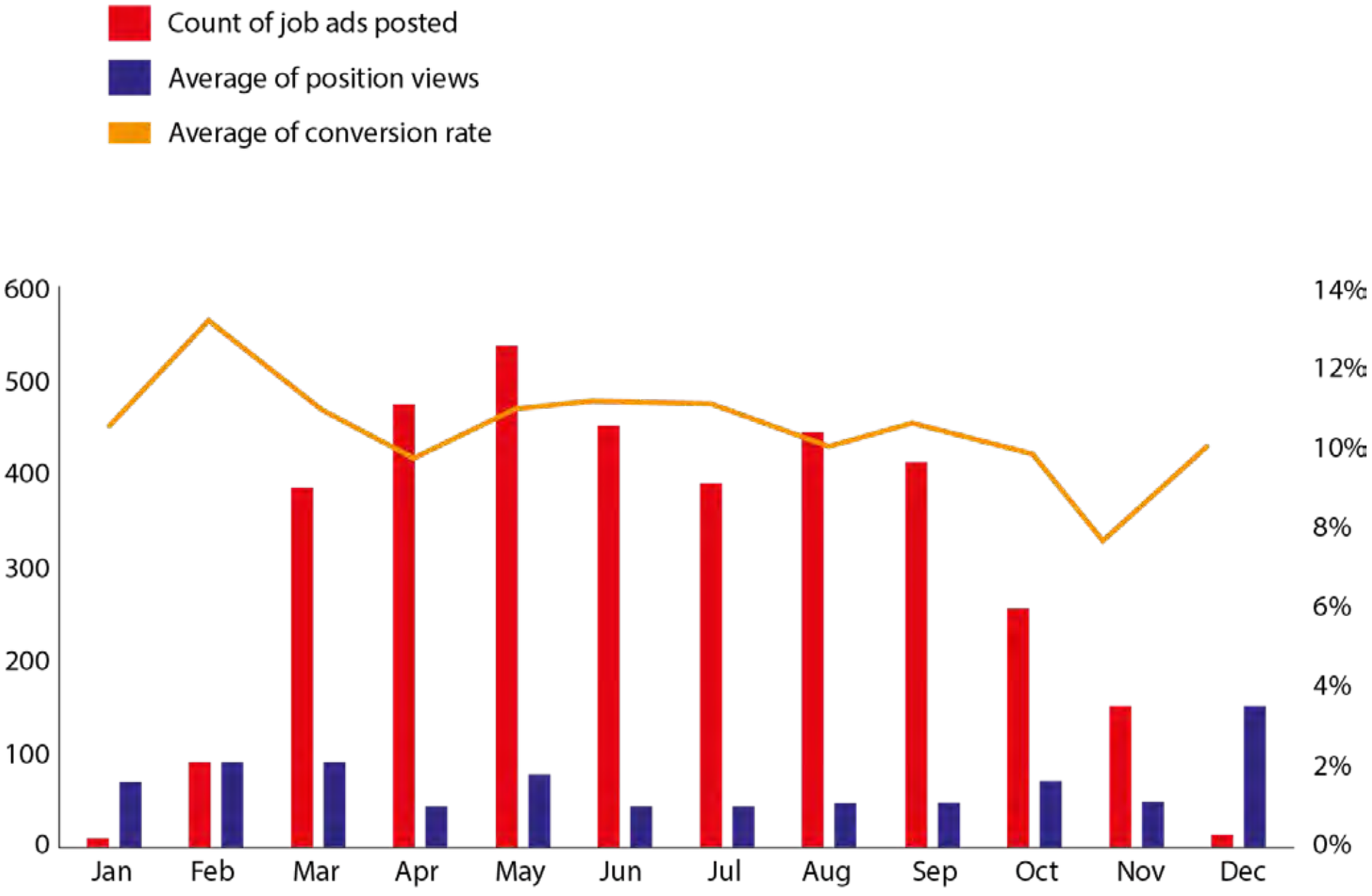
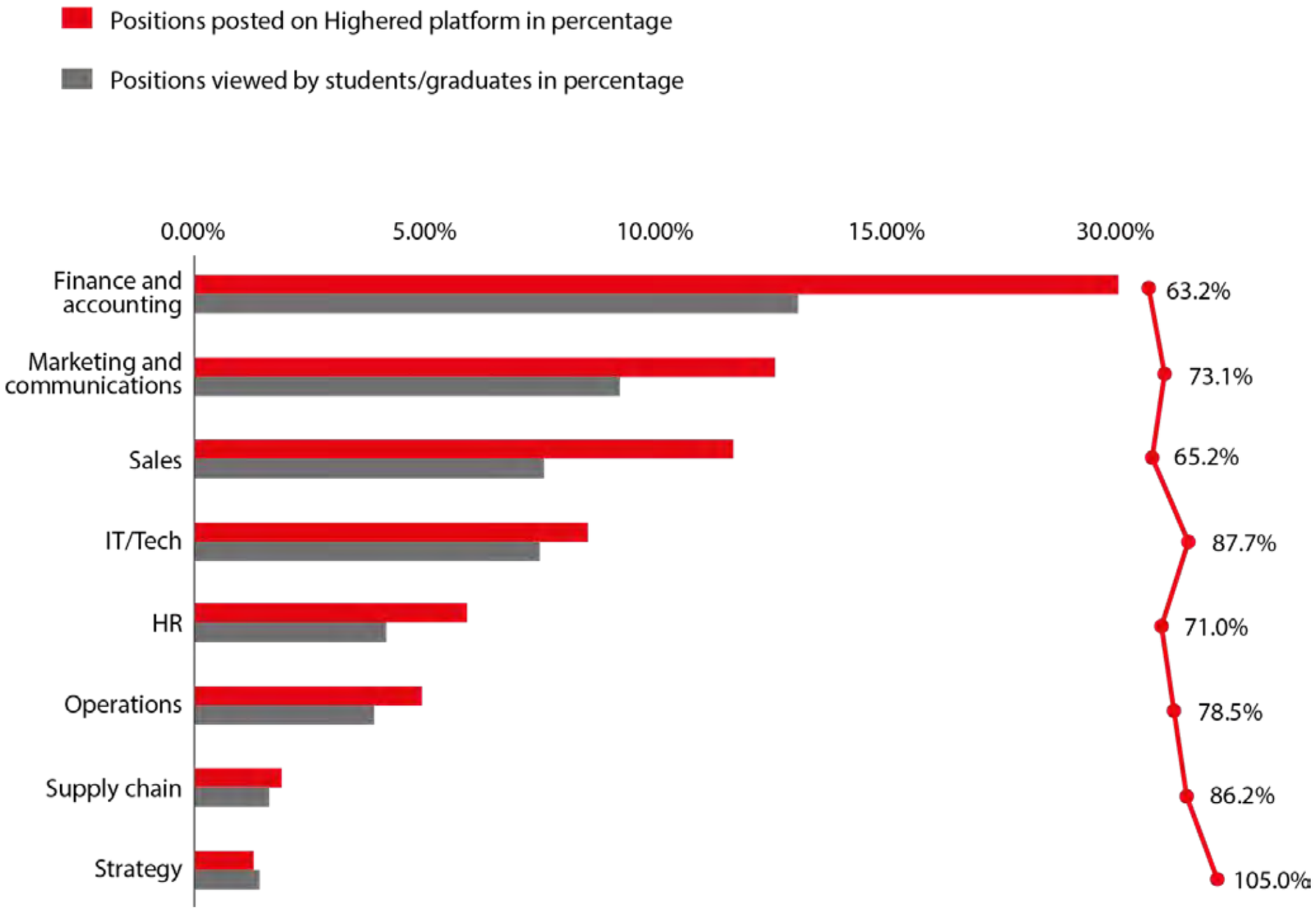


Figure 3. The top 8 in-demand roles



Positions viewed by students follow the same trend – with the greatest number of views being for Finance and Accounting, Marketing and Communications, Sales, IT/Tech, HR, Operations, Supply Chain and Strategy.

Roles demanding IT skills are on the rise. However, Strategy-related roles, while low on the demand side, prove to be a popular candidate search on the Highered EFMD platform globally.

Recruiters are increasingly asking for recommendations to set themselves apart from other employers. In order to stand out from the multitude of similar roles in organisations competing for the same talent pool, we suggest companies rework job titles to make it easier for candidates to both search for and understand the specific functions of a role.

As for employer branding, while an increase of brand exposure and awareness is a top concern for companies when posting vacancies on career portals, the ability to attract relevant applications is more critical. Within the top eight sectors identified, Supply Chain, Strategy and Marketing positions experience the highest conversion rates with regards to applications made, as reflected in Figure 4.

Conclusion

How do these findings resonate with the talent of tomorrow? Are they future ready? Fundamental change is taking place in HR, which translates into initiatives with and for talent rather than to them.

This yields a dismantling of traditional selection processes and the embrace of those reflecting employer branding strategies, talent spotter initiatives, and a hunger for diversity and inclusion.

Figure 4. Conversion rates of the top 8 sectors

HR divisions are rapidly getting on-board the 'leading with talent analytics' train and Career Services are leveraging the power of alliances to gain strength, momentum and visibility for their talent.

There is an implicit importance in having the right questions and the right data to make the right decisions as well as understanding how algorithms can allow for the acceleration of matching global vacancies and top talent.

A continuous, strategic dialogue between all stakeholders – recruiters, talent and academic institutions – is the only way to forge a path that will allow talent spotters to tap into global pools of candidates who have been educated and positioned to secure opportunities in line with their aspirations and their motivations, values, and need for continuous learning and professional development. ■

Dr Amber Wigmore Alvarez is Chief Innovation Officer (CIO), Highered EFMD Global Career Services

2019 NBAA-BACE characterized by new look, new feel and new energy

Ed Bolen previews the 2019 NBAA-BACE, where the latest in business aviation will be demonstrated

The global business aviation community is evolving rapidly, with a multitude of innovative technologies on the horizon, sustainable business practices in focus and new approaches to confront industry challenges. The 2019 edition of the National Business Aviation Association (NBAA) Business Aviation Convention & Exhibition (NBAA-BACE) will reflect these exciting trends with a new look, a new feel and a new energy.

Taking place October 22-24 in Las Vegas, NV, 2019 NBAA-BACE will feature a sprawling exhibit floor at the Las Vegas Convention Center (LVCC) showcasing an extensive variety of products, services and state of the art technologies, with dozens of exhibitors making new product announcements throughout the show. Attendees will also find two aircraft displays - one inside the LVCC, and the second at nearby Henderson Executive Airport (HND) - allowing for side-by-side comparison of dozens of aircraft used to support a broad array of businesses.

This event brings together key aviation contacts from around the world, including current and prospective business aircraft owners, manufacturers and customers into one meeting place to get critical work accomplished. In fact, no other event in the world offers the wide array of offerings to meet the needs of business aviation stakeholders today, tomorrow and beyond like NBAA-BACE.

Perhaps most importantly, 2019 NBAA-BACE will also serve as an opportunity for attendees to learn the very latest about the exciting evolution of our business aviation community. For example, NBAA's inaugural Unmanned Aircraft Systems and Urban Air Mobility Innovation Display, and a first-of-its-kind New Product Showcase, will offer the latest innovative aviation technologies, including electric vertical takeoff and landing (eVTOL) vehicles, drones and a host of other new products coming to market.

This year's keynote sessions will open the show's first two days live from the show floor, with a fresh, forward-looking feel, featuring dynamic speakers such as aviation visionary Yves 'Jetman' Rossy; inspirational and record-

setting pilot Barrington Irving; entrepreneurial pioneers and aviation enthusiasts Ross Perot, Jr, Steuart Walton, Sky Dayton and others; and returning speaker Eric Allison, head of aviation programs at Uber Elevate. The Day 1 keynote will be held at 8:30 am on Tuesday, October 21, while the Day 2 keynote begins Wednesday at 10 am.

NBAA-BACE also provides an important opportunity for those across the diverse spectrum of business aviation to learn more about the most topical matters facing the industry. Attendees will discover a host of forward-looking topics for this year's events and presentations, with sessions on eVTOL and urban air mobility, supersonic travel, artificial intelligence, autonomous flight, cybersecurity, workforce expansion and other trends throughout a robust variety of educational presentations during the show.

NBAA-BACE also offers an unparalleled opportunity for thousands of industry professionals to network with their peers

Sustainability in focus

Environmental sustainability is another crucial topic for our industry, and it's one the business aviation community has continued to address across multiple paths, including technological innovation and adoption of operating practices to improve efficiency and reduce carbon emissions.

One of these efforts is increasing our use of sustainable alternative fuel (SAF), and this year's edition of NBAA-BACE will not only highlight the many ways that companies and individuals already utilize SAF in their operations, but also encourage even greater use of this safe and renewable fuel.

At the center of these efforts is a first-of-its-kind, SAF-focused panel discussion at the NBAA-BACE Innovation Zone on Wednesday, October 23 from 2-3 pm. Participating will be experts from across the industry - including airframe and engine OEMs, regulatory officials, insurance appraisers and brokers and other stakeholders. The event will also include an industrywide call to action for business aviation to adopt SAF as a cleaner, more efficient aviation fuel.

This impressive, event-wide showcase of business aviation's adoption and acceptance of SAF will begin Sunday, October 20 with what organizers expect will be a record number of business aircraft arriving to the 2019 NBAA-BACE Aircraft Display powered by sustainable aviation fuel. The show will conclude Thursday, October 24 with a first of its kind 'SAF Fly-Out' in which organizers aim for 100 percent of the aircraft departing from NBAA-BACE to be fueled with SAF.

Addressing other important industry topics

Safety remains an important theme at NBAA events, and this year's edition of NBAA-BACE offers several opportunities to learn more about how to enhance the safety of your business aviation flight operation.

On Monday, October 21, NBAA's Small Operator Symposium will specifically address issues facing operators with two airplanes or less, while the NBAA Single-Pilot Safety Standdown will focus on operational challenges that arise for pilots balancing the demand of piloting a sophisticated aircraft while running a successful business.

On Tuesday, October 22, a dedicated session will take place examining how the industry may take a collective approach in avoiding loss of control inflight (LOC-I) accidents. On Thursday, October 24, the National Safety Forum will examine the pursuit of excellence in airmanship while operating in our increasingly automated world.

NBAA-BACE also offers an unparalleled opportunity for thousands of industry professionals to network with their peers. On Tuesday afternoon, NBAA's Coffee Social provides attendees the chance to meet with the NBAA Board of Directors, Regional Representatives and committee members, and network with others across the industry.

Later that evening, the YoPro Networking Reception, hosted by the Young Professionals in Business Aviation, will offer a fun, lively setting for attendees to engage this rising generation of young business aviation professionals.

Workforce concerns remain another key issue affecting business aviation, and NBAA recognizes the value in exposing students to the global business aviation industry to inspire them towards successful and rewarding aviation careers. Middle school, high school and college students are invited to a day of student-focused programming and opportunities at the expanded 2019 NBAA-BACE Careers in Business Aviation Day, taking place Thursday, October 24.

NBAA-BACE has always served as the largest and most dynamic showcase for our industry, and this year's edition will reflect our community's evolution like never before and help drive the business aviation landscape of

tomorrow. We hope to see readers of *World Commerce Review* in Las Vegas, NV for this exciting and forward-looking demonstration of the very latest in business aviation. ■

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

“Aviation Malta - Open for Business”

The Malta Business Aviation Association (MBAA) aims to promote excellence and professionalism amongst our Members to enable them to deliver best-in-class safety and operational efficiency, whilst representing their interests at all levels in Malta and consequently Europe. The MBAA will strive to ensure recognition of business aviation as a vital part of the aviation infrastructure and the Maltese economy.

MBAA
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