

# WORLD COMMERCE REVIEW

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PATRICK MINFORD ARGUES  
THAT NO DEAL IS THE BEST  
DEAL FOR BRITAIN

MARIO DRAGHI CONSIDERS  
THE ISSUE OF SOVEREIGNTY  
IN A GLOBALISED WORLD

CAN THE EU AND CHINA  
RESCUE THE WTO? BART  
BROER ASKS THE QUESTION

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# FOREWORD

**R**ecognising the strong logic of numbers, this is the Asian century. Demographically and economically they are forging ahead. Africa and South America are continents of vast potential. North America continues to expand at a rate the Europeans can only dream about. By 2030 China and India will represent over half of global GDP. The EU, by comparison, is expected to make up 13%.

The EU is in a mess. The German economy is in trouble, having narrowly avoided recession. Industrial production in the euro area is falling at the fastest pace since the financial crisis. The weakness reflects that the slowdown is affecting the core of the region. Germany has a manufacturing slump, while household spending has ground to a halt in France. Together these two countries account for about half of the eurozone economy.

Europe is becoming less competitive. It has some of the world's most expensive energy and labour laws that are uninviting for employers. It has green taxes that are having the opposite effect to how they were intended. Green taxes are killing European investment.

The EU's climate and green energy agenda was founded on three key assumptions (global warming is an urgent threat, fossil fuels are running out, and the UN will agree a legally-binding commitment to reducing CO<sub>2</sub>) and one goal, that Europe will become 'the most competitive and dynamic knowledge-based economy in the world'. None



of the assumptions have been realized, and regarding the one goal, the EU's green agenda has led to economic stagnation and a loss of international competitiveness. Europe rolled the dice, and called wrong.

In the innovation stakes Europe is lagging the US and China. What investment there is going to the less innovative sectors. In the face of disruptive digital technologies and a global race for technological leadership, the cost of inaction is high. When one looks at the most advanced forms of digitalisation (internet of things, big data, and software development), the digital gap between Europe and the US is evident. Europe talks about retooling the economy so that it is socially and environmentally sustainable, taking into account the impacts of automation on jobs and demand for skills, issues of cybersecurity and data governance, and, not least, the need for a stepchange in investment in climate change mitigation.

Unfortunately for them, the US and Asia have moved on. Europe is stuck in a sclerosis of its own making. They are stuck to policies forged a decade ago, and have bet the future of Europe on green technology. The FTAs of the future will insist on implementation of the Paris Agreement as a condition. Globalisation only on Europe's terms. A Fortress Europe seems to be the inevitable outcome. ■



# No deal is the best deal for Britain

Patrick Minford considers the options for the UK as they reach the endgame in their negotiations with the EU, and finds that a No Deal Brexit is a recipe for economic success

In this piece I look at the options for the UK, and its MPs in Parliament, to consider as they reach the 'endgame' in these negotiations with the EU. I first explain the gains from the default option if no deal is agreed, which is an exit under WTO terms for trade with surrounding side-agreements on other matters, then go on to explain its implications for the proposed Withdrawal Agreement.

### **A No Deal is in fact the best deal for the UK**

In its attempts to force through its EU Withdrawal Agreement the government is painting a No Deal Brexit as some sort of disaster. It is in fact a recipe for 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**

Here is the range of economic benefits I estimate from achieving a Clean Brexit - ie, leaving the Single Market and the Customs Union, regaining control over our borders, laws, and regulations, freeing ourselves from the European Court of Justice, and having the freedom to establish our own trading relationship with the rest of the world?

Over the past two years, the group I chair, Economists for Free Trade, has reported our research at length on the long run effects of such a 'Clean Brexit'. Here I briefly recapitulate the arguments and findings from this research.

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 the 'four freedoms' forces the UK to give to EU unskilled immigrants
4. Ending our Budget contribution to the EU

The gains under (1) come about because elimination of the EU's protection lowers consumer prices and increases competition in our home market, so raising productivity across our industries. With the economy at full employment and a flexible exchange rate, any jobs lost in industries where higher productivity releases labour will be offset by extra jobs in other (unprotected) industries where productivity is already high and where demand is projected to expand.

*We are now entering the final period where the EU must decide how to negotiate its final deal with Mrs May and MPs must decide how to vote on it*

For our calculations on our Cardiff World Trade Model (Minford *et al*, 2015, chapter 4), we assume that protection leading to higher prices of 10% in both food and manufactures is eliminated (our detailed research cited above shows prices inside the EU in both sectors currently are some 20% higher than world market prices). Our estimates are that consumer prices will fall by 8% and GDP will rise by 4%.

For (2), we rely on models of the economy developed by Cardiff researchers (see Minford *et al*, 2015, chapter 2) that assess the effects of regulation on the economy via their effect in raising business costs. We estimate that EU regulation has reduced GDP by around 6%; and that probably about a third of this can be reversed giving us a projected gain of 2% of GDP, or a growth rate 0.15% per annum faster over the next 15 years.

For (3), we have examined the costs to the taxpayer of EU unskilled immigrants owing to the entitlement to the full range of tax credits and other benefits, including free education and healthcare (Ashton, MacKinnon and Minford, 2016).

A further effect is that wages of UK unskilled workers are depressed; this represents a transfer from unskilled workers to the consumers who use their products. Another relevant distributional element is that the taxpayer burden and wage effect are both highly localised in areas of immigration. From these costs, we find that Brexit would save 0.2% of GDP in taxpayer costs.

Furthermore, there would be a particular benefit to UK low-income households of about 15% of their living costs from the combination of ending this unskilled immigrant subsidy and the trade-led reduction in the CPI (MacKinnon, 2018). For (4), we have followed the standard calculations made by the Office of Budget Responsibility and others, arriving at around 0.6% of GDP.

In total these four elements 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.

These gains are questioned by recently published government work: first, the leaked Civil Service report (Civil Service, 2018a), and lately the fully published *Cross Whitehall* study (HMG, 2018a and b). This work is the main source of what could be termed 'Project Fear Mark II'.

This work uses the same modelling approach that we do, after a long period from the time of the referendum in which it queried our methods in favour of a 'gravity' approach (HM Treasury 2016), that it has now abandoned in the face of our criticisms. It now uses a variant of the GTAP model from Purdue University, Indiana. However, its latest work still reaches damning conclusions on Brexit by making indefensibly bad assumptions about Brexit policies and their direct effects.

To start with, its assumptions about 'general free trade via FTAs' are conservative in the extreme. It has stated that gains from their general FTA assumption are only a 0.5-0.8% rise in UK GDP. From this it would seem that they assume either that EU trade barriers are rather small or that barriers are reduced by rather little.

Yet current EU protection of food and manufactures including non-tariff barriers is authoritatively estimated at 20% (Minford *et al*, 2015, chapter 4; also for non-tariff barriers Berden *et al*, 2009). Our assumption of the likely Brexit



reduction of protection is deliberately cautious at 10%; it can be thought of as assuming either that only half is abolished or that somehow the EU would itself have abolished half anyway.

With this 10% assumption our Cardiff World Trade Model predicts a 4% rise in GDP (Minford *et al*, 2015, chapter 4). If this 10% is fed into the GTAP model, then UK GDP would rise by 2%, while if all 20% EU protection were abolished it would rise by 4%. Interestingly, a recent study of Australian trade liberalisation over the past thirty years using GTAP (CIE, 2017) finds that its GDP has been increased by 5.4%- a figure rather similar to the gains being discussed for the UK's Brexit liberalisation.

The other key assumption made by the *Cross Whitehall* work is that large costs arise at the EU border for UK-EU trade even if we negotiate 'free trade' with the EU. One element of this appears to be related to pure 'border costs'; such things as time to get paperwork agreed before ships are allowed to unload.

However, these assumptions have been bypassed by the progress of technology and WTO rules for customs procedures (WTO, 2018c; World Bank, 2016). Computerisation has more or less eliminated border costs among developed countries, since almost all cargoes are cleared before reaching port, with only some 2 per cent or so physically inspected, and even this is taking only around a day typically.

Professor Dr Michael Ambühl (ETH Zürich), who negotiated one of the Swiss-EU bilateral free trade deals, estimated that border costs were as low as 0.1% of the value of trade (Ambühl, 2018, slide 8).

Another assumption in the *Cross Whitehall* study appears to be that UK-EU non-tariff protection would spring up after Brexit. The idea seems to be that the EU and maybe the UK too would claim that exporters do not satisfy

required product standards; thus non-tariff barriers would sprout on the UK-EU border, regardless of any trade negotiations.

However, current WTO rules (WTO, 2018 a and b) outlaw such behaviour as illegally discriminative, given that existing product standards are already exactly obeyed on both sides.

On the basis of these assumptions, the *Cross Whitehall* GTAP model calculates large losses in GDP, variously amounting to between 3 and 7%, depending on the 'closeness' of the eventual EU arrangements. On our calculations, these costs are simply not there in the event of a free trade (Canada-plus) agreement with the EU.

We also have an assessment (Economists for Free Trade, 2018a) of the 'no deal' case within the Cardiff World Trade Model. In this case again non-tariff barriers and customs hold-ups are illegal but tariffs do apply; in our assessment the tariff element damages the EU but not the UK essentially because given that FTAs have driven UK prices to world prices, tariffs in both directions must be absorbed by EU traders.

The *Cross Whitehall* work therefore reaches its conclusions that Brexit reduces UK GDP on the basis of untenable assumptions. When reasonable assumptions are substituted for the extent of the trade barriers eliminated against the rest of the world and for the trivial UK-EU border costs, this reduction is turned into a substantial increase on both the GTAP model, and on the Cardiff World Trade Model. What is more this is true even on the gravity version of that Cardiff model.

The Government in its latest Report (HMG, 2018a and b) has not materially changed its overall estimates of the costs to GDP of the different Brexit scenarios; the critique remains the same; that it is inputting false assumptions - see Economists for Free Trade (2018b).

All the discussion above concerns the long-term effects of Brexit. What then of the associated claims we hear from the continuity Remainers and to an extent from the government about short term chaos from a WTO-based Brexit?

In brief, they are demonstrably false as both UK and EU businesses, including port authorities, have strong incentives to avoid disruption. Both HMG and the EU are also committed to helping businesses in this avoidance, simply because this is an obvious governmental duty for which they are answerable to their citizens.

### **The economics of the Brexit end-game**

We are now entering the final period where the EU must decide how to negotiate its final deal with Mrs May and MPs must decide how to vote on it.

The first thing to say is that the big gain for our economy comes from Brexit, indeed any Brexit that makes the UK an independent sovereign state. This is in practice ANY currently available Brexit, including Mrs May's deal, provided it leads to an FTA with the EU that permits the UK, outside the EU Single Market and Customs Union, to sign free trade deals around the world.

Although there is going to be much legal poring over drafting changes to the proposed deal, political economy, a major branch of economics, enjoins great scepticism about how far legal constraints stop sovereign nations from pursuing their long-term interests. Basically national laws respond over time to the interests of nations; in the case of a democracy like the UK, voters' interests.

Similarly with international treaties, they respond over time to the same interests, since these push their politicians to obey their interests; and no government can bind its successors. So governments leave treaties when they must.

This of course is why we are leaving the EU. We have chosen to do so by the legally provided route of Article 50 and a long negotiation with the EU.

We did so because the EU is our neighbour and ally; and a 'deal/Withdrawal Agreement' (WA) is a civilised way to change a neighbourly relationship. Had we left the EU before the Lisbon Treaty, we would have had to do so illegally, as there was simply no provision to leave the EU back then. Would that have stopped us? Economics says no.

However, now a WA is not the only way to leave the EU. No Deal is from a purely economic viewpoint, as we have seen, superior: we start afresh in our EU relationships under WTO rules, free of the budgetary costs of a 'transition', and free to arrange a Free Trade Agreement with the EU, just as with all other countries.

Since we can go to No Deal now, so we can also in the future, should the deal-WA prove to be onerous and badly constructed. No Deal is the exit from a Deal that goes bad, too. We are told by lawyers that beyond the EU, we would lose our law-abiding reputation with other countries, if we so repudiated a bad deal signed now.

However, countries do this the whole time with treaties that no longer suit them, and they usually do so with a range of justifications that we too could produce- arguing change of circumstances, failures in the past negotiations, even bad faith. We are talking about real politik.

These considerations are greatly strengthened when one factors in that post-Brexit policy will be unfolding under the international law of the WTO which actively encourages countries to revise their trade treaties towards greater liberalisation. The UK's treaty revision with the EU will benefit non-EU countries, including not just developed countries wanting to sign trade agreements with us such as the US, Australia and New Zealand; but also a long list



of developing countries who have suffered greatly from being excluded from EU markets. Accordingly international attitudes to our actions will be entirely favourable.

Of course if we do not leave at all, No Brexit, as is threatened by various current Parliamentary amendments from Remainers, then we gain nothing at all; we remain in the EU, immured in its protection, regulation, immigration and budgetary problems. Indeed, we will probably become much worse off, as these problems intensify - the EU will not stand still, but will almost certainly get worse from our viewpoint.

This could well strengthen the chances of Mrs May getting her deal through Parliament, if the EU helps by removing as clearly as possible the chances of the UK being hamstrung by the 'backstop' over the Northern Ireland border. The majority of MPs that does want the gains from Brexit could well argue: having pushed the May Deal as far as possible, it makes sense to have it, however imperfect, because it can lead, under a suitable government, to a good final relationship with both the EU and the rest of the world.

As rest of the world countries will have a vital interest in their trade agreements with us, they will also support us internationally when we are robust in negotiating an EU agreement that does not get in the way of their agreements.

That 'suitable government' would have to be one that clearly understands the Brexit opportunities and is strong in their pursuit. Sadly this is far from true of Mrs May's government, which has been confused and divided about these opportunities and the policies needed to maximise them. ■

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# EU membership has many benefits, but economic growth is not one of them

In new research Thomas Barnebeck Andersen and Pieter Vanhuyse looked at whether joining the EU has actually increased economic growth for EU member states. In a nutshell, most probably it has not



**F**rom Winston Churchill in the 1940s to the Nobel Peace Prize Committee in our era, peace and prosperity have always been put forward as the two main goals of European integration. The EU founding fathers saw the European project as a way of taming nationalist passions by serving mutual commercial interests: a common political and economic entity that would guarantee both peace and economic progress.

In his famous United States of Europe speech in Zürich on September 19, 1946, Churchill argued that *“the sovereign remedy”* to the plight of post-war Europe was *“to recreate the European family, or as much of it as we can, and to provide it with a structure under which it can dwell in peace, in safety, and in freedom.”*

Four years later, on May 9, 1950, the [epochal declaration](#) by then French foreign minister Robert Schuman stated that pooling the coal and steel production of West Germany, France, Italy, the Netherlands, Luxembourg and Belgium had the double aim of *“contributing to raising living standards and to promoting peaceful achievements.”*

When the [Treaty of Rome](#) was established in 1957, Article 2 explicitly talked about *“raising the standard of living.”* Fast forward 70 years and the official website of the European Union [proclaims](#) that the *“EU has delivered half a century of peace, stability and prosperity.”*

Growth continues to be prominent in the EU’s general objectives today, of course. A stated aim of the influential [Lisbon 2000 Agenda](#) was to make the European economy the *“most competitive and knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion.”* All seven of the [Flagship Initiatives](#) adopted as part of the Europe 2020 Strategy were also about growth – smart growth, sustainable growth, and inclusive growth.

But is this correct? In [new research](#) forthcoming in the economics journal *Kyklos*, which we co-authored with Mikkel Barslund from the Centre for European Policy Studies in Brussels, we looked at whether joining the EU has actually increased domestic economic growth for EU member states on average over the past few decades. In a nutshell, most probably it has not.

### **The elusive growth premium**

To cut a long methodological story short, we sought to answer our question using different empirical strategies, different time periods from the 1960s to 2015, different country samples and different datasets. We compared the growth of the EU to the US and to comparably wealthy OECD countries outside the EU. We compared the growth of former Soviet satellites inside and outside the EU, and also looked at growth in different countries within the EU.

At the end of the day, we were unable to demonstrate the presence of a clear-cut membership growth premium: the EU bloc performed roughly comparably to countries on the outside, and in certain cases worse.

*If the EU does not in fact deliver prosperity, it could profoundly affect the future of the project*

It could be that EU membership is more economically beneficial than it seems. GDP is a poor measure of the economic effect of certain new phenomena like Facebook, for example, as well as smartphones.

Equally it could be that cause and effect are just too complicated for EU economic benefits to be properly captured in the data. If either of these are true, however, it doesn't mean our conclusion is wrong – only that we should remain agnostic about the EU's growth impact.

Whichever way one chooses to interpret our results, our inability to find a significant positive economic benefit from EU membership runs contrary to many official reports arriving at the opposite inference. The OECD's [Brexit report](#), for example, claims that the EU has contributed in no small measure to British prosperity.

The Danish government recently commissioned a [study](#) which found that EU membership had made Danes much richer. And the Netherlands Bureau for Economic Policy Analysis, an independent part of the Dutch Ministry of Economic Affairs, has [found](#) that EU membership had made the Dutch much richer.

Since we focused on the EU average rather than on individual country performances, we are not necessarily disagreeing with any one of these individual country studies. But for every country that has done better than average, there must be another which has done worse, so we certainly question the bigger picture. It suggests that taking a confidently positive position about the growth effects of EU membership is at the very least inappropriate.

This is consistent with the [latest thinking](#) within economic policy research on [growth strategy](#). This would say that the EU can create a level playing field in terms of regulation, but does not provide any off-the-shelf blueprint when it comes to growth policies. Policies to address country-specific constraints on growth must be tailored to local context, and so only national governments can implement them.

## **The upside**

So there are no straightforward messages as regards Brexit here: we are not looking at the UK on its own, and in any case, the effects of leaving need not be symmetrical to those of joining.

Evaluating the EU's growth contribution also does not amount to an evaluation of the entire EU project. The EU provides many direct benefits to the citizens of Europe – or costs, depending on your perspective. The right to study, work, travel and live in any EU country is a right that many Europeans value highly, even if others do not.

The EU has contributed to, among other things, consumer protection, workplace safety, regional convergence and constitutional rights protection. By focusing exclusively on economic growth, we obviously leave all these things out of the picture.

But none of this detracts from the fact that a key component of the whole EU rationale and its ongoing accomplishments is far from clear-cut. If the EU does not in fact deliver prosperity, it could profoundly affect the future of the project. ■

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# Retooling Europe's economy

European firms are investing too little compared to global competitors. Debora Revoltella calls for a 'retooling' of the European economy

**E**urope is at risk of falling behind its global competitors. In a period of radical technological transformation, European firms are investing too little, with a gap both in tangible and intangible investment compared to the US. This article calls for a 'retooling' of Europe's economy in relation to skills, innovation finance, the business environment, infrastructure, and deepening the Single Market.

Over the last year, we have seen a notable re-emergence of concerns with regard to the medium- and long-term economic outlook. In its latest forecast, the IMF (2018) draws attention to "*powerful structural headwinds acting on potential growth*" that have only temporarily been offset by cyclical factors. Likewise, the European Commission (2018) projects moderate economic growth that faces significant downside risks, despite supportive financing conditions.

A range of structural factors explains Europe's relatively low rate of productivity growth and overall potential growth. Well-known and relatively well-studied is the enduring gap between the EU and the US in R&D investment (Van Ark *et al.* 2008, Moncada-Paternò-Castello *et al.* 2010, Cincera and Veugelers 2014) and other intangibles (Haskel and Westlake 2017). Recent work has also examined the role of the diffusion of innovation between and within countries (Andrews *et al.* 2015, Cirera and Maloney 2017), while Gopinath *et al.* (2017) and Restuccia and Rogerson (2017) discuss causes and costs of capital misallocation. But there are also many factors to be considered, such as skills constraints (Cedefop 2018), market size, and the recent, less well-known divergence in the investment rates in machinery and equipment between the EU and the US.

The [EIB Investment Report 2018/2019](#) (EIB 2018) provides a comprehensive analysis of investment and investment finance in Europe. Building on the latest findings of a unique annual survey of 12,500 firms across Europe<sup>1</sup>, it analyses structural and cyclical factors influencing investment in various assets classes, opening a window on some of the weaknesses of the EU economy, the likely cost of inaction, and what a 'retooling' should entail.

## **After a strong investment recovery, headwinds are strengthening, and structural challenges remain**

Investment has been clearly recovering in Europe, on the ground of supportive monetary policy and financing conditions. The intensity of investment in the EU, relative to GDP, is now close to its long-term average level. Its recovery has been driven by investment in machinery and equipment and intangibles, with investment in dwellings and structures now also picking up. Monetary and financial conditions have supported this recovery: the cost of borrowing for businesses is still historically low, and the share of firms in the *EIB Investment Survey* (EIBIS) that name access to finance as a major impediment to investment is low and declining at 17%.

*Europe's economy still lacks the 'tools' to meet the urgent challenges of the future: remaining globally competitive in the face of rapid innovation and digitalisation, achieving sustainability, and creating an inclusive and cohesive society*

However, headwinds are strengthening, adding to long-lasting concerns about low potential growth. EIBIS asks firms to assess the relevance of different factors in influencing investment activities. The net share of firms considering the general economic climate as supportive for investment has declined relative to 2017, while the net share of firms considering political and regulatory conditions as negative for investment has substantially increased. This is an early indication of changing sentiment, with Brexit, rising social tensions, political polarisation, and increasing economic risk contributing to rising uncertainty.

### **Structural weaknesses in the EU economy**

In a period of disruptive technological transformation, Europe's recovery has actually been relatively weak, at least in relation to the US experience. Since the crisis, a gap has opened up in investment in machinery and equipment. While some of this effect is related to the shale boom in the US, it also raises questions about whether the EU will be able to keep up in terms of technological transformation, with widespread adoption of new technologies.

This gap in tangible investment is even more worrisome when viewed in combination with the well-known gap in investment in intangibles. European firms still fail to see the need to invest in different forms of intangibles to internalise complementarities across different forms of investment. R&D is not the only important form of intangible investment. Investment in software, skills, and organisational transformation are all becoming essential elements in the new digital world, both in the manufacturing and the service sectors.

At the forefront of the innovation process, the EU also shows a concerning lack of dynamism. Based on [EIBIS data](#), we can categorise firms according to whether they do not innovate, just adopt innovations, conduct R&D, or are 'leading innovators' who are both doing R&D and introducing globally new products. What we see is that the EU, compared to the US, has more firms that do not innovate at all or that only adopt innovations. Where Europe is



really lagging behind is in terms of leading innovators, particularly among young firms. This is a symptom of a more static system, where fewer young firms succeed in displacing older rivals.

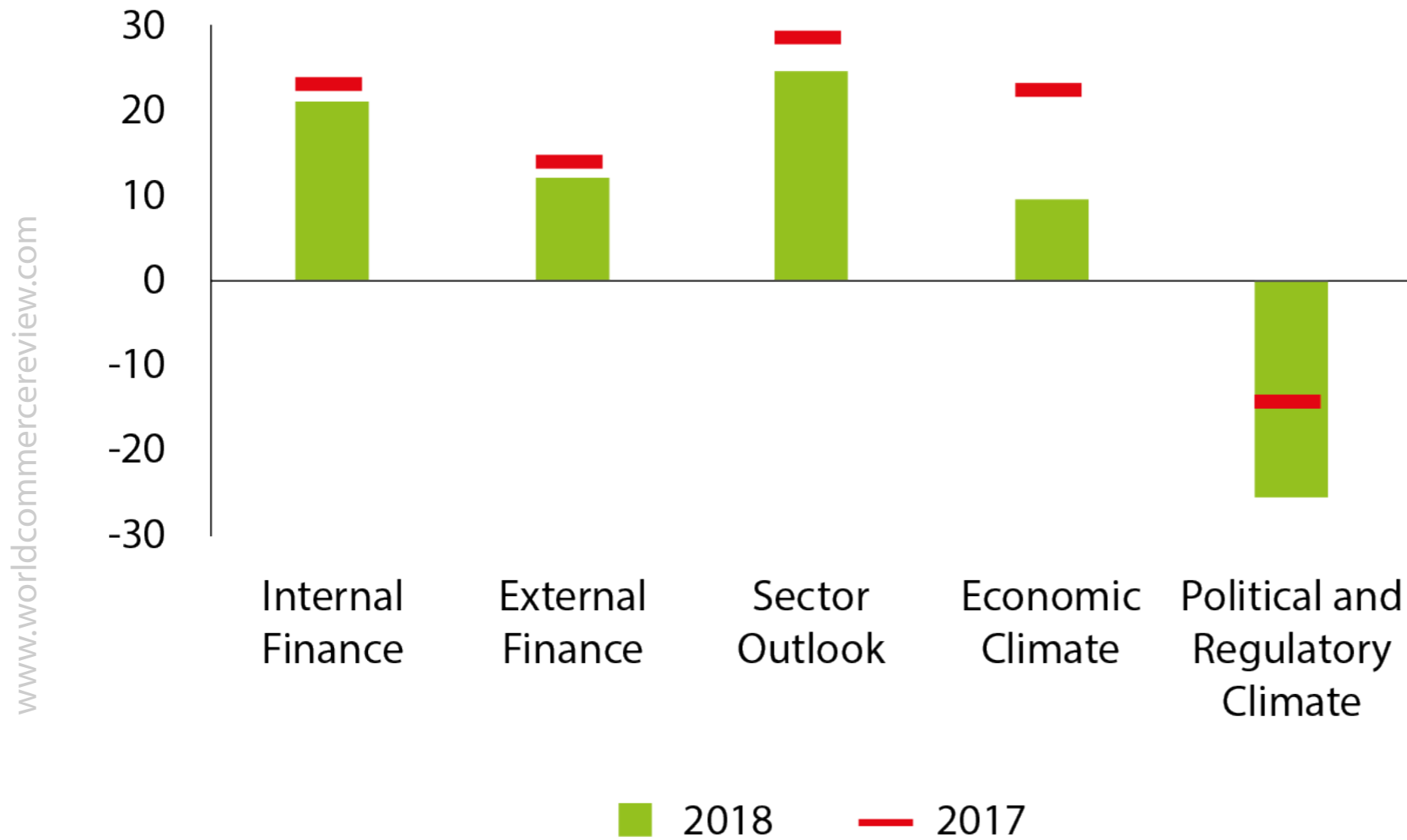
When we look at the top firms globally for R&D expenditure, what we see is not only the dramatic rise of China but also a relative lack of dynamism in Europe, with fewer new entrants since 2011 among the top firms, compared to the US. This is also accompanied by the much lower presence of European firms in high-tech sectors.

One of the constraints facing innovation and technological transformation in Europe is finance. The European financial sector is largely bank-based, with banks being relatively unsuited to financing innovation and intangible investments. While the cost of debt now stands at around 400 basis points below its pre-Global Crisis level, the cost of equity has not fallen to such an extent. The equity risk premium remains elevated and the spread between equity and debt is still larger than before the crisis. Private equity, venture capital and listed equity funding all lag behind the US and advanced Asian countries on several fronts, leaving European firms more dependent on bank lending and weakening resilience to financial shocks.

The effects of this are visible in EIBIS data. When we compare innovating with non-innovating firms, we see that the innovators show better performance and financial health, yet are significantly more likely to be financially constrained. Their dissatisfaction with the collateral requirements for bank credit is also particularly marked, as you would expect for firms investing in intangibles such as intellectual property.

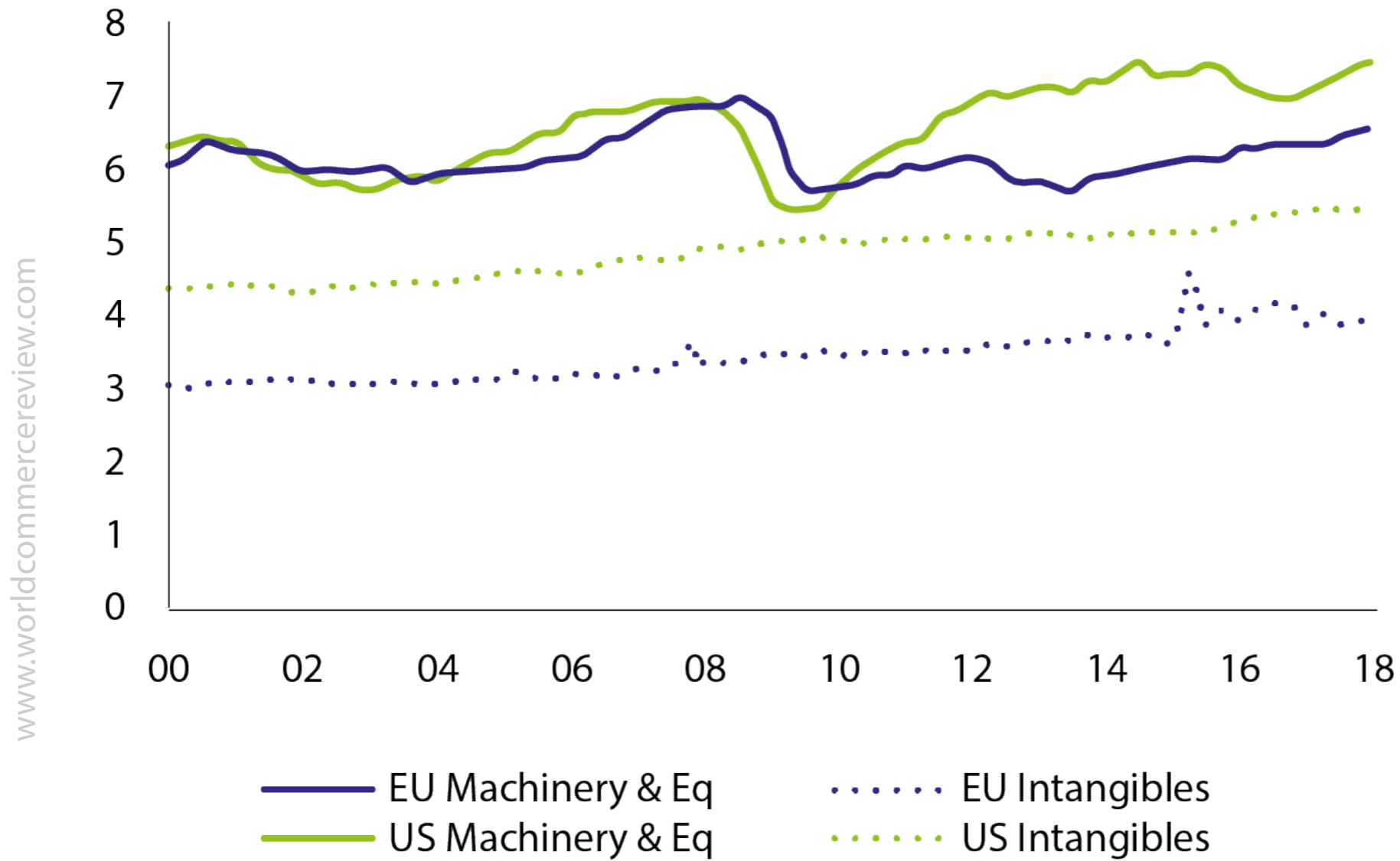
Skills present another constraint: 77% of European firms consider the limited availability of staff with appropriate skills to be an impediment to investment. This skills gap reflects a structural process of adjustment to changing technology and skill requirements, exacerbated by a tight labour market in many EU countries and migration in Central and Eastern Europe. At the firm level, it is the more innovative firms that more often report limited skills

**Figure 1. Headwinds are strengthening (firms considering each factor supportive, minus firms considering it negative)**



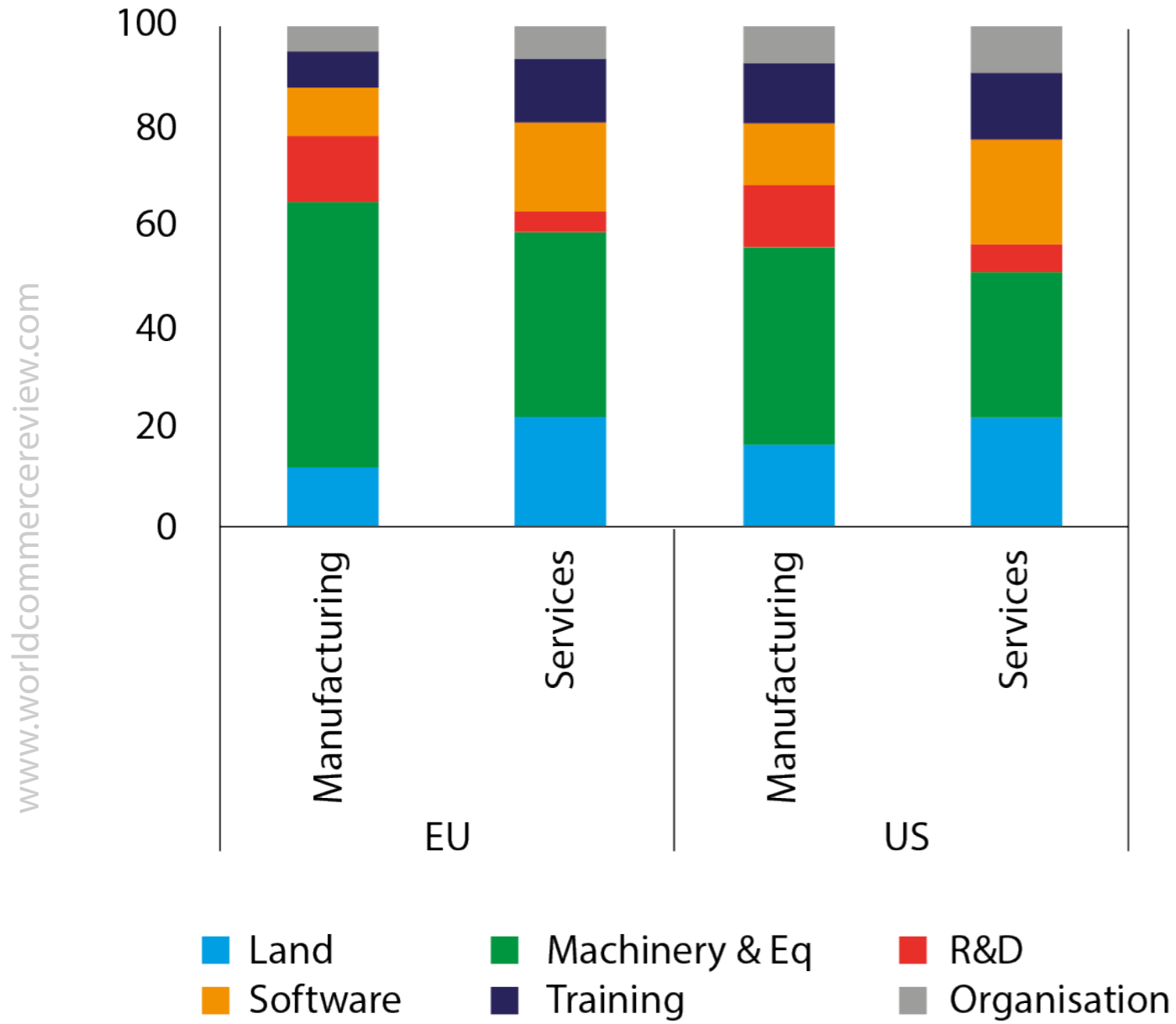
Source: EIBIS 2018.

**Figure 2. Investment gap, EU vs US (machinery & equipment and intangibles, % of GDP)**



Source: Ameco.

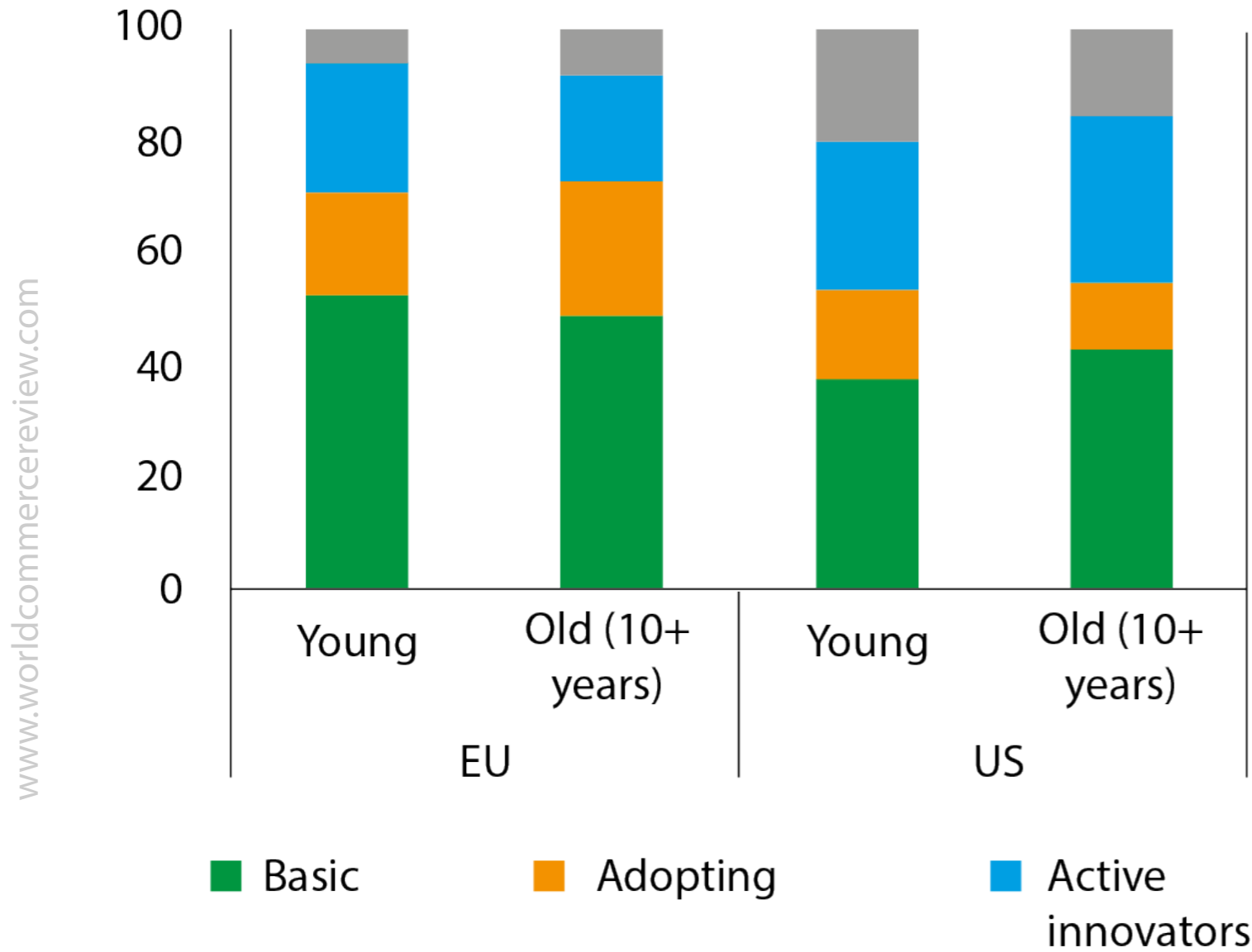
**Figure 3. European firms invest less in intangibles (% of total firm investment)**



Source: EIBIS 2018.



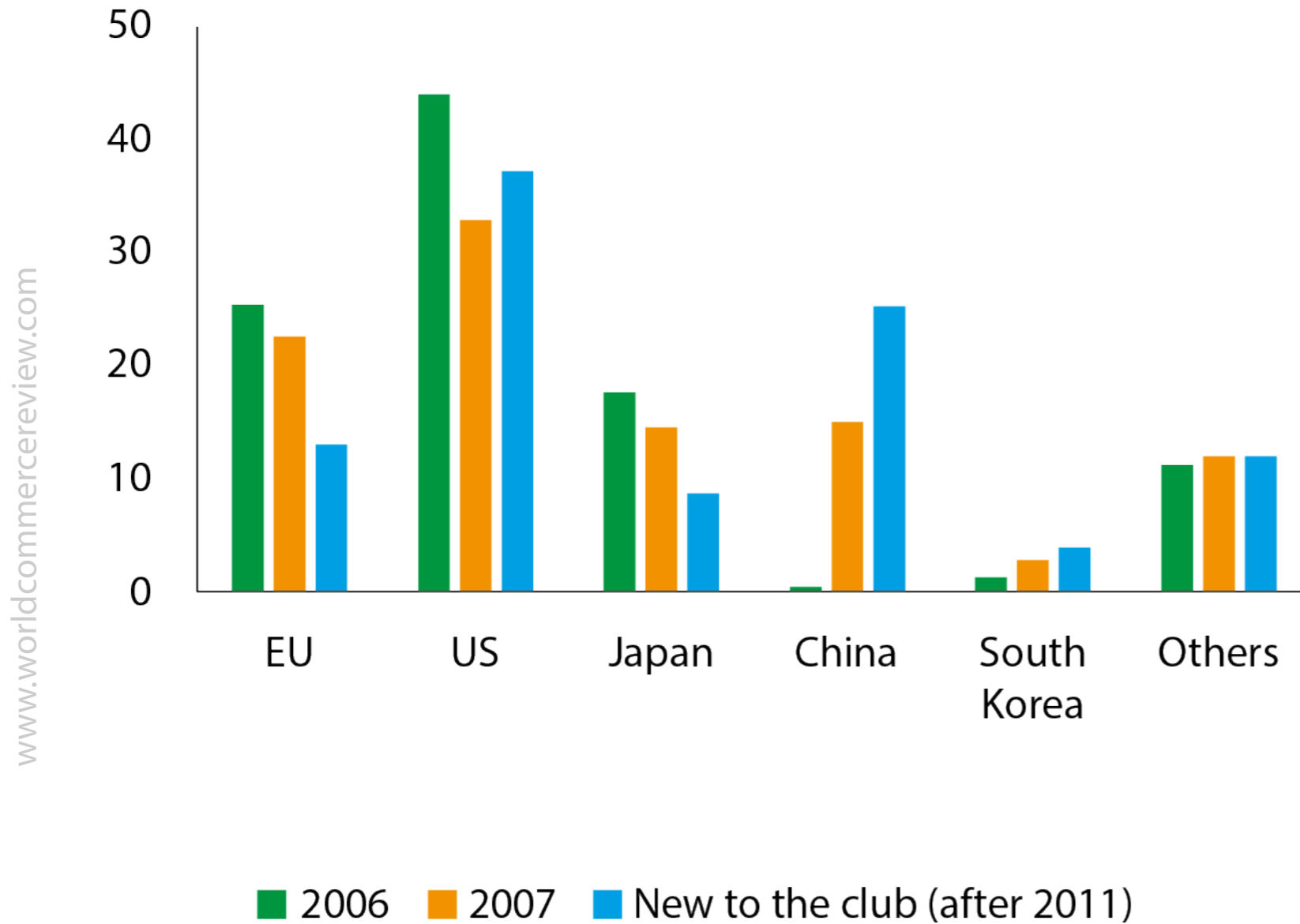
**Figure 4. Europe has less leading innovators (innovation profiles by age of the firm, %)**



Source: EIBIS 2018.

Note: Innovation profiles are defined based on firms' spending on R&D and firms' introduction of products and processes new to the firm, country or world.

**Figure 5. Europe has fewer 'new' global leaders (share of top 2,500 R&D global spenders, %)**

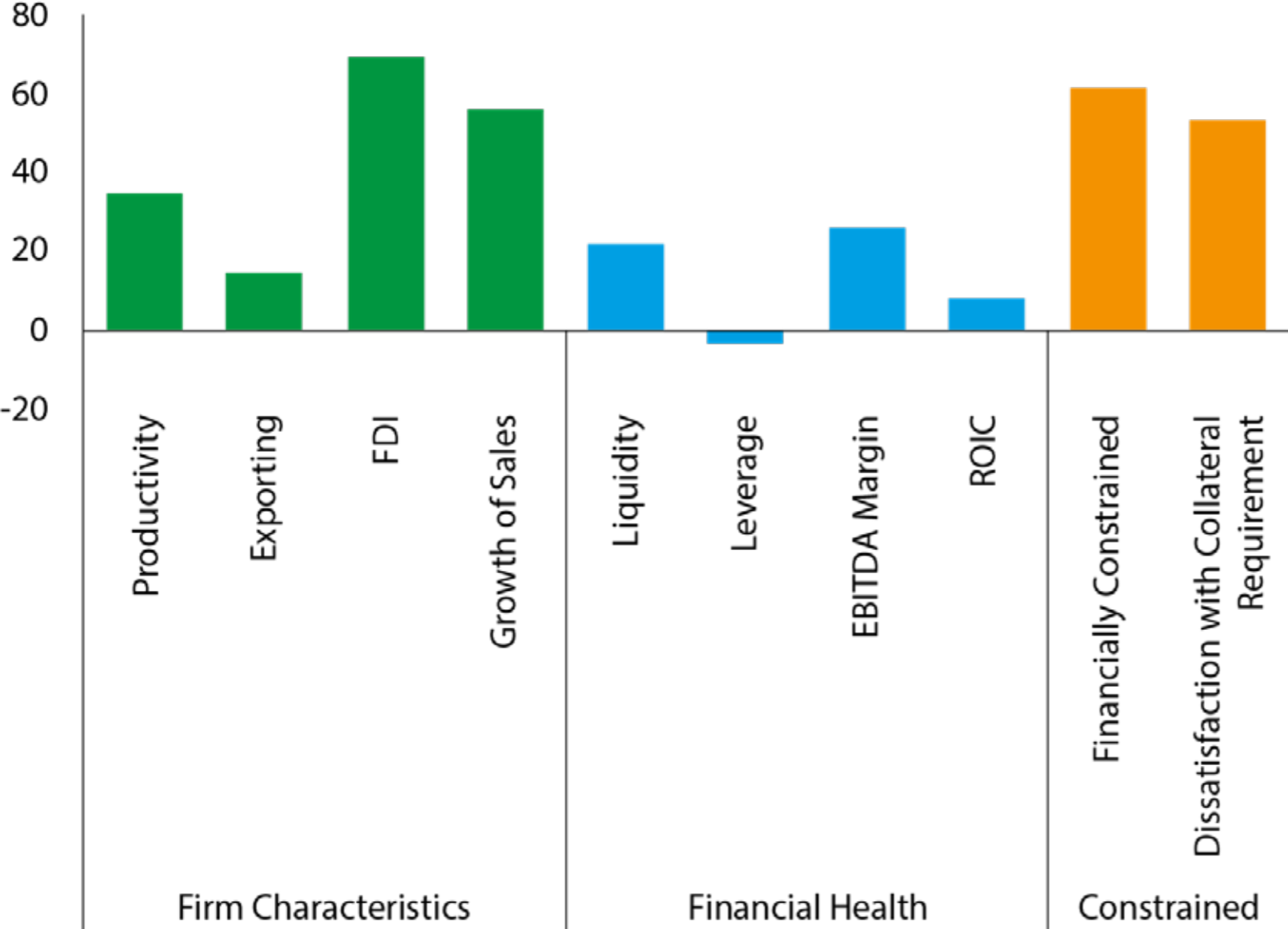


Source: EU Industrial R&D Investment Scoreboard.

Note: % firms in the top 2,500 R&D global spenders in 2006 and 2017, and % of new entrants to this group after 2011.

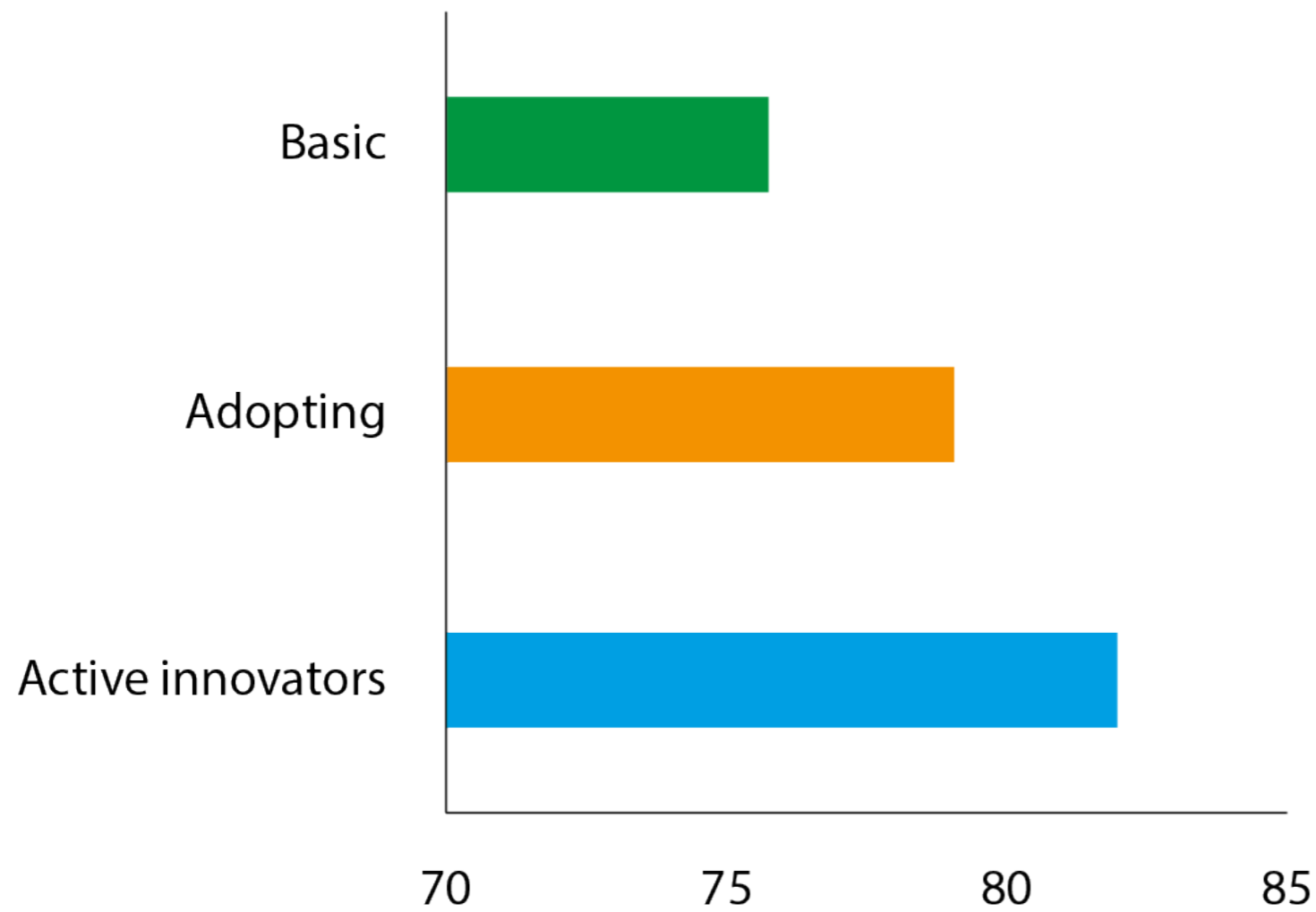
**Figure 6. Difference between innovating and non-innovating firms (% deviation from non-innovators, defined as non-patenting firms)**

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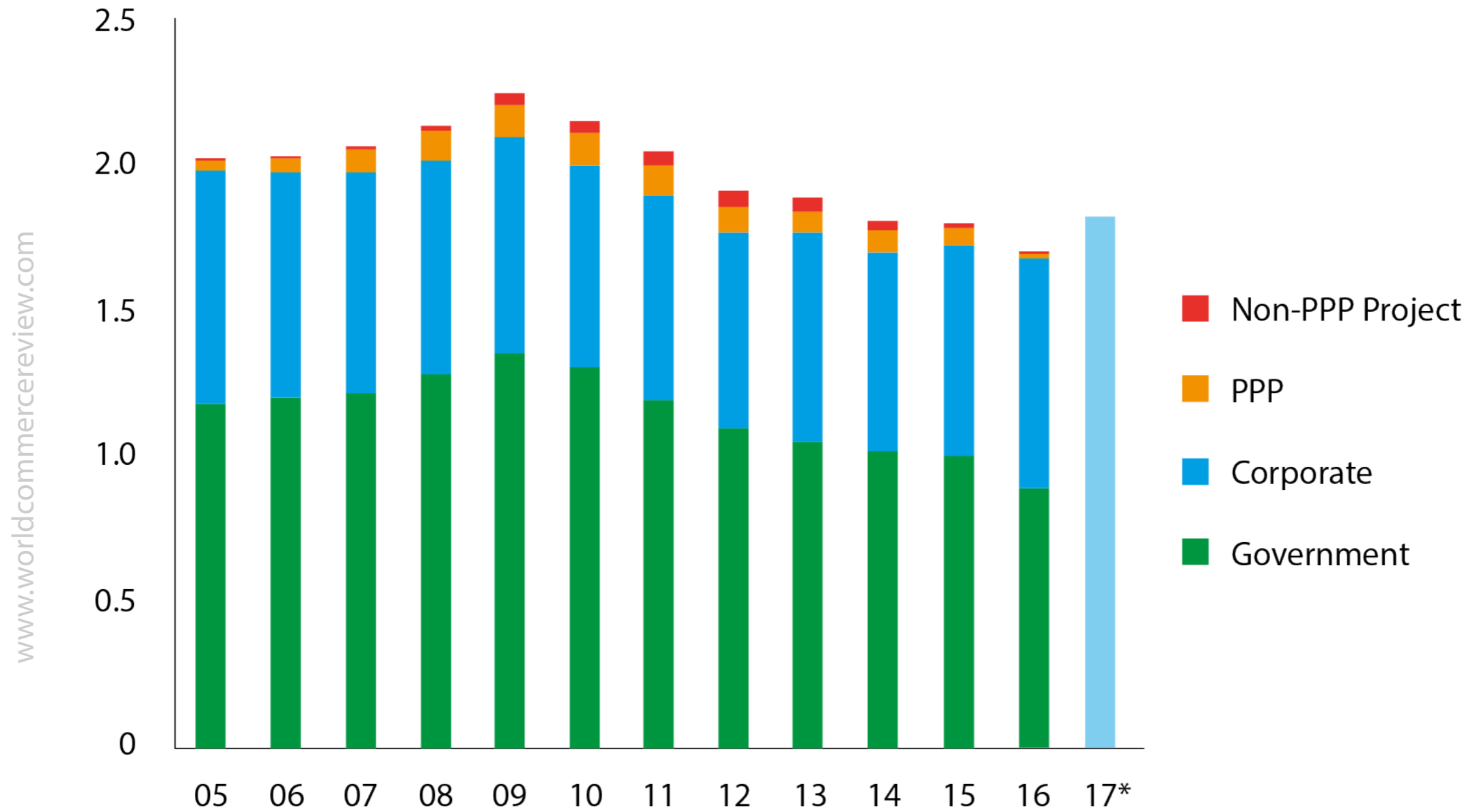


Source: EIBIS 2018.

**Figure 7. Lack of skills, by firms' innovation profile (firms that consider lack of staff with the right skills an impediment to investment, %)**



**Figure 8. Infrastructure investment remains low (investment in infrastructure, % of GDP)**

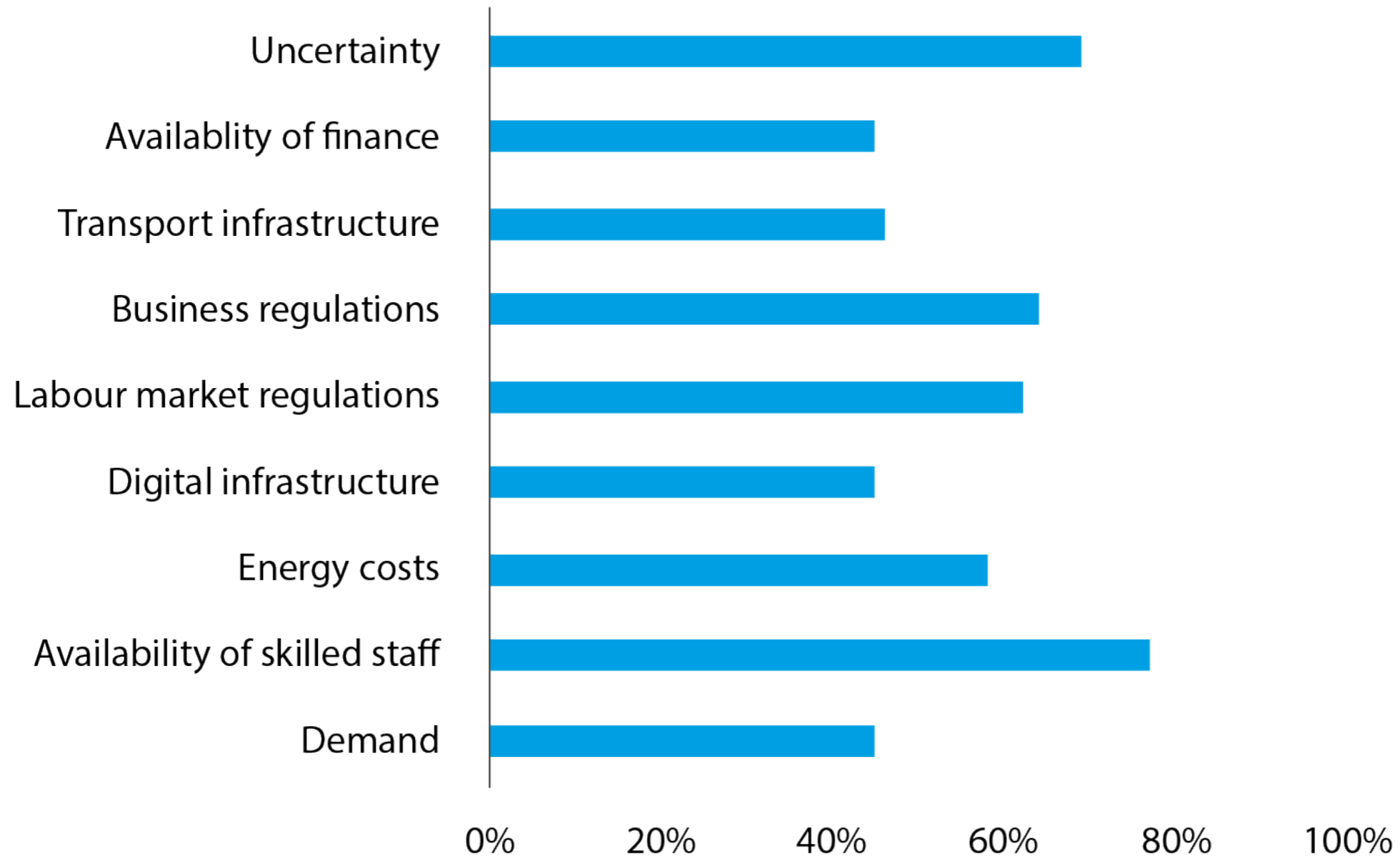


Source: EIB Infrastructure database.

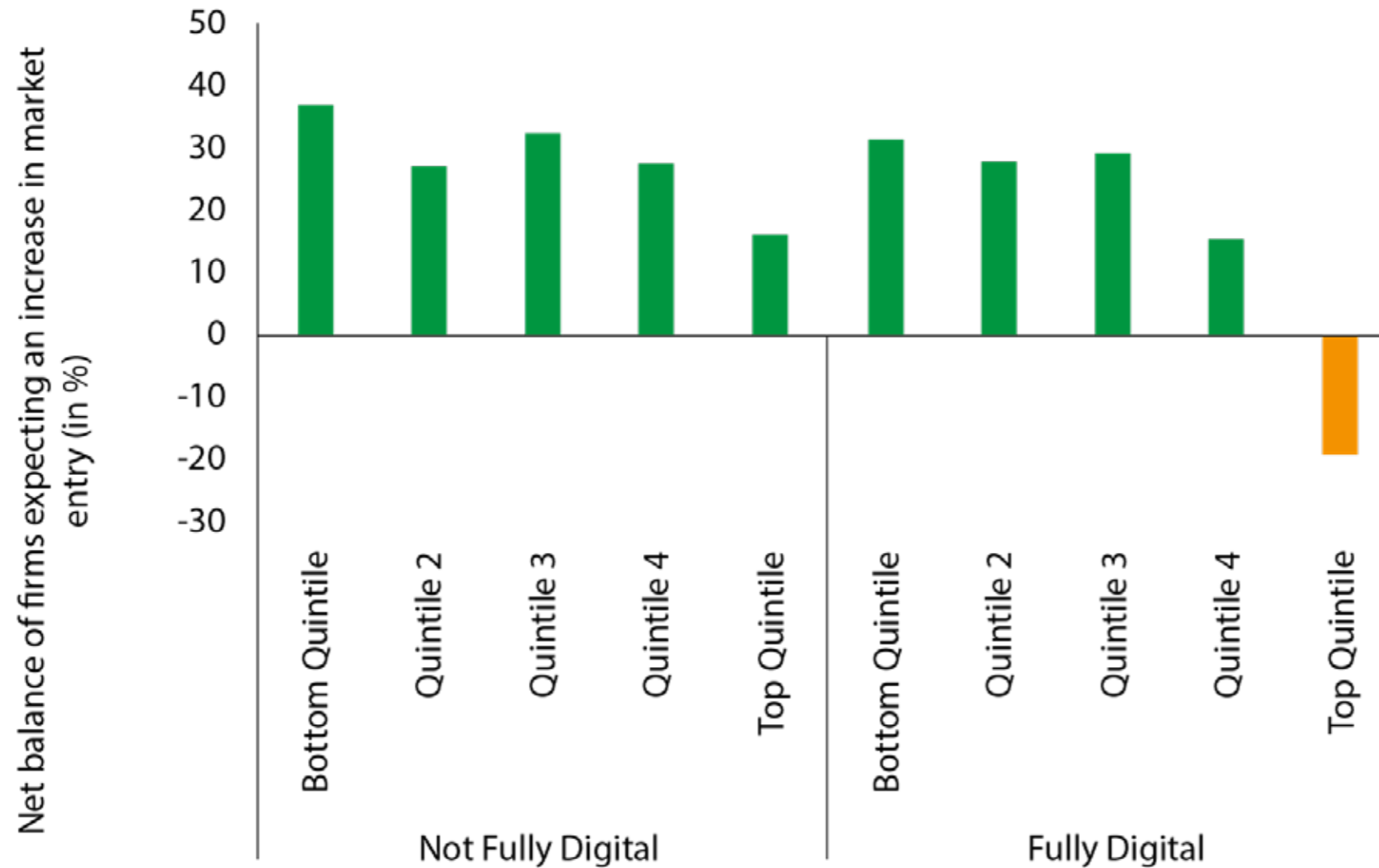
Note: \* Provisional estimate.



**Figure 9. Long term barriers to investment (% firms reporting impediment to investment)**



**Figure 10. Will digitalisation increase competition? (expectations by productivity quintiles for fully and not-fully digital firms)**



Source: EIBIS Digital and Skills Survey 2018.

Note: Firms are grouped by quintile in terms of total factor productivity. The graph shows the percentage of firms that expect digitalisation to increase competition minus those that expect competition to decrease (net value).

availability as a constraint. Seventy-one percent of EU firms invest in training, but only 21% consider that their recent investment in training has been sufficient. This may partially reflect the difficulty firms face in internalising benefits from training, pointing to the importance of public action in this area.

Quality infrastructure is another vital economic enabler, but investment in infrastructure in the EU is lagging the recovery. At 1.7% of GDP, it now stands at about 75% of its pre-Financial Crisis level and shows only little sign of an upturn. This does not appear to be a response to need saturation: the fall in investment is not correlated with infrastructure quality and one in three large municipalities in Europe say that infrastructure investment is still below needs.

Instead, it reflects a shift in public investment away from infrastructure during the crisis. Along with a retrenchment of the public sector, the capabilities to generate projects has been declining. Finance is not the only gap. Planning capacity is poor as well as project generation capacity. A new narrative is needed, as well as clearer incentives for the private and public sector to cooperate.

In addressing these weaknesses, the institutional framework will be key. Forty-three percent of municipalities regard technical capacity for planning and project generation as a major obstacle. Difficulties in properly structuring public-private partnerships mean that incentives for private sector operators are unclear.

We also see that firms are three times more likely to innovate and nine times more likely to introduce a patent in regions that score well on indicators of institutional quality. Meanwhile, firms consider both business and labour market regulations to be significant impediments to investment.

## **In the face of disruptive digital technologies and a global race for technological leadership, the cost of inaction is high**

Our EIBIS survey module on digitalisation and skills, covering 1,700 firms in the EU and the US, is a first direct comparison of achievement in digitalisation in the EU and the US. The results of the survey suggest that firms that adopt digital technologies tend to be more productive, invest more, and engage more in innovation activities. They also credit the adoption of digital technologies with increased sales: 50% more firms in manufacturing and over 60% more in services believe that their sales would have been lower, had they not adopted digital technologies.

More worryingly, digitalisation appears to be creating winner-takes-all dynamics. On the one hand, digitalisation is associated with higher markups, suggesting a lack of competition. On the other, the most productive digitalised firms stand out in expecting, on balance, that digitalisation will lead to a decrease in the competition they face. These dynamics suggest that late adoption of digital technologies could have disproportionate and long-lasting effects on competitiveness.

In the context of the growing relevance of disruptive technologies, there is a cost of inaction. Thus far, in the manufacturing sector, European firms have kept pace with their US counterparts in terms of digital adoption, but in the service sector, EU firms are lagging. Moreover, when one looks at the most advanced forms of digitalisation (internet of things, big data, and software development), the digital gap between Europe and the US is more evident.

## **We need to retool Europe's economy**

Europe's economy still lacks the 'tools' to meet the urgent challenges of the future: remaining globally competitive in the face of rapid innovation and digitalisation, achieving sustainability, and creating an inclusive and cohesive society. This requires a response at all levels, and not least at the European level. European cooperation is needed

to facilitate the allocation of European savings towards the most productive use, overcoming investors' home bias. This means advancing financial integration through the CMU and Banking Union. It also means making full use of EU instruments such as the EIB and the EU budget.

Our analysis also points to key areas for attention:

- Encouraging a dynamic, innovative business environment through improving regulatory conditions for firm growth, and market entry and exit, and through addressing the 'equity gap' and 'growth stage trap', on the demand and supply sides.
- Committing to market efficiency through further deepening the single market, particularly for services (crucial for digitalisation incentives), and through creating the conditions for a true European digital market.
- Unblocking critical investment in infrastructure and innovation through better infrastructure governance, complementing finance with technical capacity, and through support to innovation and adoption of new technologies, focusing on all intangibles, not only R&D, and considering the complementarities between asset classes and private/public investment.
- Working together to close the skills gap, an issue that provides an opportunity for win-win policies that address both competitiveness and social inclusion, and where there is potential for more coordinated action at the EU level.



Retooling Europe must be socially and environmentally sustainable, taking into account the impacts of automation on jobs and demand for skills, issues of cybersecurity and data governance, and, not least, the need for a step-change in investment in climate change mitigation. ■

## **Debora Revoltella is the Chief Economist and Director of the Economics Department of the European Investment Bank**

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1. *The EIB Investment Survey (EIBIS)*. Further information and survey data can be accessed at: [www.eib.org/eibis](http://www.eib.org/eibis).

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# Trade and growth in the age of global value chains



The rise of protectionism has revived the debate about the benefits of trade. Carlo Altomonte, Laura Bonacorsi and Italo Colantone highlight the important role played by GVCs in allowing countries to gain by trade



**A**mid Brexit and protectionist moves by President Trump, many observers are warning about the negative effects that a rise in trade barriers could have on growth. This column first highlights the important role acquired by deep-water ports as main hubs for trade during 1995-2007 and how they have allowed countries to gain from trade. It then shows that becoming embedded in global value chains is a powerful determinant of growth, even if it implies that a growing share of gross exports represents value added that has been produced in foreign countries.

The recent protectionist moves by President Trump and the Brexit negotiations have revamped the debate about the benefits of trade. Many observers are warning about the negative effects that a rise in trade barriers could have on growth, especially on the grounds that national economies have become deeply connected through global value chains (GVCs) (Blanchard 2017, de Gortari 2018, Dhingra *et al.* 2017, Head and Mayer 2016).

Yet, we still know little about the growth implications of GVCs. Indeed, none of the available studies investigating the causal effect of international trade on growth focuses on this issue.

As production processes are sliced up across different countries through GVCs, the gross exports of any country embody an increasing share of foreign value added. Moreover, there is substantial double counting in trade figures, as intermediate inputs cross borders multiple times before consumption takes place.

Finally, countries are different in the extent to which they participate in global value chains, and also in their positioning within them, ie. from assembling to more upstream stages of the production chain. In a recent paper (Altomonte *et al.* 2018), we set out to investigate the implications of these phenomena for the trade-growth nexus.

We focus on the pre-crisis period 1995-2007, which has witnessed a rapid expansion of GVCs (Johnson and Noguera 2017, Timmer *et al.* 2014). We develop a new instrument for gross trade and for the different value-added components of exports.

To this purpose, we exploit the transportation shock provided by the sharp increase in the maximum size of container ships. We find that trade has a positive effect on growth. Most importantly, we show that the effect of exports is crucially moderated by differences in their value-added composition.

*... the positive effects of trade on growth remain relevant and are not necessarily weakened by the expansion of GVCs*



In particular, we find evidence of stronger export effects on growth for countries that upgrade their positioning or improve their participation to GVCs more than others over time.

### **The transportation shock**

Assessing the causal impact of trade on growth is a notoriously difficult exercise due to the endogeneity of trade. For instance, countries whose income grows more for reasons that are not related to trade may still engage in more trade. Several instrumental variable strategies have been adopted in this context.

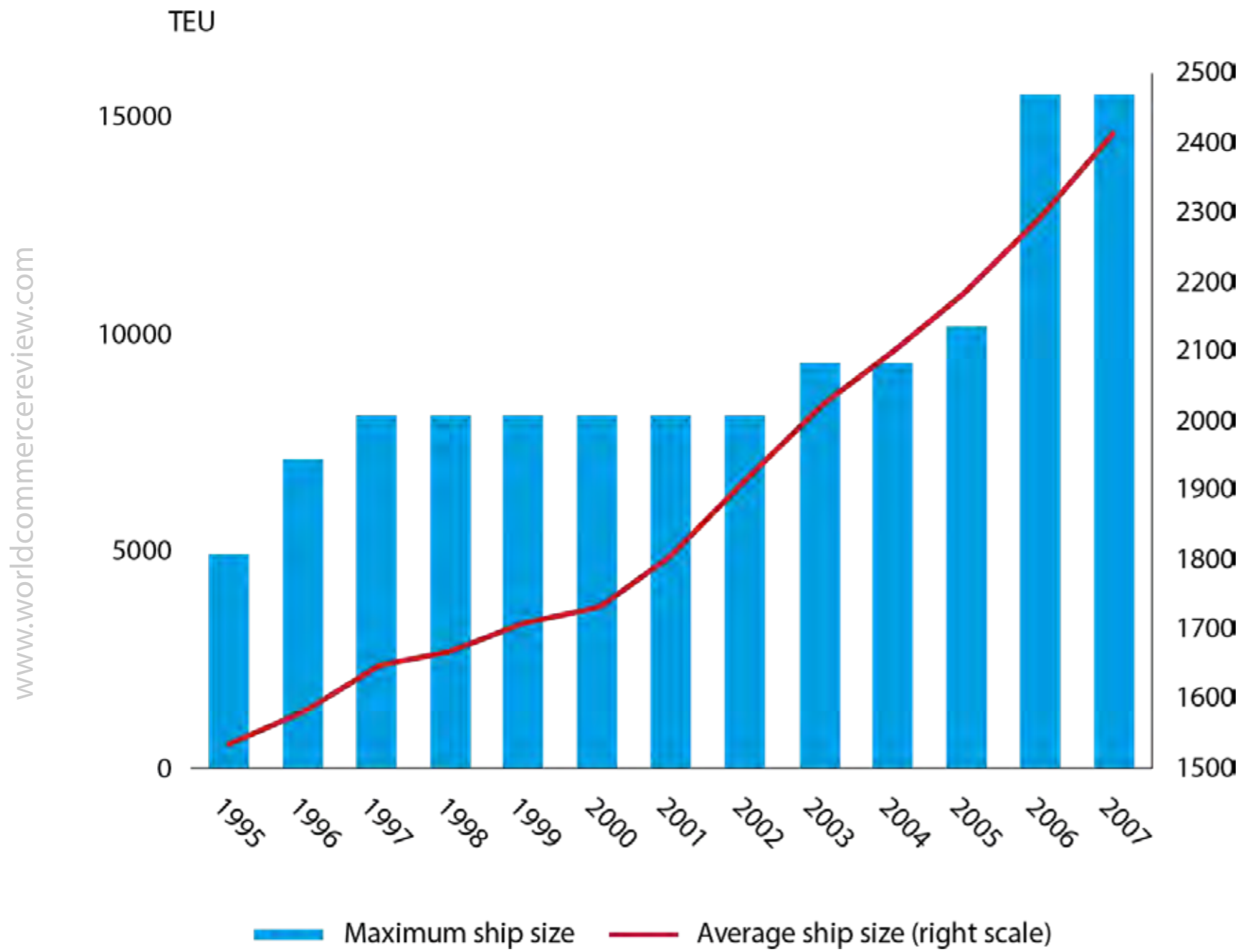
In line with the most recent studies (Feyrer 2019, Pascali 2017), we construct our instrument for trade by exploiting a shock to transportation technology that has an asymmetric impact across different bilateral trade flows.

As a shock, we exploit the fact that the maximum size of container ships has more than tripled over the sample period, from about 5,000 to 15,500 TEU (twenty-foot equivalent units, corresponding to one standard container - see Figure 1). This technological shift has been a game changer for the transportation industry, allowing for substantial economies of scale.

The new larger ships available have been widely adopted, leading to a rapid growth in the average capacity of the world container ships fleet, which has increased by 60%, from about 1,500 to around 2,400 TEU (see Figure 1). As a result, containerised trade has been the fastest growing modality of seaborne trade over the sample, ultimately accounting for about 40% of total trade (IMF 2012).

This transportation shock has affected different trade flows asymmetrically, depending on the cross-country presence of deep-water ports, ie. ports with a water depth of at least 16 metres. In fact, the new larger ships have a bigger draft and therefore can only enter deeper ports, which are unevenly distributed across countries.

**Figure 1. Development of container ships, 1995-2007 (TEU)**



As a result, in a relatively short time, a restricted group of pre-existing deep-water ports has become increasingly central for global trade. In particular, in the sample of 40 countries in the World Input-Output Database (WIOD) that constitute the main focus of our analysis, we have identified only 47 deep-water ports with a container terminal where all the new ships introduced over the sample period could operate.

Our baseline analysis involves regressing the GDP per capita of the exporting country on its exports. We construct our instrument by predicting export flows from gravity estimations that include the product between the time-varying maximum size of container ships available in the market and the time-invariant number of deep-water ports in each partner country (normalised by the length of its coast).

The basic intuition is that, as larger ships become available, countries export relatively more towards partner countries that are more endowed with deep-water ports. The identifying assumption is that, conditional on controls, the presence of deep-water ports in partner countries – combined with the increase in the size of container ships – affects domestic GDP in the exporting country only through the trade channel<sup>1</sup>.

We allow the impact of the shock to be different across industries, as containerised trade has not the same relevance in all industries (Bernhofen *et al.* 2016). Moreover, we allow for heterogeneity across country pairs based on bilateral characteristics such as distance, as containerised trade is more cost effective at longer distances (Coşar and Demir 2018).

Our baseline gravity estimates imply that for a country like Germany, which has 3,624 kilometres of coast, one additional deep-water port would be associated, on average, with an increase in yearly exports directed to the country by around 4.7%. This is far from negligible.

## The effect of trade on income

We find that gross trade has a positive effect on GDP per capita, both in levels (with an elasticity of around 0.3) and in growth terms. We obtain similar results both when focusing on the 40 countries included in WIOD (2013 Release), for which gross exports can be decomposed thanks to the availability of harmonised input-output tables, and when enlarging the sample to all countries worldwide for which trade and GDP data are available.

We also provide evidence on the microeconomic channels behind this effect, in terms of productivity growth and capital deepening. Specifically, we detect a positive effect of trade on both value added and capital per worker, not only at the country level but also at the industry level.

## The role of GVCs

To investigate the role of GVCs, we decompose gross export flows in their different value-added components, using the methodology of Wang *et al.* (2013). We obtain a specific instrumental variable for each component by running separate gravity estimations. We show that differences in the value-added composition of exports matter in moderating the effect of trade on income.

As a first step, we consider separately the domestic and the foreign components of gross exports. Intuitively, one could expect a lower trade elasticity of income in contexts where foreign value acquires a more prominent role as a share of total exports, since the foreign component of exports is not directly related to domestic activities that would contribute to GDP in the exporting country.

As expected, we find that the elasticity of income to exports decreases with the share of foreign value embodied in a country's gross exports. Yet, this is not the case when the growth of foreign value reflects a significant (above the median) increase in participation or upgrade in positioning within GVCs. In such contexts, indeed, exporting foreign

value seems to generate higher positive spillovers for the domestic economy, as stemming from the enhanced involvement in GVCs.

Specifically, as a proxy for participation we consider the ratio between the foreign component of pure double counting and the total foreign value of exports (Wang *et al.* 2013). An increase in this ratio indicates the deepening of cross-country production sharing, with the exporting country getting more embedded in global value chains. As a proxy for positioning, we take the ratio of foreign value added embodied in intermediates over the total foreign value of exports (Wang *et al.* 2013).

An increase in this ratio captures the fact that a country is upgrading its industries to start producing intermediates that are exported to other countries for final goods' production. For each indicator, we compute the change at the country level over the whole sample period, from 1995 to 2007. We instrument such changes using variations in the corresponding ratios based on predicted trade flows, as obtained from the component-specific gravity estimations.

### **Policy implications**

Our results have important policy implications. First, they suggest that the positive effects of trade on growth remain relevant and are not necessarily weakened by the expansion of GVCs. Getting embedded in global value chains seems to be a powerful determinant of growth, even if it implies that a growing share of gross exports represents value added that has been produced in foreign countries.

Moreover, exports have a positive effect on GDP growth even for countries that are not displaying substantial upgrades in positioning within GVCs over the sample, although climbing the value chain results in growth premia. Second, investing in physical infrastructures to facilitate trade seems to be key.

Our results highlight the important role acquired by deep-water ports as main hubs for trade over the sample period. In light of our findings, the widespread investments observed in more recent years for the creation of new deep-water ports appear as a well-motivated and important step for trade facilitation and growth. ■

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#### Endnotes

1. Had we used the number of deep-water ports in the exporting country, one could wonder that those ports could be having an effect on domestic growth through channels other than trade, for instance by stimulating more domestic investments in infrastructures (Brooks et al. 2018). In the paper, we discuss a number of robustness checks where we consider also the role of deep-water ports in the exporting country, with fully consistent results. In any case, our identification strategy does not necessarily hinge on the joint presence of deep-water ports both in the exporter and in the partner country, as the transportation shock may have an impact on a country's exports independently on its type of sea access.

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# Sovereignty in a globalised world

Countries need to work together to exercise sovereignty in a globalised world, says Mario Draghi. EU membership helps countries withstand external pressures and achieve policy goals they could not realise alone



**T**here are many examples of the benefits of the close cooperation within the European Union that enjoy widespread popularity. But we know that other elements of European integration are more contested today. At the root of this debate is the inherent tension between the clear gains of economic integration, and the cooperation that is necessary to bring it about, which can sometimes be politically difficult to achieve or explain. I would like to argue that, in many ways, this tension is illusory. Rather than taking away countries' sovereignty, the EU offers them a way to regain it.

This does not mean we need the EU for everything. But in the face of globalisation, the EU is more relevant than ever today. As Jean Monnet said, *"we need a Europe for that which is essential ... a Europe for what nations cannot do alone."*<sup>1</sup>

### **Sovereignty in an interconnected world**

On the whole, European citizens appear to welcome the benefits brought about by economic integration through the EU<sup>2</sup>. The free movement of people, goods and services – that is, the Single Market – is routinely seen by citizens as the EU's most positive achievement. In the euro area, 75% of people are in favour of the euro and Monetary Union, and 71% of Europeans support the EU's common trade policy.

Yet at the same time, public attitudes towards the EU's political structures seem to be hardening. Average trust in the EU stands at 42%, down from 57% in 2007. This decline has taken place against the backdrop of a general loss of faith in public institutions. Trust in national governments and parliaments has dropped to just 35%.

This tension between economic integration and political cooperation is fuelled by a powerful belief that there is an inherent trade-off between EU membership and the ability of countries to exercise sovereignty. In this way of

thinking, if citizens want to be able to exert more control over their destinies, they have to loosen the EU's political structures. But this belief is wrong.

It is wrong because it conflates *independence* with *sovereignty*.

True sovereignty is reflected not in the power of making laws – as a legal definition would have it – but in the ability to control outcomes and respond to the fundamental needs of the people: what John Locke defines as their “*peace, safety, and public good*.”<sup>3</sup> The ability to make independent decisions does not guarantee countries such control. In other words, independence does not guarantee sovereignty.

*In today's world, technological, financial and commercial interlinkages are so powerful that only the very largest countries are able to be independent and sovereign at the same time*

Countries that are completely shut off from the global economy, to take an extreme but instructive example, are independent but not sovereign in any meaningful sense – often relying on external food aid to feed their people. Yet being connected through globalisation also increases the vulnerability of individual countries in many ways.

They are more exposed to financial spillovers and to the aggressive trade policies of foreign states, while increased competition makes it harder for states to coordinate with one another to enforce regulations and set standards so as to achieve their social goals. This restricts their control over domestic economic conditions.

In this environment, countries need to work together to exercise sovereignty. And this applies even more within the EU. Cooperation within Europe helps *protect* states from external pressures, and it helps *enable* their policy choices.

### **Working together to protect**

Globalisation has profoundly changed the nature of global production and deepened the ties that exist between countries. Cross-border holdings of financial assets are now around 200% of global GDP, compared with about 70% in 1995. Foreign trade has increased from around 43% of global GDP in 1995 to about 70% today. And around 30% of foreign value added is now created through global value chains<sup>4</sup>.

At the global level, this process has been driven not just by policy choices, but in large part also by technological progress. Businesses have capitalised on the advances in transportation, telecoms and computing that make it easier to trade globally and fragment production<sup>5</sup>.

Previous policy decisions and geographic proximity make the EU by far the most important trading area for European economies. The majority of world trade takes place within three main trading blocs – the EU, the North

American Free Trade Agreement (NAFTA) and Asia – and though linkages have grown between those blocs, they remain relatively closed to one another. The ratio of extra-regional trade to GDP in these regions is below 15%<sup>6</sup>.

The EU is the most integrated of these blocs. Two-thirds of EU countries' trade is with other member states, compared with about half for the NAFTA region. Around 50% of euro area cross-border financial holdings are from other euro area countries. Practically speaking, this means that Italy exports more to Spain than to China, and more to Austria than to Russia or Japan. In 2017, German direct investment in Italy was five times higher than that of the United States.

Europe has profited a great deal from this integration: it is estimated that the Single Market raises GDP in the EU by around 9%, taking into account both the direct trade and competition effects<sup>7</sup>. But as countries become more interlinked, they also become more exposed to volatile capital flows, unfair competition or discriminatory actions – and this necessitates greater protection for their citizens.

That protection, which EU countries have created together, has allowed them to garner the benefits of openness while limiting, to some extent, its costs. The EU's common structures and institutions contain spillovers, ensure a level playing field and prevent unjust behaviour – in other words, they respond to the needs of citizens and allow countries to exercise sovereignty.

Thus the Council and the European Parliament set common rules for the whole EU, the Commission ensures they are observed, and the European Court of Justice (ECJ) provides for judicial protection if they are violated. In the euro area, European banking supervision and the Single Resolution Mechanism help to contain the effects of financial instability.



In this interconnected environment, seeking independence from EU institutions presents complex trade-offs. Countries either have to accept rules decided by others to ensure continued access to the European market, which gives them less control over decisions that affect their citizens' interests; or they have to disentwine themselves from their most important trading partners, which gives them less control over their citizens' welfare.

If trade barriers were to be reintroduced within Europe, it is estimated that GDP would be about 8% lower in Germany and 7% lower in Italy<sup>8</sup>. The case for working together to enhance sovereignty also applies to the relationship between the EU and the rest of the world. Few European economies are sizeable enough to withstand spillovers from large economies or to leverage power in external trade negotiations. But cooperating at the EU level increases their potential to do so.

The EU accounts for 16.5% of global economic output<sup>9</sup>, second only to China, which gives European countries a large domestic market to fall back on in the event of trade disruptions. EU trade makes up 15% of world trade<sup>10</sup>, compared with around 11% for the United States, providing the EU with significant weight in trade negotiations. And the euro is the world's second-most traded international currency, which helps insulate the euro area economy from exchange rate volatility.

Indeed, around 50% of extra-euro area imports are now invoiced in euro<sup>11</sup>, which reduces the pass-through of exchange-rate volatility to import prices. That in turn allows monetary policy to focus more on euro area economic developments rather than having to react repeatedly to external shocks<sup>12</sup>.

For all these reasons, being outside the EU might lead to more policy independence, but not necessarily to greater sovereignty. The same is true of the single currency.

Most countries would no longer benefit from local currency invoicing, which would exacerbate the effects on inflation if they undertook large exchange rate devaluations. And they would be more exposed to monetary policy spillovers from abroad – not least from the ECB itself – which could constrain their domestic policy autonomy. In recent years, Denmark, Sweden, Switzerland and central and eastern European economies have been affected by spillovers from our policy measures<sup>13</sup>.

In fact, spillovers from larger economies were one reason why the euro was created in the first place. Under the European Monetary System that preceded the euro, most central banks had to follow the policy of the Bundesbank. After more than a decade of disappointing, if not devastating, experiences, it was deemed preferable to regain monetary policy sovereignty by launching the single currency together<sup>14</sup>.

### **Cooperation and economic policy**

The second way in which globalisation constrains sovereignty is by limiting countries' capacity to set laws and standards that reflect their social goals.

Global trade integration tends to reduce that capacity, because as production fragments through value chains, there is a greater need for countries to agree on common standards. Those standards are mostly set not within the World Trade Organization, but by large economies with dominant positions in the value chain. Smaller economies tend to end up as rule-takers in the international system<sup>15</sup>.

Global financial integration can likewise reduce individual countries' power to regulate, tax and uphold labour standards. Multinational firms can influence national regulations through the threat of relocation, as well as arbitrage tax systems by shifting income flows and intangible assets across jurisdictions. There can also be

incentives for countries to use labour standards as a tool of international competition – the so-called ‘race to the bottom’.

This makes it more difficult for countries to enforce their core values and protect their people. It also leads to corporate tax bases being eroded, which makes it harder to finance welfare states<sup>16</sup>. OECD analysis, for example, estimates global revenue losses from tax avoidance to be in the range of 4% to 10% of corporate income tax revenues<sup>17</sup>.

These effects occur when countries are not large enough to exercise regulatory power against mobile capital or cross-border firms. But it is harder for this to happen at the level of the EU, since it represents a market that companies can ill afford to leave. Having regulatory power at the EU level enables EU countries to exercise sovereignty in the areas of taxation, consumer protection and labour standards.

First, the EU gives its members the capacity to prevent multinationals from avoiding corporation tax by exploiting loopholes or extracting subsidies.

This is a complex area, but some recent progress has been made on this front. New European rules have entered into force this year to eliminate the most common corporate tax avoidance practices<sup>18</sup>. And while the ECJ recently ruled against the Commission in a tax exemption case, it also recalled that special tax deals between multinationals and individual countries can constitute illegal state aid, which the Commission has the right to examine<sup>19</sup>.

Second, the EU offers much greater possibilities to defend consumers’ values and ensure that they are treated fairly within the European market.

This has been visible in the EU's ability to enforce its values concerning privacy through the General Data Protection Regulation<sup>20</sup>. It has been visible too in EU regulations to bring down mobile phone roaming charges for consumers within Europe<sup>21</sup>, or to ensure that they cannot be charged more for cross-border payments in euro within the EU than they would be for national transactions<sup>22</sup>.

The third advantage is that countries have the possibility to coordinate within the EU to defend social protections without imposing trade restrictions.

Through the Charter of Fundamental Rights, EU law has reduced the possibility of unfair competition from jurisdictions with laxer labour laws. And it has also helped raise labour standards within the EU.

A case in point is the European Directive on Part-time Work in 1997, which reduced certain forms of discrimination that were still in place in 10 of the then 15 EU member states<sup>23</sup>, including Italy. OECD analysis finds that, over time, the introduction of equal treatment laws was associated with an increased likelihood of people being awarded permanent contracts<sup>24</sup>.

The same protections do not exist at the global level or are much weaker in other regional trading blocs such as NAFTA. The history of the United States itself illustrates the difficulty of aligning the approaches of individual states to improve working conditions.

In the early 20<sup>th</sup> century, there was a growing concern in several US states about the lack of a social safety net, especially for the elderly. But individual states feared that providing social security would impose, in the words of the time, *"a heavy tax burden on the industries of the state that would put them at a disadvantage in competition with neighbouring states unburdened by a pension system."*<sup>25</sup>

The lack of coordination created a severe underprovision of social security, which was exacerbated by the Great Depression. In 1934, half of the population over 65 were in poverty<sup>26</sup>. This was only resolved through the passing of the federal Social Security Act in 1935, which enabled states to coordinate in providing social security.

In a similar way, the EU provides a powerful coordination function that allows countries to achieve goals that they could not realise alone. And the EU is able in turn to export some of its standards globally.

The EU is the top trading partner of 80 countries, compared with just over 20 for the United States<sup>27</sup>. That allows the EU to insist on higher labour and product standards abroad via trade agreements<sup>28</sup>, as well as protecting local producers at home. The recent trade agreement with Canada, for example, protects 143 European geographic indications.

The EU also has regulatory power that goes beyond trade agreements. As exporters to the EU must meet its standards, economies of scale result in the application of those standards to production in all countries. This is known as the 'Brussels effect'<sup>29</sup>. In this way, the EU de facto sets the global rules across a wide range of areas.

All this gives EU countries another unique capacity: to ensure that globalisation is not a race to the bottom on standards. Rather, the EU is able to pull global standards up to its own.

### **Institutions and rules**

In an integrated regional and global economy, the case for European countries to work together to exercise sovereignty is clear. But while many would agree on the need for cooperation, views differ over how best to organise it.

Some would argue that looser, more transactional cooperation led by national governments is sufficient. And there are indeed several historical examples of successful agreements being forged by the coming together of willing states. Where all parties benefit equally, loose cooperation can be sustainable.

One such example is the Bologna Process, which has helped align higher education standards and ensure mutual recognition of university degrees across members of the Council of Europe<sup>30</sup>.

But it is also clear that in cases where cooperation is more necessary, the conditions for loose cooperation would not hold. Spillovers between larger and smaller economies are typically asymmetric. Coordination problems arise because there are incentives for countries to free-ride or to undercut one another<sup>31</sup>. In these instances, deeper modes of cooperation are essential to align countries' interests.

The EU has thus far employed two methods of governance to facilitate cooperation. In some cases, we have invested common institutions with executive power – such as the Commission for trade policy or the ECB for monetary policy. In others, executive power remains with national governments, with cooperation through common rules, such as the framework for fiscal and structural policies.

These areas of economic policy were considered too specific to the situation of individual countries to be entrusted to a common body. It was felt that the only possible form of governance was for countries to exercise national sovereignty, thereby respecting their own specific set of circumstances. A rules-based approach was seen to be the only solution that was consistent with this vision. But it is worthwhile to reflect on how successful this choice has been.



For the cases where executive power has been invested with institutions, most would agree that the institutions have performed relatively well. Trade policy has been effective in opening up access to new markets: the EU has in place 36 free trade agreements, compared with 20 for the United States<sup>32</sup>. Monetary policy has successfully fulfilled its mandate.

But for the areas that use a rules-based approach, some shortcomings have been revealed. The fiscal rules have provided a framework for assessing fiscal policies but have at times proven difficult to enforce and hard to explain to the public. In the area of structural policies, the Country Specific Recommendations have had a limited impact, with less than 10% of recommendations being substantially implemented each year<sup>33</sup>.

The disparity between the outcomes of the two methods does not stem from any difference in the quality of European and national authorities. Instead, it is a consequence of the inherent difference between rules and institutions. There are two reasons why institutions have proven superior.

First, rules are generally static and require countries to adhere to specific *actions*, whereas institutions are required to achieve prescribed *objectives*. Rules therefore cannot be updated quickly when unforeseen circumstances arise, whereas institutions can be dynamic and employ flexibility in their approaches. That distinction matters hugely when underlying parameters and economic relationships change – as they often do. The distinction also matters for citizens, who ultimately care most about the results of economic policy rather than the actions taken by governments.

The ECB's monetary policy during the crisis is an example of the greater flexibility of action afforded by an institution-based approach.

The ECB was faced with a range of challenges that few could have predicted when our mandate was defined. But the Treaty combines our mandate for price stability with discretion over the tools we could use to achieve it. This allowed us to deploy a range of unconventional policy tools to ensure that inflation remained in line with our aim. Neither operating monetary policy according to a fixed rule nor restricting ourselves to conventional policy tools would have sufficed.

Discretion and flexibility in the use of our tools helped to strengthen our credibility. Flexibility and credibility were, in this instance, mutually reinforcing.

By contrast, rules lose credibility if they are applied with discretion. Rules will be undermined if countries find reasons to circumvent them or rewrite them as soon as they bind. But circumstances will always arise which were not foreseen at the time the rules were written and which call for flexibility. In the case of rules, there is an inevitable trade-off between credibility and flexibility.

This is why there are always tensions when it comes to economic policies that follow the rules-based approach. But the transition to an institutions-based approach requires trust between countries. And trust is based on strict compliance with the existing rules, but also on the ability of governments to reach mutually satisfactory compromises when the circumstances call for flexibility and to explain them adequately to their citizens.

That transition nevertheless remains necessary.

The European Commission's recent initiative on the international role of the euro provides a further example of the need to move from the current framework of various laws and ad hoc rules to a system based on harmonisation and institutions.

Rising trade tensions and the growing use of sanctions as an instrument of foreign policy have meant that the laws of the United States are increasingly being applied outside its jurisdiction. This takes the form of penalties for societies outside the United States and the prevention of access to the US payment system and is based on the central role played by the US financial system and the US dollar in global trade.

Several European governments believe that this situation could be mitigated by increasing the international role of the euro. But if markets are to entertain the possibility of an enhanced role for the euro, we need to consider what the conditions are that underpin the dollar's dominance.

The list is long, but the fact that the dollar is an expression of an integrated capital market is certainly one of those conditions<sup>34</sup>. For the EU to meet that condition – which, at this stage of its development, is more achievable than others – would require a complex programme of legislative and institutional harmonisation, which however could be put in place in short order.

The second reason why an institutional approach can help produce better outcomes is that institutions and their actions can be subject to more clearly defined democratic control. Precisely because those institutions are invested with a mandate and defined powers, it is possible to make a more direct link between decisions and responsibility.

The EU already has many channels through which its citizens can exercise democratic control, via national authorities in the EU Council and Members of the European Parliament, who hold EU institutions accountable on behalf of the people who elected them. In fact, for the first time on record, a majority of Europeans now feel that their voice counts in the EU<sup>35</sup>.

It is to be hoped that accountability arrangements to hold EU institutions in check continue to be strengthened, because the perception of the legitimacy of their actions depends on it. The role of the European Parliament is vital here. Of the institutions with a democratic mandate to exercise control, it is the only one with a European perspective.

The European Court of Justice provides a second avenue of democratic control. Its role in ensuring that EU institutions are following their mandates becomes all the more important in the absence of a European government.

Adherence to the judgments of the ECJ is a necessary condition of the rule of law. Consistency and uniformity in the interpretation of EU law across 28 member states are the bedrocks of EU law as an effective and autonomous legal order<sup>36</sup>.

A basic function of the law is to stabilise expectations by providing a reliable foundation upon which citizens and companies can organise their activity and plan for the future<sup>37</sup>. And such predictability and certainty is especially important for Economic and Monetary Union today.

## **Conclusion**

In today's world, technological, financial and commercial interlinkages are so powerful that only the very largest countries are able to be independent and sovereign at the same time, and even they cannot do so entirely. For most other nation states, including the European countries, these two characteristics do not coincide.

The European Union is the institutional framework that has allowed the member states to be sovereign in many areas. It is a shared sovereignty, which is preferable to none at all. It is a complementary sovereignty to the one

exercised by individual nation states in other areas. It is a sovereignty that Europeans like. The European Union has been a political success built within the international order that emerged after the Second World War. It has been a faithful interpreter of the values of freedom, peace and prosperity on which that order was founded.

The European Union has been an economic success because it has provided an environment in which the energies of its citizens have created widespread and lasting prosperity founded on the Single Market and protected by the single currency. The last decade has dramatically highlighted the shortcomings of national policies and the need for cooperation to evolve both within the EU and beyond.

A long global economic crisis, unprecedented migration flows and inequality exacerbated by large concentrations of wealth resulting from technological progress have given rise to rifts in a political and economic order that was thought to be set.

Change is necessary, but there are different ways of bringing it about. One prospect is that age-old ideas that have shaped most of our history are revived, such that the prosperity of some cannot be achieved without the poverty of others; international and supranational organisations lose their relevance as places for negotiating and finding compromise solutions; the affirmation of the self, of the identity, becomes the first requirement of every policy. In such a world, freedom and peace become accessories which can be dispensed with as needed.

But if we want these values to remain essential, fundamental, the path is a different one: adjusting existing institutions to change. This process of adjustment has so far encountered resistance because the inevitable national political difficulties always seemed to be above such need.

This reluctance has resulted in uncertainty about the capacity of institutions to respond to events and has strengthened the voice of those who want to pull down these institutions.

There should be no doubt: this adjustment will have to be as deep as the phenomena that revealed the fragility of the existing order, and as vast as the dimensions of a geopolitical order that is changing in a way that is not favourable for Europe.

The European Union wanted to create a sovereign where there was not one. It is not surprising that in a world where every point of contact between the great powers is increasingly a point of friction, the external challenges to the existence of the European Union become increasingly threatening. There is only one answer: recovering the unity of vision and action that alone can hold together such different countries.

This is not only a hope, but an aspiration based on political and economic advantage. But there are also internal challenges that have to be faced, which are no less important for the future of the European Union. We need to respond to the perception that it lacks equity, between countries and social classes. We need first to listen, and then to act and explain.

So, unity and equity are needed, above all, as a guide for policymaking in Europe.

I would like to recall in closing the words of Pope Emeritus Benedict XVI in a famous speech held 38 years ago:

*“To be sober and to do what is possible, and not to claim with a burning heart the impossible has always been difficult; the voice of reason is never as loud as an irrational cry... But the truth is that political morals consist*



*precisely in resisting the seductions of magniloquent words... It is not moral the moralism of adventure... It is not the absence of all compromise, but the compromise itself that is the true moral of political activity.”<sup>38</sup> ■*

## **Mario Draghi is President of the European Central Bank**

### Endnotes

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*of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation).*

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*This article is based on a speech [delivered](#) on the award of Laurea honoris causa in law from Università degli Studi di Bologna, Bologna, 22 February 2019*



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The background of the slide is a close-up, slightly blurred image of several Euro banknotes. The focus is on a 50 Euro note, with the word 'EURO' and the number '50' clearly visible. The lighting is warm, and the overall tone is brownish-gold. The text is overlaid on this background.

# Should the ECB care about the euro's global role?

Are recent shifts in global governance a reason to strengthen the global role of the euro? Benoît Cœuré argues that policies that make the euro more robust make the debate relevant to the ECB



**T**here is a growing debate in Europe as to whether recent shifts in global governance should be seen as a reason to strengthen the global role of the euro. This column explains that while the ECB does not take a view on foreign policy questions, the alignment between policies that will strengthen the euro's global role and policies that are needed to make the euro area more robust, together with the implications for monetary policy that a stronger international role of the euro would have, make the debate relevant to the central bank.

There is a growing debate in Europe as to whether recent shifts in global governance should be seen as a reason to strengthen the global role of the euro (Juncker 2018, European Commission 2018, European Council 2018). According to some, being the issuer of a global reserve currency confers international monetary power, in particular the capacity to 'weaponise' access to the financial and payments systems.

This debate takes place against a gradual decline of the euro's global role from the mid-2000s onwards (see Figure 1). Despite the euro area's economic size and trading heft, the euro lags behind the US dollar by a wide margin for most measures of global standing (see Figure 2).

As a result, the view is that if Europe does not actively promote the use of the euro in global financial markets and in international trade, it will be increasingly exposed to the risk that the monetary power of others is used against its interests (eg. Tooze and Odendahl 2018).

The ECB does not take a view on foreign policy questions. It does not decide on the role of Europe in the world, or on who uses the euro globally or not. But, as central bank, we are not indifferent to the current debate, for two main reasons.

The first reason relates to the alignment between the policies that will strengthen the euro's global role and the policies that are needed to make the euro area more robust. Specifically, three broad shortcomings are likely to have affected the international role of the euro.

First, international currencies need to provide stability and safety during times of global financial stress. This is what some have coined the 'exorbitant duty' of international currency status (Gourinchas *et al.* 2011, Caballero *et al.* 2015). US Treasuries are widely viewed by international investors as such a safe store of value (He *et al.* forthcoming).

*...provided the right economic policies are adopted, a stronger global role of the euro could help facilitate the transmission of monetary policy across euro area financial markets and reduce perilous fragmentation*

The euro area lacks this common safe asset. Since 2008, the number of AAA-rated euro area sovereigns fell from eight to three. Today, AAA-rated euro area sovereign debt amounts to just 10% of GDP. In the US it is more than 70% (see Figure 3).

Considerable progress has been made in improving the euro area governance framework in recent years. But for the euro to act as a true, effective hedge in times of stress, and therefore to attain and maintain international status, we need to further strengthen the fiscal dimension of Economic and Monetary Union (EMU).

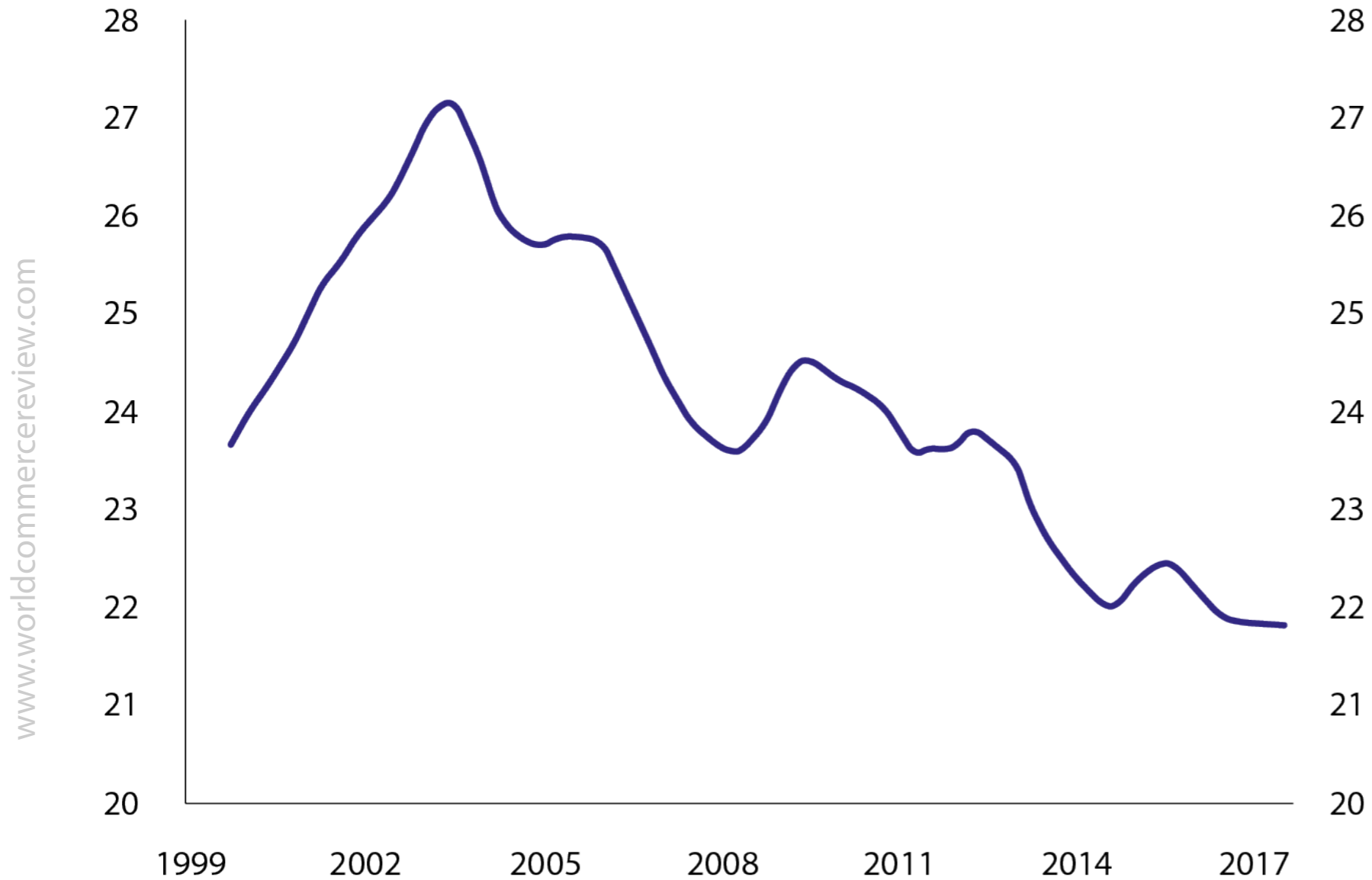
Sound fiscal and structural policies are needed to provide international investors with what they need most: a large and elastic supply of safe assets. And since the journey towards a true European safe asset, one that does not vanish on rainy days, will be long and bumpy, we should also focus our efforts on 'upgrading' the credit quality of outstanding debt by committing to credible fiscal rules.

The second shortcoming of the euro area is the segmentation of its capital markets. Deep and liquid financial markets are key ingredients of an international currency. Financial deepening was an important contributor to helping the dollar dethrone the pound sterling as the leading international currency (Chițu *et al.* 2014).

Capital markets in Europe are still fragmented along national lines. Various legal and institutional barriers hinder the creation of a single European market. The Capital Markets Union should be a key priority for the next European Commission and Parliament (ECB 2015).

The third and final factor that has likely held back the international role of the euro relates to the ability of Europe to speak with one voice on international affairs. Empirical evidence suggests that nations that depend on the US security umbrella hold a disproportionate share of their foreign reserves in dollars.

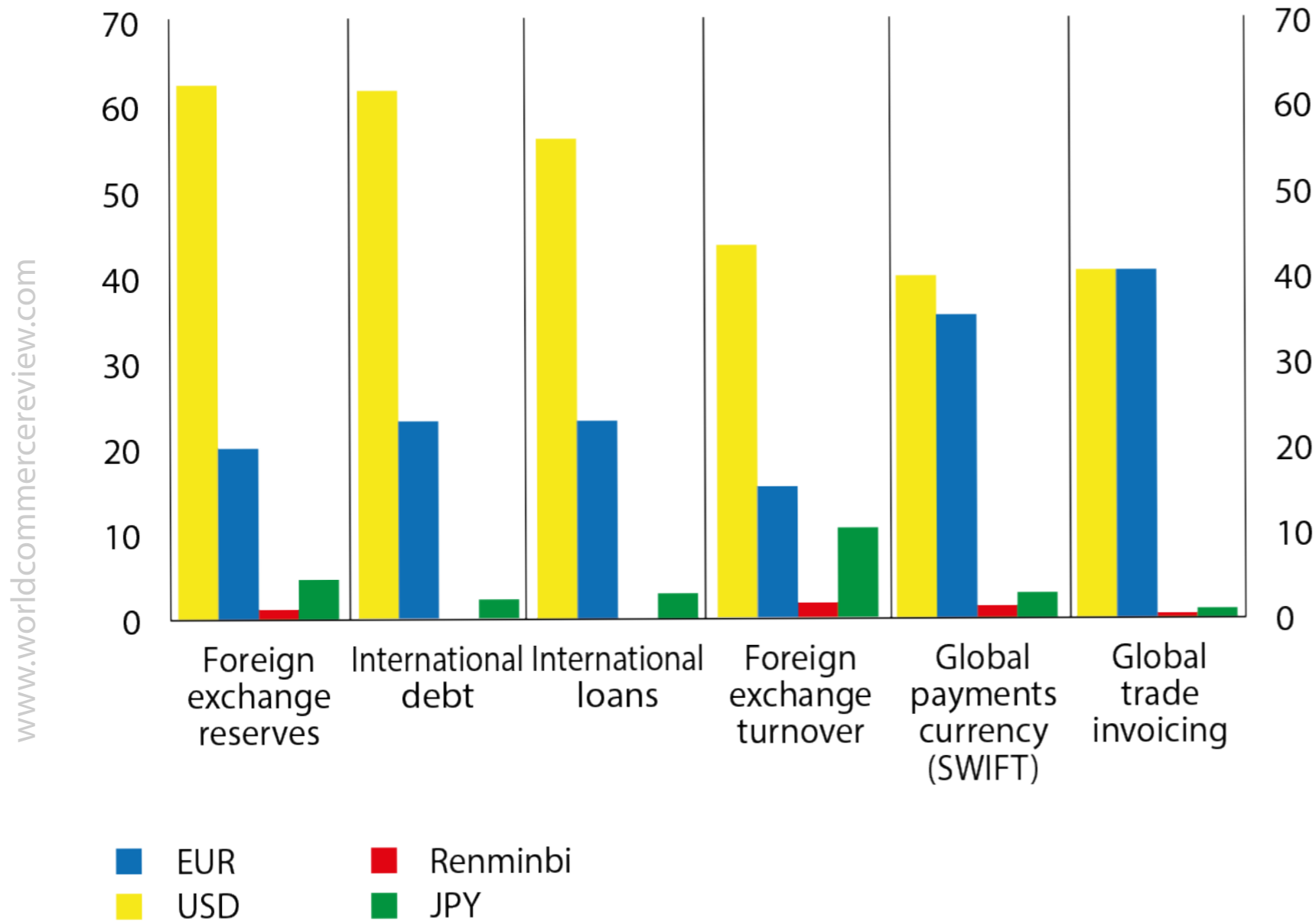
**Figure 1. Index of the euro's international role (percentages; four-quarter moving averages)**



*Notes: Arithmetic average of the shares of the euro at constant exchange rates in stocks of international bonds, cross-border loans, cross-border deposits, foreign exchange settlements, global foreign exchange reserves and exchange rate regimes. Data on the share of the euro in global trade invoicing were not available; those on foreign exchange settlements are at market exchange rates. The latest data are for the fourth quarter of 2017.*

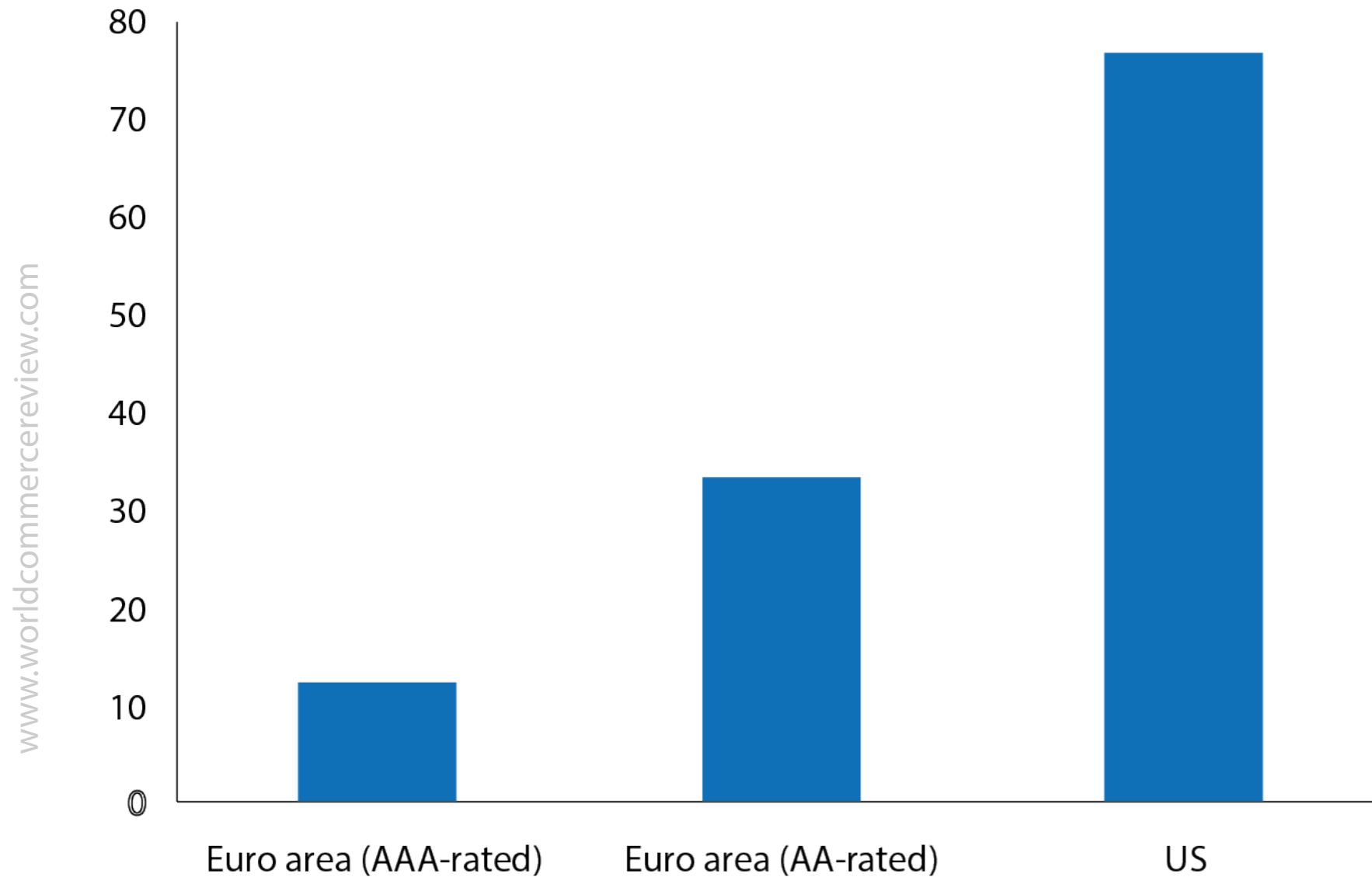
*Sources: BIS, IMF, CLS, Ilzetki, Reinhart and Rogoff (2017) and ECB calculations.*

**Figure 2. Snapshot of the international monetary system (percentages)**



*Note: Data as at the fourth quarter of 2017 or latest available. Data for the euro exclude intra-euro area transactions except for payments and invoicing. Sources: BIS, IMF, SWIFT, Gopinath (2015) and ECB calculations.*

**Figure 3. Debt securities issued by central governments, 2018 (as a percentage of GDP)**



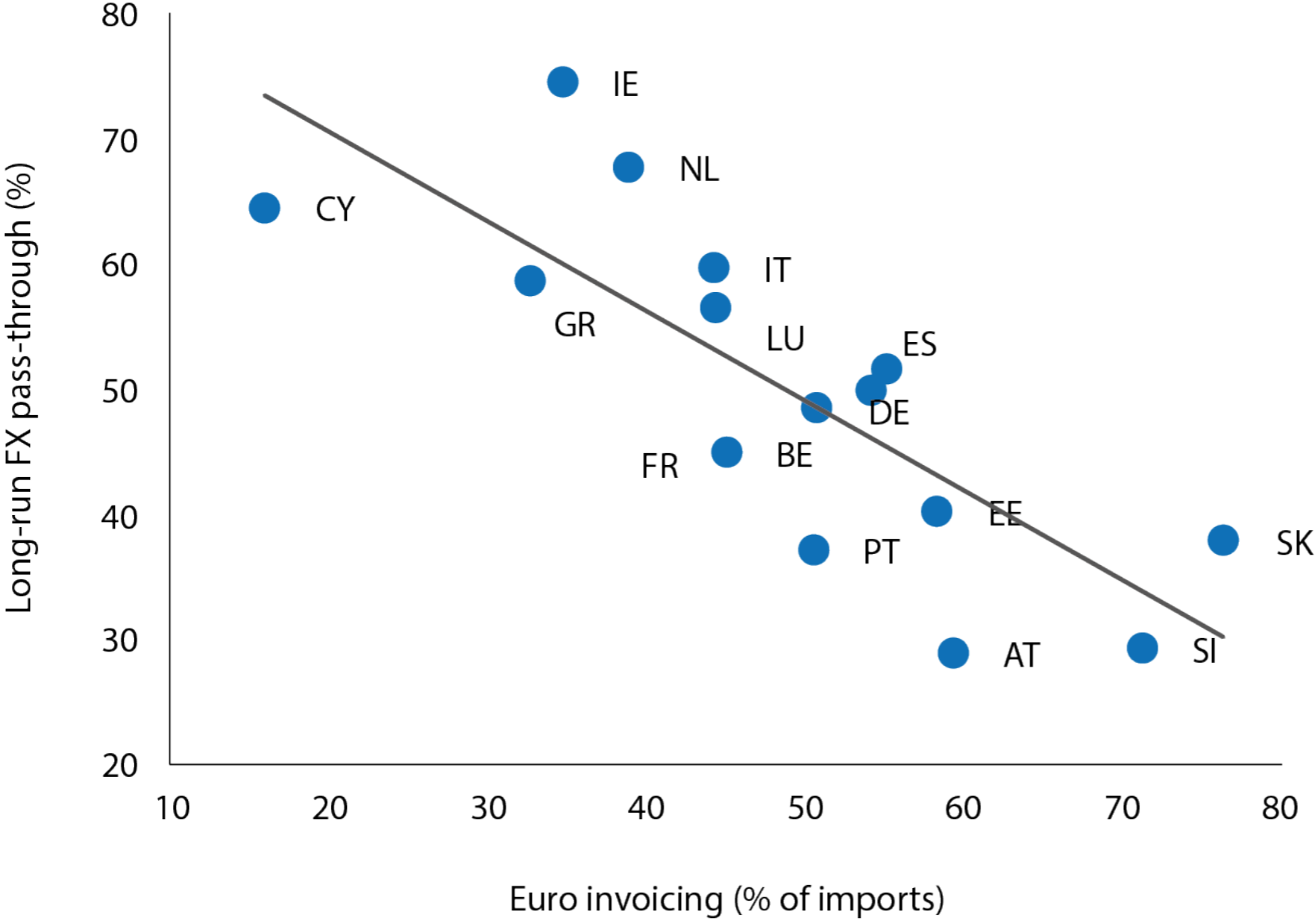
*Notes: Outstanding amounts at market value for the euro area; publicly held Treasury securities outstanding for the US. The blue bars in the chart report debt securities as rated by both Standard and Poor's and Moody's (local currency long-term debt rating).*

*Sources: OECD Government Statistics, IMF WEO and ECB staff calculations.*



**Figure 4. Exchange rate pass-through to import prices vs. euro invoicing across euro area countries**

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Notes: Long-run exchange rate pass-through is estimated using a standard log-linear regression model of the quarterly log change in import price unit values on the quarterly changes of the standard broad measure of the NEER-38 of the euro, a quarterly effective measure of inflation in production costs of the euro area’s major trading partners and the quarterly log change in industrial production (excluding construction). The estimation sample spans the time period from the first quarter of 2000 to the last quarter of 2014. The share of euro invoicing reported on the x-axis is the average over the sample period. The black line is a fitted regression line.

Source: The international role of the euro, ECB, July 2015.

Of course, addressing this aspect extends beyond EMU. But it means that European initiatives to foster cooperation on security and defence, and to speak with one voice on international affairs, might help foster the euro's global outreach, too.

The second reason why the current debate on the euro's global role is relevant for the ECB is that a stronger international role of the euro would likely have tangible implications for the conduct and transmission of monetary policy.

First is the effect on exchange rate pass-through. The more the domestic currency is used for trade invoicing, the less the pass-through to import prices in the face of fluctuations in the exchange rate. The tight correlation between domestic currency invoicing and exchange rate pass-through is evident in the euro area (see Figure 4).

The degree of pass-through, in turn, has competing effects on the transmission of shocks. On the one hand, lower pass-through means that import prices are better shielded from exogenous exchange rate shocks, and monetary policy can focus more on domestic sources of inflationary pressures. On the other hand, increased local currency pricing would, in principle, attenuate the exchange rate channel of monetary policy.

That said, exchange rate pass-through has already notably declined over the past two decades in the euro area, mainly due to the declining share of commodity imports and the increasing role of global value chains (Cœuré 2017).

The second way in which an international currency is relevant for monetary policy is its effect on financial conditions. In principle, international currency issuers enjoy greater monetary autonomy. They often tend to

influence monetary conditions globally, thereby creating spillovers and spillbacks through international trade and finance.

For example, the increased use of the euro as an international funding currency would amplify the international risk-taking channel of monetary policy, which operates through international bank leverage.

And if the euro were used more for trade among third countries, a depreciation of the euro would make all euro-denominated exports cheaper, from euro area and non-euro area firms alike. This would cause an increase in global trade with potentially positive spillbacks, not least as the euro area is more open to trade than the US (see also Boz *et al.* 2017).

At the same time, international currencies are not isolated from foreign spillovers. It is well documented, for example, that the large demand for US securities by foreign central banks in the run-up to the financial crisis contributed to the decline in longer-term US interest rates, thereby in part offsetting the parallel tightening efforts by the Federal Open Market Committee.

It is not that these effects are completely absent in the euro area today. As the second most important reserve currency, demand from foreign central banks can also be expected to have affected euro area financing conditions (Coëuré 2018b).

But there is a difference, and it is due to the aforementioned lack of a single safe asset. According to the IMF's Coordinated Portfolio Investment Survey, foreign central banks currently hold more than 40% of their euro-denominated debt reserves in German government bonds, well above Germany's share of total outstanding euro-denominated sovereign bonds, which is around 15%.

The implication is that a better functioning economic and monetary union could be expected to lead to a more even distribution of reserve demand effects, and more generally flight-to-safety effects, across the euro area. This, by itself, would benefit the transmission of our monetary policy. The flipside is that central banks in smaller economies could turn more frequently to the ECB for currency swap lines when the tide turns – ie. if and when international liquidity in euro dries up.

The ECB would then be called on to increase its activities as an international lender of last resort. Any extension of the global network of currency swap lines would, however, have to be based on sound monetary arguments. Central banks are mindful of global financial stability, but they always act in full discretion and within domestic mandates.

### **Concluding remarks**

In sum, two tentative conclusions can be drawn at this stage. The first is that the decline in the euro's international role in recent years is primarily a symptom of the initial fault lines of EMU. Efforts that help overcome the shortcomings in the design of EMU may, therefore, also foster a stronger international role of the euro.

The second conclusion is that a stronger global role for the euro may have tangible consequences for the conduct of monetary policy, all of which we would need to understand and take into account when designing the common monetary policy for the euro area. But provided the right economic policies are adopted, a stronger global role of the euro could help facilitate the transmission of monetary policy across euro area financial markets and reduce perilous fragmentation. ■

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# The euro: from monetary independence to monetary sovereignty

The euro is the second-most important global currency.  
Lourdes Acedo Montoya and Marco Buti argue that  
Europe should boost the international role of the euro

**A**lthough the euro instantly became the second-most important global currency upon its creation, its internationalisation was not a primary concern for policymakers at the time. This column argues that while the euro area has full 'monetary independence', 'monetary sovereignty' needs to be built on the basis of a reassessment of the benefits and costs attached to the international role of the euro.

It also argues that the former outweigh the latter. There is no silver bullet, however, that would rapidly increase use of the euro abroad. This requires a comprehensive package of measures and time.

Twenty years ago, the creation of the euro brought a major change to the international monetary system (Bénassy-Quéré *et al.* 1998). At the beginning, the ECB and the European Commission focused on building the necessary structures to ensure the smooth functioning of the 'new born' currency at home, in the euro area.

Although Europe's common currency instantly became the second-most important global currency upon its creation, the internationalisation of the euro was not a primary concern for policymakers at the time. The ECB and the Commission were therefore content to follow a policy to 'neither hinder nor promote' the internationalisation of the euro.

Twenty years later, however, much has changed and it is time to revisit Europe's traditional 'benign neglect' towards the international use of the euro. We argue that the balance between the benefits of having a widely used international currency and the costs that arise from the responsibilities involved has shifted in the direction of the former.

On the cost side, some originally feared that a greater internationalisation of the euro would weaken Europe's 'monetary independence'. Two arguments supported this position: the first is a variant of the so-called 'Triffin

dilemma', which posits that a dominant global currency necessarily entails a large current account deficit; the second is based on the loss of control of monetary aggregates when a currency is widely used by non-residents.

If the validity of the Triffin dilemma is today a subject of debate, the tension between short-term domestic priorities and longer-term global interests remains valid, and so is the risk that global demand for safe assets remains dangerously unsatisfied or forces excessive US external debt.

*The euro may be a young currency but it is mature enough to take a more decisive international stand to buttress monetary sovereignty*

Independent monetary policy is about controlling the path of short-term interest rates, which in turn affects the domestic savings and investment balance as well as monetary developments. Higher foreign demand for euro-denominated assets would likely render monetary policy transmission more difficult as domestic investments would become easier to finance by foreign savings<sup>1</sup>. Monetary aggregates would also increasingly reflect foreign demand for euro bills and bank deposits.

The argument about monetary aggregates is, however, less relevant today than at the time of the launch of the euro. The ECB has, by now, accumulated longer-term experience with monetary analysis and has developed a broad set of tools and instruments to conduct such analysis. These should allow it to extract from the monetary data relevant signals for longer-term inflation developments in the euro area even in the situation when the euro's international role would be further expanded.

Moreover, the way in which the international monetary system works has changed and thus the modalities through which the Triffin dilemma operates with the evolution of global governance towards a more multipolar system (Buti 2017). Bordo and McCauley (2017) consider, in particular, that the view that a currency's reserve role requires current account deficits is flawed. This is because it assumes that *"only US liabilities can provide US dollar reserves"*, while in fact, *"borrowers resident outside the United States widely use the dollar to denominate debts that are in turn largely held by non-resident creditors"*. Moreover, this argument is empirically questionable.

In fact, the current account position reflects other factors beyond the exchange rate, such as the fiscal position, demographics, net external liabilities, GDP per capita, financial development, or current account openness.

In terms of benefits, greater international use of the euro would be positive for the euro area in two mutually reinforcing ways. First of all, it would strengthen 'monetary sovereignty' by making it possible for European

companies to trade around the world, without the threat of extraterritorial actions by third-party jurisdictions to disrupt payments.

Another valuable benefit would come from 'scale effects'. Wider global use of the euro by, and between, third countries would improve the liquidity of, and preference for, euro assets. It would thus improve funding and trading costs for the euro area, and enhance the euro area's resilience to financial shocks. A more liquid monetary system improves market efficiency and reduces transaction costs and risks of disruptions (Krugman 1984, ECB 2017).

A larger and more robust monetary system should also be less vulnerable to country- or institution-specific shocks, as it reduces their relative significance. In addition, private agents also stand to benefit from lower exchange rate risk and lower hedging requirements, as they would be able to invoice and settle more trade-related payments in euros.

Wider use of the euro would also imply lower funding costs in euros ('exorbitant privilege') for domestic private and public debt issuers (Gourinchas and Rey 2007). Moreover, domestic financing conditions in euros could become less dependent on global swings in risk sentiment. Fiscal revenues for the public sector (national central banks) would also arise from a broader use of euronotes internationally (ie. seigniorage).

If there is an extensive economic literature on the benefits of scale effects, the importance of monetary sovereignty has only recently come to the forefront. This is because the economic and financial crisis has brought important changes to the global economy and governance. New technologies and economic powers have emerged. The world is more diversified, with some signs pointing to the emergence of a multipolar system of several currencies (Eichengreen *et al.* 2017).

The dominance of the US dollar remains unchallenged, but China in particular has been very active in promoting the internationalisation of its currency<sup>2</sup>. More recently, the US' withdrawal from the Iran nuclear deal and its subsequent reinstatement of sanctions, together with increased strains in global governance and trade, have exposed global vulnerability to the US dollar's international dominance. Thus, greater international use of the euro would also have benefits for the global economic system.

In the first place, a credible alternative to the US dollar system would defeat the purpose of unilateral actions via dollar payment systems, as market operators would have other choices. On the economic side, the presence of a competitor currency would reduce monopolistic rents from global users of dollar-based payment systems, such as by correspondent banks, card payment providers, or reserve asset issuers.

In sum, the first two decades of the euro have shown that there remains an untapped potential for the euro to play a stronger international role. The benefits of such a role are becoming clearer, while the original fears of losing control over monetary aggregates today appear overstated.

The figures on the international use of the euro show that despite its young age, the currency is already an important international player. However, in a changing global context, policymakers can help strengthen Europe's monetary sovereignty by giving the euro the means to play a larger role in the international arena with the support of market participants.

### **The international role of the euro in figures: untapped potential?**

The euro has been the second-most important world currency since its creation, despite the economic and financial crisis somewhat stalling its international progression. It is a currency that matters to the international monetary



system and plays a crucial role in our neighbourhood. The robustness of the euro area together with trade and geo-political linkages has led about 60 countries to tie their currencies in one way or the other to the euro.

The euro is used as a global means of exchange and store of value. The role of the euro as a global reserve currency has been broadly stable over the past 20 years at about 20%. This is one third of the US dollar's rate, which has been losing ground since the 9/11 terrorist attacks.

Other currencies, like the Japanese yen, the pound sterling or the Chinese renminbi, are very distant followers to the US dollar and the euro, with only a marginal use as reserve currencies. However, the role of other currencies, notably the Chinese renminbi, is rising as reserve holders diversify their portfolios to reflect, for example, China's growing share of global GDP.

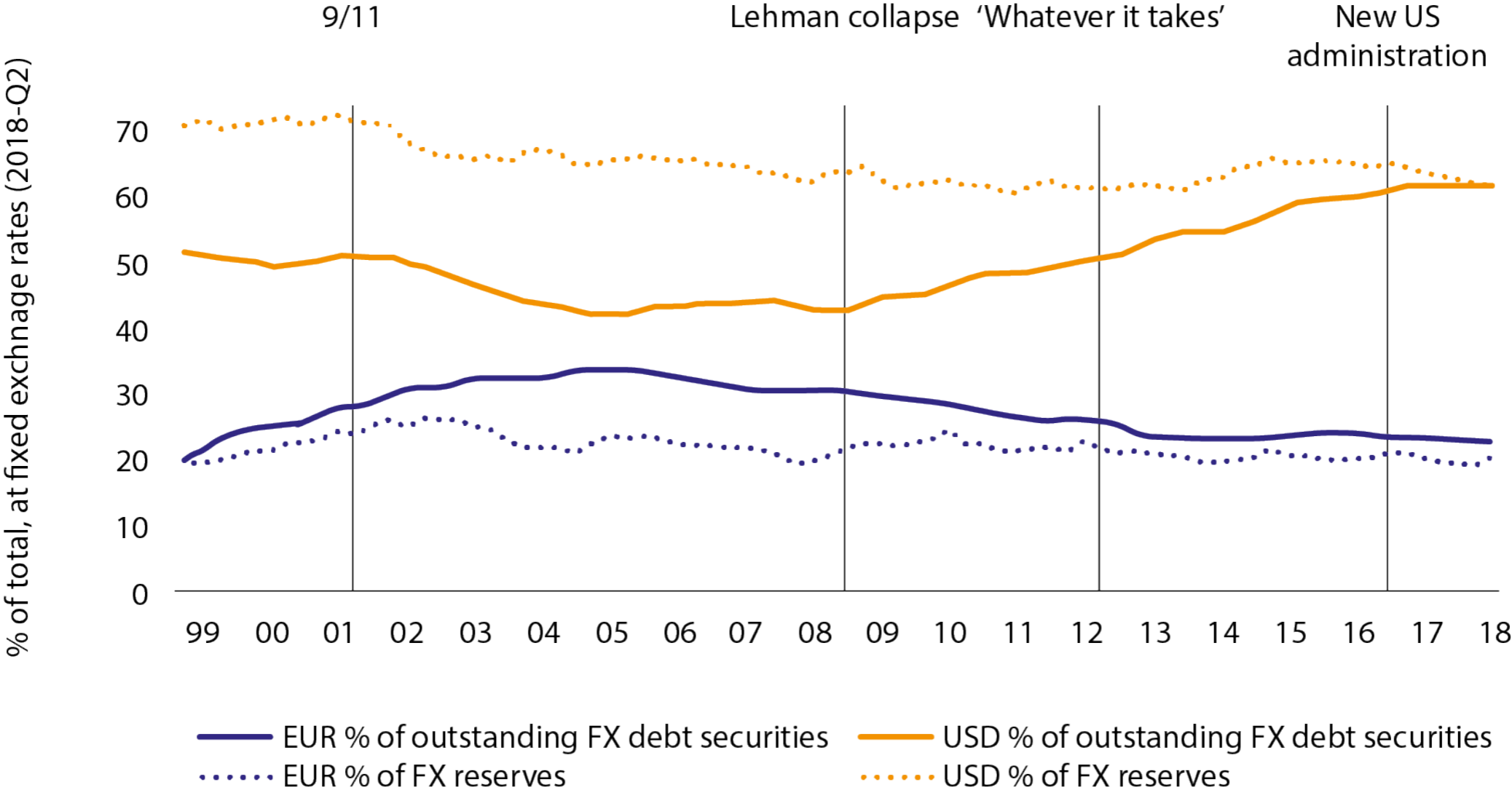
Regarding debt issuance, by end 2017 about 20% of international debt issuance was denominated in euros, well below pre-crisis rates. Debt issuance in US dollars has followed the opposite path over the same period (Figure 1).

Over recent years, the ECB established a number of currency swap lines with major central banks as a liquidity backstop to reassure banks in case of market impairments<sup>3</sup>. Thus, the euro also plays an important role in safeguarding global financial stability.

The euro's role in international payments would seem at par with the US dollar (Figure 2), but the data is influenced by intra-EU payments. Moreover, despite its relatively wide use in international payments, less than 60% of the euro area's exports outside the EU are actually invoiced in euros, in contrast with the US where about 90% of exports are invoiced in US dollars.

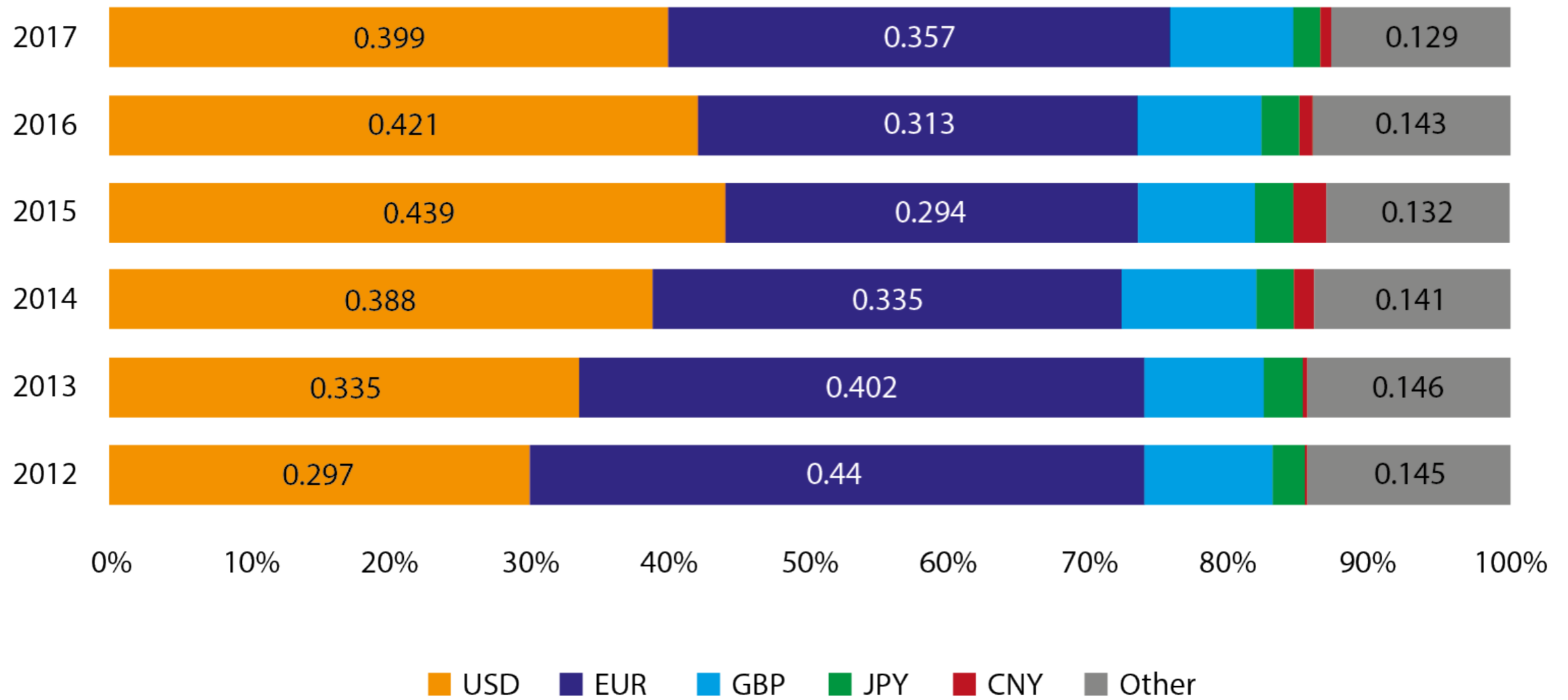
**Figure 1. Currency composition: US dollar and euro shares in foreign currency reserves and outstanding international debt securities**

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Source: IMF COFER and BIS international debt securities (all issuers, currencies and sectors, international markets)

**Figure 2. Currency composition of global payments**



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Source: SWIFT

## **Determinants of the global use of a currency: where does the euro stand?**

The decision to use a particular currency is made by market participants, in the financial markets, by central banks and by exporters and importers of goods and services. The relative attractiveness of a currency depends on factors such as the size of its domestic economy; the credibility of its institutions; the presence of deep, liquid and free financial markets; well-functioning infrastructures for clearing and settling payments; as well as an established track record of economic and financial stability. The euro scores quite well on many of these criteria, a fact which is reflected in its relatively wide use abroad. However, there are factors that hinder its wider internationalisation.

In particular, there is less liquidity in euros due to macroeconomic, institutional, and market-related factors. The euro is a young currency, the architecture of the Economic and Monetary Union is still incomplete, and there is only a limited pool of safe assets denominated in euros.

Market factors relate to the dominance of US- and UK-based banks and exchanges, as well as underdeveloped payments systems that constrain the euro area's monetary sovereignty. Thus, policymakers can influence the international appeal of the euro by strengthening its underlying economic fundamentals as well as its institutional framework and financial infrastructures.

When market participants choose one currency over another, network effects play a crucial role. The more a currency is used, the more likely it is to be chosen by other market participants. Today the prevailing network effects still favour the US dollar in many cases.

For example, in foreign exchange market transactions the euro plays a strong role on the continent but minor one in other world regions. Outside of the EEA, almost all cross-currency transactions are settled in US dollars (Figure

3). For virtually every currency, bid-ask market spreads vis-à-vis the dollar are tighter than for the euro, reflecting liquidity.

This is especially true in non-interbank trades, leading to persistent dollar 'triangulations' (ie. conversion between two currencies by using the dollar as an intermediary). One practical reason may be the dominance of US- and UK-based banks in the foreign exchange market; as market-makers, they tend to favour the US dollar. These actors also dominate foreign loans in developing countries (in Africa, for example). Therefore, loans granted in local currencies are followed by large forex activity with the US dollar or the British pound in some cases.

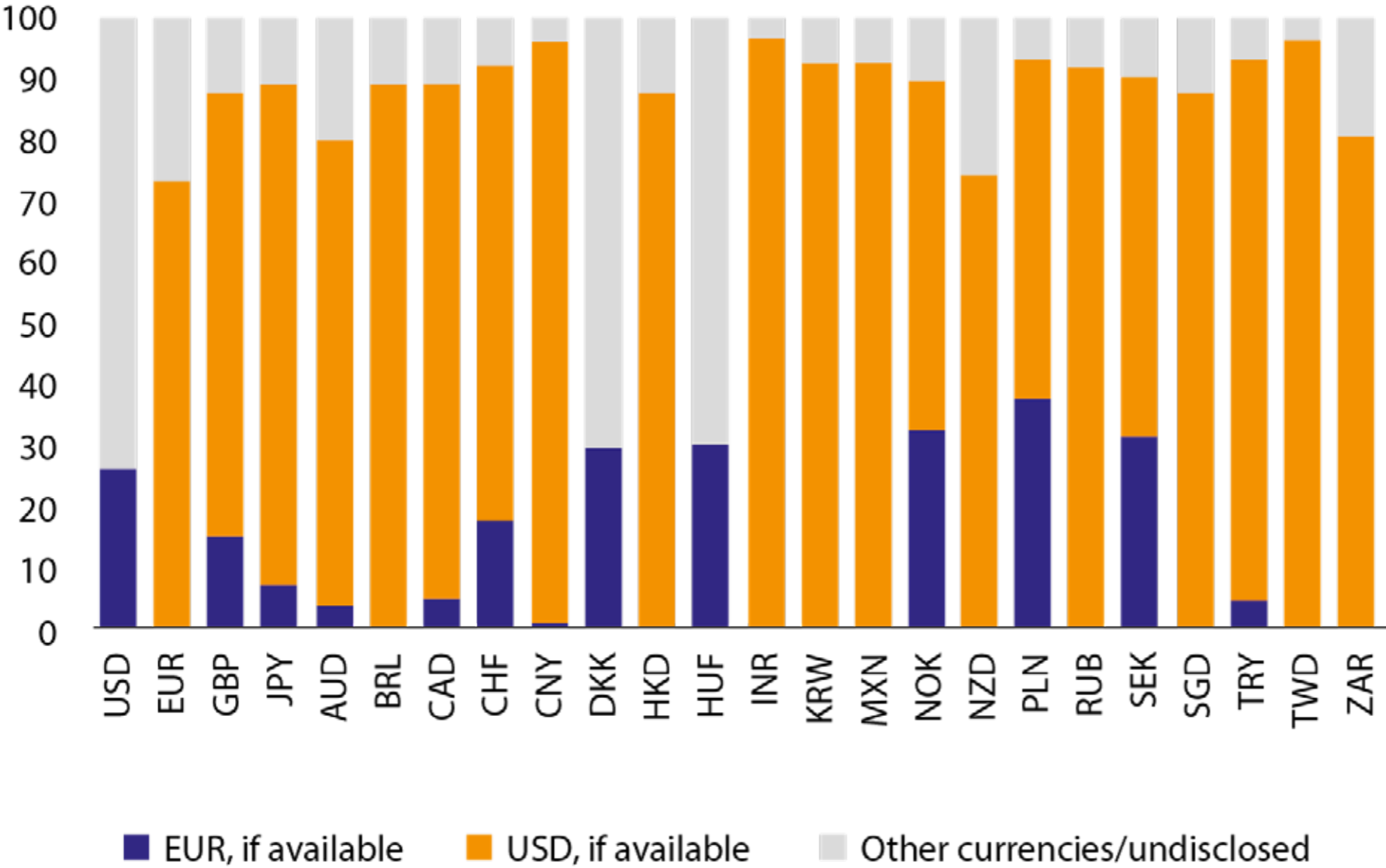
Another example concerns exports (Goldberg and Tille 2016, Gopinath and Stein 2018). A company in the euro area may decide to invoice in a currency other than the euro based on macro considerations, which are linked to the possibility of insuring and hedging against exchange rate movements.

These financial products tend to be more easily available in US dollars, given the liquidity and depth of dollar-denominated financial instruments. Micro and strategic determinants relate to the demand elasticity and the competitive structure of the market, the size of the importers and the competitors, which may push European companies to use their currency instead of the euro.

With no euro area-wide safe asset, the safe-haven status of US treasuries is a permanent feature that raises demand for the dollar, particularly during downturns when there are flight-to-safety capital flows. A temporary factor at present is related to the fact that today's US monetary policy implies that dollar-denominated financial assets provide better returns.

**Figure 3. Currency pairs (volume as % of total FX volume, net-net basis 2016)**

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Source: BIS OTC derivatives statistics



Finally, history/inertia also plays a significant role both at global and sectoral level (Krugman 1984). The prominence of the dollar is sustained by the central role that the US has played over decades in the global financial, trade and monetary system.

At the sectoral level, trade in commodities is dominated by the US dollar despite the EU being the largest energy importer, with an annual energy import bill that averaged €300 billion in the last five years, around 85% paid in US dollars. But history is not static, Eichengreen *et al.* (2017) argue that changes in technology, trade and finance structures have a bearing on the international monetary system and that several international reserve currencies can coexist.

### **Towards a stronger international use of the euro**

The first 20 years of the euro has been a remarkable success story. Europe's single currency has brought stable prices, lower transaction costs, more economic integration and competition to all its members. The institutional set-up of the euro area is unique compared to other currency unions, with a centralised monetary policy and decentralised economic and budgetary policies. This makes coordination of its member states' fiscal and economic policies crucial to ensuring the proper functioning of its monetary union.

At the height of the economic and financial crisis, policymakers took decisive actions to strengthen the euro area's architecture and policy coordination. Moreover, the ECB has acquired global renown for its conduct of monetary policy. The euro may be a young currency but it is mature enough to take a more decisive international stand to buttress monetary sovereignty.

There is no silver bullet that would rapidly increase use of the euro abroad. This requires a comprehensive package of measures and time. The Commission proposed on 5 December 2018 a number of avenues to explore and develop together with market participants (European Commission 2018).

Starting at the foundations by completing the Economic and Monetary Union should be a priority as it would cement the credibility of the euro area. The Banking Union, in particular finalising the backstop to the Single Resolution fund and the European Deposit Insurance Scheme (EDIS), would reinforce financial stability by further reducing the exposure of banks to their national sovereigns. A deepened Capital Markets Union would provide more diversified and liquid financial markets allowing for more private sector risk sharing.

The euro would be more attractive internationally if there were a sufficient supply of euro-denominated safe assets, an important disadvantage today compared to the US. Safe assets allow an efficient functioning of financial systems and the development of capital markets, reducing financing costs for the economy. Euro-denominated safe assets would contribute towards the development of the European financial sector in general and the global relevance of European financial regulation, as well as EU-based payment systems.

Several options for a euro area safe asset have been put forward with different design features (European Commission 2011), ranging from full to partial common issuance, some based on mutualisation and others entailing no joint liabilities, but there has been very limited political traction yet.

Other measures aim to make it easier for market participants to use the euro by insulating against extraterritorial unilateral actions by third country jurisdictions. For instance, the Commission's December Communication proposes to strengthen the liquidity and resilience of European market infrastructures, create a fully integrated instant payment system in the EU, and increase market liquidity for euro currency pairs other than euro/dollar.

Other actions may have a smaller quantitative impact but are qualitatively important, such as encouraging European bodies to increase their share of debt denominated in euros or developing further Europe's economic diplomacy to promote the use of the euro in payments and as a reserve currency. Moreover, the Commission also proposes to provide technical assistance to facilitate developing countries' access to the euro area payments system and, hence, support trade.

Finally, in spite of their position as large buyers or major producers, European businesses still trade in US dollars in key strategic markets (energy, commodities, transport), often even between themselves. This exposes businesses to currency and political risks. Working with market operators is, in this case, essential to identify concrete actions that could be taken to foster the use of the euro.

### **Conclusion**

The euro area has full 'monetary independence', but 'monetary sovereignty' needs to be built on the basis of a reassessment of the benefits and costs attached to the international role of the euro. The world that we have known, characterised by the economic and technological superiority of western countries and the construction of a law-based multilateral order, is changing with the global relevance of China and competing approaches towards multilateralism.

Europe cannot afford to remain on the side-lines if it wants to continue to shape the world according to its values and visions. This implies a larger role for Europe on the international scene, and the euro has a role to play too. The economic costs attached to an international role of the currency should be reassessed.

On the one hand, fears about an outright appreciation of the euro with the corresponding deterioration of the current account should be evaluated against a broader assessment of the balance of payments. On the other hand,

fears about losing control over monetary aggregates maybe overstated given the availability of new monetary policy tools.

A greater global role for the euro implies greater global responsibilities. The ECB, for example, would need to consider the impact that its monetary policies could have on countries outside the euro area as well as within, as funding costs in these markets could become more dependent on financing conditions in the euro area (Gourinchas and Rey 2013, Farhi and Maggiori 2016).

Moreover, Europe would have to be ready to provide insurance to the world during crises by ensuring a sufficient supply of its currency to the rest of the world. This 'exorbitant duty' is the corollary of the 'exorbitant privilege' of lower domestic funding costs that comes from having a domineering global currency (Gourinchas *et al.* 2010).

Boosting the international role of the euro will take time and require a combination of measures, of different size and importance. One has to start with the foundations, by reinforcing the monetary union as well as by completing its construction. In this sense, some reforms are already under discussion, others have been proposed by the Commission and are being discussed by member states.

The latter have to be accompanied by more micro, specific reforms. These are necessary, as the use of the euro has many dimensions including diplomacy, improvements in payment systems and favouring the use of the euro in energy and commodities trades. Looking ahead, increasing market liquidity also through the provision of euro-denominated safe assets would be important.

It is true that market participants choose the favoured currency for their trades. However, policymakers can influence the appeal of the euro through concrete actions to reinforce the euro area's architecture and the depth and efficiency of the euro area's financial markets. ■

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#### Endnotes

1. In February 2005, the US Fed Chairman Alan Greenspan pointed out that long-term interest rates had trended lower despite a 150 basis point increase in the federal funds rate and referred to this phenomenon as a "conundrum".
2. Allowing the use of the renminbi for foreign trade settlement for Chinese firms, establishing a fully convertible offshore market, concluding more than 30 swap agreements between the People's Bank of China and other central banks including the ECB and, allowing authorised offshore institutional investors to access to the Chinese inter-bank bond market.
3. In 2011 the ECB established currency swap lines with the Bank of England, the Bank of Canada, the Bank of Japan, the Federal Reserve and the Swiss National Bank, and in 2013 with China.

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*Authors' note: The views expressed in this column are those of the authors and should not necessarily be seen as reflecting the position of their institution. This article was originally published on [VoxEU.org](http://VoxEU.org)*





# When expectations meet the future

Jon Cunliffe analyses the evolution of debt, and then talks about what central banks can do at a national level to identify and reduce the risks to financial stability and avoid a repeat of the 2008 financial crisis

One of the defining characteristics of humans is our ability to imagine the future. But though we can imagine the future, we cannot know it. And I am a cautious central banker. So I will not give you my prediction for the origin, shape and extent of the next great crisis.

I am however prepared to make one prediction with confidence. Whatever the trigger and the financial services and instruments most affected, the next crisis will have, somewhere at its centre, losses from an overextension of credit and an adjustment in asset prices.

And, for me, as Deputy Governor at the Bank of England responsible for Financial Stability, an equally if not more important question is not what will the next great financial crisis look like but whether the next and subsequent financial crises will actually be 'great'.

Will the correction of asset prices and the losses on credit be amplified by the financial system and cause the economic and social loss we saw 10 years ago? Or, losses notwithstanding, will the system absorb them without material dislocation to the economy? I can make the prediction that the next 'crisis' will have somewhere at its centre the overextension of credit and asset price adjustment because it is not a particularly bold one.

Since its invention in the temple organisation of bronze age Mesopotamia, interest bearing debt – or credit if you want to see it from the other side of the coin – has had the property of being able to grow beyond the ability, or sometimes the willingness, of the economy to repay it. Debt contracts are essentially claims on the future and the future, when it arrives, does not always honour them.

The origin of debt and credit are fascinating but unclear. It may have been an evolution of the reciprocal gift giving social obligations of early tribal societies. The etymological evidence suggests rather an evolution from the system

of fines and compensation for injuries prevalent in such societies. It has also been suggested that the foundation of debt is the belief that man is born with debt to the heavens and creation and debt between members of society is an extension of this idea.

In economic terms, the early debt systems and the debts themselves, painstakingly recorded in the ledger systems of the temples of bronze age Mesopotamia, appear to be primarily about what we would now call working capital and overdraft facilities in agrarian societies that produced little economic surplus – credit to tide farmers over until the harvest or through bad harvests with the debt repaid in standardised units of agricultural produce.

*... at some point, in some way a correction will be triggered when the future, for whatever reason, does not match up to expectations of those who have lent and borrowed and bought assets*



This stock of debt periodically got beyond society's willingness or ability to repay. We know this because of the practice of Mesopotamian rulers declaring debt amnesties to wipe the debt slate clean.

Much has been written on the debt amnesties and Jubilee mechanisms of ancient near eastern societies. That such reset mechanisms existed and were used is clear. The motivation may have been a moral one. It may have been a way of rulers preventing large numbers of the population falling into destitution and debt bondage and as result being unable to fulfil other necessary societal functions. Or simply a way to reset the balance of economic power in society before it was reset in a more violent way.

Whatever the motivation, the point is that debt in its early life had a tendency to grow beyond what in the end turned out to be the ability to repay or to repay without profound social or economic change.

The more recent historical record shows similar examples of major adjustment of debt when the future turned out to be unable or unwilling to pay. The trigger for the adjustment was often an unforeseen or 'exogenous' event that changed the economic fundamentals.

The re-imposition of long forgotten constraints on the ownership of land seems to have triggered the great financial crisis of AD 33, leading to fire-sales and a crash in land values, default of leveraged landowners and a credit crunch throughout the Roman Empire.

The default by King Edward III of England on the massive amounts he had borrowed from the leading Florentine banking families contributed – along with a bank run by the Neapolitan nobility and the bankruptcy of the Florentine Commune – to the Florentine credit crunch of the 1340s. Edward borrowed to finance what became

the Hundred Years War and defaulted when it became apparent that he could not win the war and capture the revenues he needed to repay the debt.

The adjustment has sometimes been triggered from within the financial system itself. Charles Kindleberger's seminal work on financial crises documents a number of credit-fuelled investment manias and bubbles in which the trigger was simply a change in sentiment about the value of the asset leading to the drying up of credit or greater fools prepared to finance further speculation.

Whatever the trigger, the point is that widespread correction of debt and asset prices and consequent loss of wealth may not happen often but it does seem to happen periodically. In other words, it is not what today we would call a 'bug' in the system that subsequent improvements will correct. Rather, however unwelcome, it is a feature of the system.

The question for those of us concerned with financial stability is not so much whether we can prevent such adjustments happening. The question is more whether we can identify and understand the drivers of what, when the future arrives, turns out to be over extension of credit and overvaluation of assets.

And how, in the light of that, we can ensure corrections can happen without the major economic dislocation that we call loss of financial stability. The underlying driver of course is that expectations about the future turn out to be incorrect.

Human beings are probably unique in being able to imagine the future. I say 'probably' because there is some academic evidence that suggests that some animals may, to a limited degree, share our ability to engage in what

has been termed 'mental time travel' – the ability we have in our minds not only to recall the past but also to form expectations about the future.

The development of 'episodic memory', our ability to remember personal experience is linked to our ability to use the past to contextualise the present and imagine what will happen. *"Memory allows us to use the past to create the future."*

It is an imperfect tool. We can imagine the future, or a range of possible futures, but we cannot know it. And, as research evidence is increasingly demonstrating, what we remember is by no means a perfect or reliable record. Our memory of past experience is malleable and changes in the light of what we are experiencing in the present: *"you don't remember what happened. What you remember becomes what happened."*

Imperfect or not, mental time travel no doubt evolved because it gave us advantages and is fundamental to our development as a species. It is also fundamental to the development of culture and society. And of course, to the development of our economic life which is inextricably bound up with our ability to envisage the future and our expectations of it. Inter-temporal contracts are helpful given the fact of the life cycle and the time it can take to create economic value.

There are many obvious examples of this. One, dear to the heart of central bankers, is how past experience can affect expectations of future inflation which in turn affect behaviour in the present. Another is the role that income expectations play in demand.

There is a lively debate in economics post the great financial crisis on whether the way humans perform mental time travel has any bearing on how we form expectations in the world of economics and financial markets.

The most common framework used in economic models for this is to assume that we are rational. That is, that we know the range of outcomes that might happen and how the economy works and, insofar as is possible, given uncertainty, that we correctly analyse the available information to weight the probability of those.

A famous corollary of this is the efficient markets hypothesis – that it is not possible to systematically ‘beat the market’. The stronger form of the hypothesis posits that market prices fully reflect all available information – that the price reflects the likely future revenue streams. But even if the price does deviate from that fundamental level, it may be rational for investors to remain in the market – as Chuck Prince famously put it, to keep dancing so long as the music is playing.

The rewards of the game may be worth the risk of being stuck without a proverbial chair at the end. And even if they are not, sitting on the sidelines may not be a winning career move if promotions and funding flow to those with a reputation for high returns. It may be rational to stay with the herd, as Keynes said *“it is better for reputation to fail conventionally.”*

Rational expectations do not mean that the future matches expectations and corrections are avoided – when new information arises, agents react to that. If the information is material for a financial asset, for example a change in Roman property ownership laws in AD 33, the adjustment can be large.

And as Ben Bernanke drew out in 1983, the financial system can amplify those movements, such that relatively small news can create crises for the financial system and it is the impaired financial system that then does the severe economic damage.



And the rational expectations view of the world is even compatible with purely self-fulfilling crises, triggered not by a change in fundamentals but rather by a change in confidence. The classic model of a bank run is entirely rational; since there may not be enough liquidity to repay all depositors if all of them try to withdraw their money at once, each depositor has an entirely rational incentive to get their money out first if they think there will be a run.

But there are many studies showing that the predictions of rational expectations do not hold. Something else seems to be driving expectations. Households, businesses, and investors will often extrapolate the recent past to form their expectations of the future – if house prices have been growing, they consider further growth more likely.

Robert Shiller's 2000 book, *Irrational Exuberance*, demonstrated how there had been a clear, negative correlation between price to earnings ratios for US stocks in the 20<sup>th</sup> century and realised returns in the following ten years. At the time of publication, US stock markets had record high price to earnings ratios of more than 40 times – soon to be followed by the dot-com crash.

Asset price bubbles and investment manias are often attributed to such 'extrapolative' expectations. In the first stage investors extrapolate from past performance which pushes up the price of the asset. A bubble dynamic then develops in which investors are drawn to buy the asset not for the extrapolated underlying performance but for the very short-term capital appreciation.

As the price growth represents demand for the asset based on the past behaviour of its price – and not information about what it will yield in the future – it will not be sustainable. These are of course very different views of how expectations are formed. Where prices in a rational expectations model are fully forward-looking (future performance determines today's price), prices in an extrapolative world are fully backward-looking (past performance determines today's price).

To put it in terms of mental time travel, in the pure rational expectations world memory of past experience, with all its attendant imperfections, does not play a role in the formation of expectations whereas in an extrapolative world it does pretty much all the work.

Some research and casual observation suggest that a mechanical assumption of extrapolative expectations does not fit reality. True, there are many instances of 'momentum' in markets that rational expectations cannot explain.

But there is also plenty of evidence that markets and investors do also factor news into prices. The much criticised theory of rational expectations was a reaction to '[t]he implicit presumption in these ... models ... that people could be fooled over and over again,' as Robert Lucas said in 1995 in light of winning the Nobel Prize for this work. Lucas was commenting in the context of inflation surprises – but the same holds true for other areas like debt default.

Pedro Bordalo, Nicola Gennaioli and Andrei Shleifer have recently posited a model of expectations that acknowledges our tendency to extrapolate from the past, but also allows for the use of forward-looking information. It endeavours to integrate insights from behavioural economics into a rigorous economic model. They have embedded the work of behavioural psychologists that shows that while we do use news to form expectations of the future, we have a tendency to over-weight certain types of news. And that the way we remember can lead to certain risks being neglected or undervalued when we project the future.

They use this model to explain the development of expectations in the run-up to the great financial crisis 10 years ago, expectations which they demonstrate were clearly not rational in the light of available information. The economic model they have developed – of 'diagnostic' expectations – is appealing because it starts from research on how humans form beliefs about the future, and how they act on those.

The way in which investors and markets form expectations of the future is clearly an area that merits further research. As I will go on to discuss, it is important to those of us responsible for financial stability to understand what is driving the expectations of the future that underlie risk-taking and what drivers kick in when those expectations meet the future and have to be adjusted.

### **Macroprudential policy**

As I said at the outset, I expect the next 'crisis' to involve some form of over-valuation of assets, over-extension of credit and losses when this corrects. While infrequent, significant adjustments seem to be a feature of the system. The more important question, in my mind, is whether those adjustments destabilise the financial system and lead to very disruptive economic impacts. Will adjustments lead to 'great financial crises' as they did 10 years ago or will the system be able to absorb the adjustment and perhaps even dampen its impact?

In the first instance, it does not matter whether expectations are rational and are then significantly adjusted because of 'news' or whether they are irrational and extrapolative and get adjusted because reality has caught up. Either way, the costs of financial crises can be minimised and perhaps avoided if the system is resilient to shocks that are possible even though they are very unlikely. And they can be further minimised if we can ensure that when the adjustment and loss occurs, other features of the financial system do not amplify and spread the stress.

The great, post crisis, programme of reform of financial regulation, that is now well into its implementation had precisely this objective. Much stronger prudential rules require banks to have capital and liquidity to enable them to take losses and withstand liquidity stress in excess of the losses and stresses encountered in the financial crisis.

Major UK banks now have capital ratios that are more than three times higher than before the financial crisis and their short-term wholesale funding has fallen from being more than 15% of total funding in 2007 to less than 5%

today. In the UK, the Financial Policy and Prudential Regulation Committees of the Bank of England annually test the core banking system against a very severe but plausible stress – a scenario in which banks have to withstand a combination of ‘tail risk’ domestic and global economic and financial market shocks.

The scenario for the 2019 test, announced this week, includes a deep recession in the UK with GDP falling by 4.7 % from peak to trough, house price falls of 33%, falls in commercial real estate prices of 41%, recessions in the euro area, the US, and China and market stresses including a 41% fall in equity prices and a nearly 400bps widening of investment grade spreads.

Last year, alongside the annual stress test, we also developed a worst case, disorderly Brexit economic scenario to give us confidence that the core banking system could withstand the losses and stresses that such a scenario would generate.

We have also tackled the features of the financial system that amplified and spread the stress of the original losses. The systemic banks at the heart of the system have been capitalised to a higher standard, not because they are more risky but because of the impact on the rest of the system if they fail. In addition resolution regimes are being implemented to enable banks to fail safely, without disrupting the critical economic functions they provide – and without the taxpayer having to cover the losses.

And firms’ derivative exposures are now more robustly collateralised ex ante and in large part cleared through central counterparties to prevent the procyclical spiral of demands for collateral (margin calls) that spread stress throughout the system as confidence in creditworthiness declined. 90% of new OTC single-currency interest rate derivatives are now centrally cleared in the US. And an additional \$1 trillion of collateral is now held globally against all derivative trades.

These reforms have been built around internationally agreed standards and other jurisdictions have taken similar steps. While we might not be able to predict the extent, nature and trigger of the next crisis, we have much greater assurance now that the financial system could weather very substantial corrections in credit and asset values without failing in the way it did 10 years ago.

The FPC has also focussed on borrower, as well as lender, resilience. As we saw in the crisis, significant cohorts of over-leveraged borrowers cut consumption when hit by a shock which can deepen and prolong the loss of economic output and, in turn, add to the pressure on the stability of the financial system.

In this extremely important sense, we have moved on from an approach that argues that because we are not able to identify when financial sector risk-taking is unsustainable, the best course is to wait until the adjustment happens and vigorously mop up afterwards.

What has proved more difficult has been using macro prudential policy in a time-varying, counter-cyclical way. It is pretty clear, as I have said, that one characteristic of the system is a build-up of leverage, growth in asset prices and risk-taking over time followed by a correction – a characteristic we describe as the ‘financial cycle’.

It is desirable therefore to increase the resilience of the system, its ability to withstand losses, as risks build up. But it takes time to build up resilience and identifying where we are in the financial cycle, and the risk of a correction, is a very challenging task.

We are not wholly without indicators. Empirical evidence, for example, suggests that rapid debt growth is a forward indicator that a correction is approaching. Research, including recent Bank work, shows that a build-up in credit

predicts worse recessions. The level of debt, in contrast, seems to matter much less as an indicator of a turn in the financial cycle, though it does seem to matter as an indicator of the extent of the correction and the consequent damage to the economy.

We also have a wide range of other economic and financial indicators, such as asset prices and credit conditions. We can estimate how far these are above or below an equilibrium value to help us make an assessment of where we are in the financial cycle. And, of course, macroprudential policy makers need to apply their judgment.

The Financial Policy Committee of the Bank of England uses all of these approaches to make its assessment of the level of risk or, to put it another way, where we are in the financial cycle. And we use that assessment to inform our stress test of the core banking system so that the test becomes more severe, with higher losses and greater stress, when we judge the risks in the financial system are getting higher.

But we would, in my view, benefit greatly in this area from a better understanding of how the expectations of the future that inform financial sector risk-taking are formed, the ability to use that understanding in modelling the financial cycle and better real-time information on the evolution of expectations.

And such an understanding of what drives the formation of our expectations in this area, might also help us to decide whether, as well as using policy counter-cyclically to build resilience in the system as risks grow and release it as risks crystallise, we should use policy more actively to 'lean against the wind' – to discourage and dis-incentivise any build-up of expectations that appear to have formed irrationally.

All of this, perhaps, seems very theoretical compared to the question of *"What will be the next great financial crisis?"* So I will try now to relate some of these issues to our current assessment of financial stability risks facing the UK.



## UK conjuncture

The most prominent short-term risk facing the UK today of some financial sector correction is the possibility of an extremely disorderly Brexit. Such an outcome may not be what we expect to happen or what is likely to happen but rather the worst possible case.

The risk has not been generated by the financial sector. But, if it occurred, it would almost certainly lead to a correction in UK asset prices and losses for UK banks.

The task of the FPC has been to ensure that such a correction, were it to occur, would not lead to a UK financial crisis. We have tested the banking system to equal and greater stresses to give us the confidence that while losses would occur, unlike 10 years ago, the system would have the capital to absorb them.

We have required the banks to hold liquidity, in the currencies that they would need, to withstand a liquidity stress greater than that experienced in the financial crisis. And the Bank stands ready to provide liquidity in all major currencies. And, with other UK authorities, we have ensured that regardless of the Brexit outcome there should not be disruption to the provision of financial services in the UK by EU firms.

The Financial Stability Reports of the FPC over the past 18 months have set out the actions that have been taken. The *Record* of the Financial Policy Committee's February meeting makes clear the Committee's assessment that the core of the UK financial system is resilient to, and prepared for, the wide range of risks it could face, including a worst-case disorderly Brexit. And it also made clear that in the event of such a shock crystallising, it would be prepared to release the countercyclical capital buffer (CCyB).

In short we have acted to make sure the system is resilient to a worst case major economic shock from Brexit. That does not mean losses would be avoided. Or that it would be without volatility: financial stability does not mean market stability. But it does mean that the financial system would not contribute to and amplify the shock, and would be able to continue to provide critical economic services to the economy.

It would of course be very valuable to know how markets and investors have formed their expectations of a Brexit outcome and its consequences and how big a correction in any direction might occur if those expectations were not met. But I am not sure it would have changed much how we have acted over the past 18 months.

Brexit apart, the risks facing the UK from a correction of the financial cycle are less obvious and more difficult to assess. The overall level of debt in the economy is high by historical and international standards. But as I and my colleague Ben Broadbent have pointed out, there are reasons to believe that the sustainable level of debt may now be higher than in the past.

We are not experiencing the very rapid credit growth, which as I have noted seems empirically to be a more reliable indicator of an impending correction. Aggregate credit to the household sector is growing broadly in line with nominal GDP, whereas before the crisis it grew for a number of years at double the rate of GDP.

And despite some recent correction, asset prices in international financial markets do appear high, as they have done for a number of years, and are vulnerable to a repricing; and there are potential triggers from other international risks. But the FPC assessment is that the domestic risks are 'standard'.

However, while domestic credit overall is growing at the same rate as the economy and debt to income levels are not rising, there have been signs that risk appetite has been growing quite fast in certain areas.

Unsecured credit to households, 'consumer credit' grew by over 10% in the year to November 2016. How much of a signal should the FPC have taken from this? Consumer credit accounts for a relatively small proportion, less than 15% of household debt and less than a quarter of new lending to households.

Subsequent analysis by the FPC and the PRC revealed something quite suggestive of extrapolative expectations. Lenders were reducing interest rates, that is, their compensation for risk, and at the same time lending to higher risk segments of the market.

They appeared to be basing this higher risk appetite on a marked fall in the rate of defaults on consumer loans over the past five years that they attributed to a structural improvement in the underlying creditworthiness of consumers since the crisis.

However, the improvement in default rates also reflected the macroeconomic environment over the period of sustained employment growth and low interest rates and lenders appeared to be underestimating the losses they would incur in an economic downturn.

The growth rate of consumer lending has fallen back, very possibly as a result of FPC and PRC action to correct this underestimation of risk.

We have in recent years seen other signs of growing risk appetite. Spreads on UK mortgages have come down noticeably over the past few years while loan to value and loan to income multiples have gone up. The increased risk appetite of mortgage lenders has not been matched by increased demand by house buyers. The number of mortgage transactions has remained pretty static over the past few years, one of the reasons why overall credit to households is not growing rapidly.

Demand may currently be constrained by Brexit uncertainty. It could accelerate if and when Brexit uncertainty is resolved in which case aggregate credit could begin to grow quickly and the FPC would need to consider how to respond.

One can explain the increase in mortgage lender appetite by fierce competition in the mortgage market, generated in part by changes in the structure of UK banks following the implementation of ring fencing. But should we also infer any signal about sentiment and expectations?

One could ask a similar question about the very aggressive growth in leveraged lending to corporates in the US, which in 2017 spread to the UK. The stock of UK leveraged loans is estimated to have grown by about a third in the year to 2018 thanks to gross loan issuance in that period which was nearly 70% larger than the preceding 12 months.

This has been accompanied by a very marked reduction in underwriting standards for these loans, a large proportion of which have been securitised and sold to international investors.

Overall, credit to UK corporates is growing pretty slowly and leveraged loans are a relatively small proportion of total lending to corporates; so what does the explosion of activity in the UK leveraged loan market tell us?

A better understanding of what drives the formation of expectations in this area might also help us to decide how to react to these 'pockets' of increasing risk appetites. Should we treat them as idiosyncratic and unrelated and respond to them as such? Or should we view them as or straws in a wind that will increase in force and respond by strengthening our walls and perhaps leaning a bit in the other direction?

## Conclusion

Journalists frequently ask people in my dismal profession: *“What keeps you awake at night?”* They do so, of course, not out of interest in the sleeping patterns of central bankers but because they want to know, quite reasonably, what we fear the next disaster, the next great crisis, will be. And, of course, at any given time there are vulnerabilities and unknowns that one is concerned about more than others.

I might have written about the rapid and extensive evolution of market-based finance in recent years such that it now accounts for nearly half of the international financial system. It carries different and perhaps lesser risks than the banking system. But we know much less about how it might respond in stress and have fewer policy tools to address vulnerabilities.

I might equally have talked about cyber risk or the impact of a credit correction in China. It is of course the job of policymakers like me to assess and address potential vulnerabilities like these, and we report on them regularly.

But to me the bigger point is that at some point, in some way a correction will be triggered when the future, for whatever reason, does not match up to expectations of those who have lent and borrowed and bought assets.

Our fundamental task is to ensure that when that happens, the correction can be absorbed and does not lead to a ‘great crisis’, as it did 10 years ago, with all the social and economic loss that entails. ■

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## Endnotes

1. See chapter 4 of Hudson (2018)
2. See Graeber (2011). An interesting example is Mesopotamian alehouses which seem to have been run on a seasonal credit system that would put to shame the average pub's willingness to run a tab. See also, Item 15, 'clay writing tablet' in MacGregor (2010)
3. This may well have been because debt with compound interest grew much faster than the productive capacity of agrarian economies. See Hudson (2018).
4. A similar debt reset mechanism for the ancient Israelites, was provided by the Jubilee set out in the Old Testament. And when debt and credit technologies subsequently transferred to ancient Greek societies, similar problems emerged. See Graeber (2011) and Hudson (2018).
5. See Frank (1935)
6. See Cipolla (1982)
7. These are documented in the appendix of Aliber and Kindleberger (2005).
8. Clayton and Wilkins (2017)
9. From *An abundance of Katherines* by John Green as quoted in Clayton and Wilkins (2017).
10. See, for example, Malmendier and Nagel (2015)
11. That quote comes from Chapter 12 of his *General Theory*, another quote attributed to Keynes, but harder to source, is also relevant here: "markets can stay irrational longer than you can stay solvent". Or as Warren Buffet has put it: "As a group, lemmings have a rotten image, but no individual lemming has ever received bad press." Relatedly, Aikman et. al. (2015) develops a model showing how career concerns could motivate rational bankers to make more risky investments when economic fundamentals are good.
12. Diamond and Dybvig (1983)
13. See, for example, Shiller (2007)
14. I am using extrapolative expectations here in a broad way to mean expectations that are based on the past

*experience continuing. There is a broader question of whether expectations reflect learning and adapt – that is, learn from the past without assuming that the future will follow the past.*

*15. Kahneman and Tversky (1973) famously shows how humans are neither rational nor mechanical in making predictions, rather applying (oft-mistaken) judgment. Williams (1987) reports various experiments testing how market participants form price forecasts, rejecting both rational expectations and extrapolative expectations models.*

*16. See for example Lovell (1986)*

*17. University of Chicago (1995)*

*18. Sovereign defaults are a fascinating example throughout history of the complexity of expectation formation – on the one hand, there are many examples of investors having long memories. Louis XI faced a very high cost of borrowing because of repeated defaults and similar pressure encouraged William III to the creation of the Bank of England. On the other hand, there are many instances of investors lending repeatedly to sovereigns that have defaulted repeatedly.*

*19. Bordalo, Gennaiolo and Shleifer (2018)*

*20. Stress tests might also serve the useful function of reminding bankers, and policy-makers, that tail risks exist and can be very expensive.*

*21. The scenario is set out in full in Bank of England (2019)*

*22. In 2014, the FPC took action to insure against the build-up of highly indebted borrowers in the UK housing market, see Bank of England (2014), and also Bunn and Rostom (2015) and Mian and Sufi (2014).*

*23. See Carney (2019) for an illustration of some key indicators for a range of major economies over the past four decades.*

*24. See, for example, Bridges et. al. (2017) which looks at a sample of 130 downturns since the 1970s, across advanced economies While it finds some evidence of a role for the level of indebtedness, credit growth is found to be a more significant predictor, with rapid credit growth predicting worse recessions: longer with lower GDP per capital, higher unemployment, and more lost productivity.*

*25. The CCyB is one of the major new regulatory tools introduced after the crisis – allowing regulators to vary system-wide bank capital requirements over time. Bank of England (2016) sets out the FPC's approach to setting the CCyB.*



26. Broadbent (2019) and Cunliffe (2016)

27. These findings were set out in full in Bank of England (2017)

28. According to the FPC core indicator which tracks the mean over the median (that is, the average of the top half of the distribution). It is also true in the sense that the proportion of borrowers with high LTIs and high LTVs have been rising.

29. Leveraged lending typically refers to loans to non-investment grade firms that are highly indebted (debt of more than four times EBITDA) or are owned by a private equity sponsor.

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# A commitment to shared prosperity

If the European Union draws on its roots and finds a way forward through shared prosperity, Christine Lagarde believes the next chapter of unity in Europe will begin



2019 marks the 30<sup>th</sup> anniversary of the fall of the Berlin Wall. I want to ask a question about this anniversary. Was the fall of the Berlin Wall a beginning, an end, or a middle? Think about it.

What is a beginning? Beginnings are full of optimism, the promise of achieving something new. A time when people are committed to make sure the future is brighter than the past. This certainly could describe the feeling when the wall fell.

The ending, what is an ending? The moment when your work hopefully succeeds. Endings can be a time when an idea becomes a reality. This also seemingly describes the fall of the Berlin Wall.

But what about the middle? The middle involves effort, hard work, and sacrifice. It means finding common ground where none seems to exist. Well, here too, is perhaps a good description of what the fall of the Berlin Wall meant to Europe, and the world.

So, keep that question in mind — and when I conclude I hope we might have a better sense of the answer. I want to begin with the theme Europe works, because despite well-known difficulties, Europe has worked, and worked quite well. And it is important we recognize this success. History matters. You do not plant cut flowers.

And then I want to move on and look at the next chapter of Europe's story. The challenges the European Union faces today require a commitment to the spirit of multilateralism and unity that created the EU in the first place. That is particularly true of the area I want to focus on — restarting economic convergence.

### **Economic and political success of the European Union**

First, a little history. Imagine it is 1949. Europe's economy is desperately trying to recover from the war. Millions are

still unemployed. Hundreds of thousands of refugees languish in displaced persons' camps. In Munich many of the streets are still strewn with rubble and destruction.

Now, fast forward seventy years. The European Union, representing over half a billion citizens, represents the second largest economy in the world. It is also the largest trading bloc in the world. In fact, if you include the countries with which the EU has free trade agreements—including the new ones signed with Canada and Japan—the trading bloc now accounts for over one-third of global GDP.

*So our goal should be clear: restarting convergence and ensuring the fruits of economic growth are shared broadly across the EU. This will help restore faith in the European project*

How did we get here? Through courage and creativity. The promise of the EU has always been both economic and political. The founders believed that the free flow of goods, services, investment, and labour would lead to interconnected economies and in turn widely shared prosperity and peace.

The promise has largely delivered. From the forties and fifties when the Marshall Plan helped rebuild a war-torn continent, to the transition from dictatorships to democracies in southern Europe in the seventies, to the fall of the iron curtain and the economic transformation of eastern Europe in the nineties.

Two of the most historic steps in realizing the vision of a united Europe were the creation of the single market and the euro. Here, Germany played a unique and defining role. As Dr Waigel famously said, *“Germany brought the Deutsche Mark into Europe, and in so doing brought the euro into being.”*

So our history has a common theme: the marriage of political and economic fortunes is an incredibly difficult but worthwhile endeavour. And one that is as difficult to build as it is to disentangle. And it can only work when all of Europe is successful. This requires economic convergence.

What does this word mean precisely, convergence? Put simply, it means poorer countries’ incomes catch up to their wealthier neighbours.

Think about the last twenty years. During this period, the promise of EU membership for former communist countries led to market driven reforms and institution building that unleashed their economic potential. From 1993 to 2017, real income per person nearly doubled in the Czech Republic, Hungary, and Slovenia. It increased by more than two and half times in the Slovak Republic, Estonia, and Poland. And it more than tripled in Latvia and Lithuania.



The IMF was proud to play a part in this transition. In fact, we created a new lending instrument specifically designed to address the needs of the former communist countries. Success breeds success. The reforms new member states implemented in order to join the EU made them an attractive place for the original EU members to invest. As a result, Europe's economies have become deeply integrated, with highly sophisticated European supply chains.

The dedication of the new member states has paid dividends for all EU members. From the mid-1990s to 2007 new member states' real income per person doubled, and the original EU members saw a 42 percent increase.

But the Global Financial Crisis put a pause on Europe's progress. Convergence took a back seat to survival. The European Union — rightly — united to save itself. But the need for convergence did not go away. And now we must focus on it once more. Why? Because Europe is once again facing a defining moment.

### **The new challenges to European unity**

Over the last few years populist movements have called into question the fundamental value of integration. Migration from the Middle East and North Africa has sparked concerns over cultural identity and security.

The rules-based global trading order — a key source of global growth over the past 60 years — is facing unprecedented pressure. And the continent's next generation which is still suffering from the economic scars of the global financial crisis — is searching for quality jobs and a stable future. 1 in 4 young people in the EU are now at risk of being in poverty. Solving these challenges requires a renewed commitment to shared prosperity in Europe.

There have been already signs of renewed momentum. Daily, the EU is reminding the world that it proudly supports free and fair trade, defends multilateralism, and seeks ways to reduce the inequality fueling so much of our discord.

It brings to mind the words of Chancellor Kohl who said, *"We all need Europe, not just those of us in Europe."* Right now, in a world that is questioning the value of international cooperation, the world needs Europe more than ever. But first, Europe must succeed at home. For that to happen, Europe needs to rekindle economic convergence where it has faltered.

In contrast to the continued convergence of central and eastern European member states, convergence between southern and northern euro area countries started to stall over the last twenty years. Since the crisis the situation has gotten worse. Between 2008 and 2017, for the five southern euro area countries hit hardest by the crisis, average annual growth in real income per person was actually negative.

So our goal should be clear: restarting convergence and ensuring the fruits of economic growth are shared broadly across the EU. This will help restore faith in the European project.

IMF research has shown that product and labour market reforms can have significant impact on productivity, especially in poorer countries. We know it will not be easy. But just as with every difficult undertaking since the war, the hard work will help deliver long-lasting peace and prosperity.

### **Restarting convergence through structural transformation**

There are three areas of reform I want to highlight. The EU can play a supporting role in each but by design it can only assist national reform efforts. We can learn from the former EU Commission President Jacques Delors who said: *"The European model is in danger if we obliterate the principle of personal responsibility."*

Each nation needs to put its own house in order to strengthen the entire European community. What kinds of reforms are needed?

## Labour markets

First, labour markets. In many southern euro area countries unemployment is far too high, especially for young people. In Italy, Greece, and Spain, overall unemployment is between 10 and 20 percent. But for young people it is over 30 percent. Compare that to northern euro area countries like Germany and the Netherlands, where overall unemployment is below 4 percent and youth unemployment less than 7 percent.

While lack of investment in education and skills training is a critical factor, there is also the issue of employment flexibility. Too many companies face undue burdens when it comes to contracting, hiring, and firing. Addressing this challenge can help unlock job prospects for all citizens — especially young people trying to break in to the workforce or advance their careers.

In Portugal, for example, recent labour market reforms gave businesses greater flexibility. As a result, companies are now more willing to take a chance on new hires and offer them permanent contracts instead of temporary ones. The reforms are working. Most of the strong job growth in Portugal over the last few years is driven by jobs featuring permanent contracts.

## Business climate

The second important area is making the business climate more attractive to investors. Here again we have seen progress in Portugal, where in the mid-2000s it used to take almost a month to start a business. Now it takes less than five days. There is much more we can do.

In many other southern euro area countries, there is ample room to reduce barriers to competition in areas such as professional services and the retail sector. One stumbling block for investment, especially cross-

border investment, is how costly and time-consuming it is for a company to go through the bankruptcy process.

The standards vary widely in Europe today. Resolving a corporate insolvency in Greece takes about nine times longer than in Ireland, for example. Modernizing and harmonizing insolvency regimes will help increase investment and create new jobs.

### Investing in innovation

My third and final area is spending on innovation. Under-investment in innovation is a problem across southern euro area countries. Research and development spending in Italy, Portugal, and Spain averaged just over 1 percent of GDP between 2000 to 2014. That amounts to less than half the level of R & D spending in countries like Germany and France.

Boosting innovation will require a variety of reforms, including facilitating venture capital financing and improving public-private sector cooperation on R&D. But the impacts can be significant. For example, in Italy, improving firms access to financing for innovation and expanding public support for R&D could raise GDP by 5 percent over the long run. This would translate into an increase of nearly 2,000 euros per year in the average workers' real income<sup>1</sup>.

So, these are three key areas where countries themselves can make progress: labour markets, business climate, and investing in innovation.

What about the EU's role? The EU can help countries implement reforms through technical assistance and advice. They can also devote more resources to supporting reforms and innovation in the next EU budget. Perhaps most

importantly, the EU can continue to foster economic cooperation between countries, while ensuring no new barriers are built between them.

Just as before, success will breed success. By building bonds of trust between member states the EU can accelerate progress on a whole range of politically difficult undertakings. From a better European economic architecture to meeting the crucial commitments of the Paris climate accord.

This is the way we can generate new opportunity for all of Europe's citizens and in the process secure stability for the next generation.

### **Conclusion**

So, let us return to my original question. Was the fall of the Berlin Wall a beginning, a middle, or an end? I would argue it was all three. It was a time of new hope, a culmination of a thirty years of work, and it was also a challenge to rebuild.

The same is true of this moment in Europe. It is a time that requires courage and creativity. I have quoted from the French and the Germans. In the spirit of unity, let me close with a quote from the British. It was Churchill, who said, *"This is not the end. It is not even the beginning of the end. But it is, perhaps, the end of the beginning."*

If the European Union draws on its roots and finds a way forward through shared prosperity, I believe we will look back at 2019 as the start of an optimistic new chapter in the European story. ■

**Christine Lagarde is Managing Director of the International Monetary Fund**

## Endnotes

1. European Commission: [Exploring Italy's Growth Challenge, A Model Based Exercise](#). 22 December 2016.

*This article is based on a speech [delivered](#) at the Munich European Conference, Munich, Germany, February 14, 2019*





# Assessing global financial stability

Tobias Adrian describes what the IMF sees as some of the major factors that could put growth at risk

I'm pleased to discuss the IMF's latest assessment of the current state of global financial stability. Last month, the World Economic Forum conference took place in Davos — and you've surely heard about our Managing Director's presentation of the IMF's latest update to our *World Economic Outlook*. Global economic growth has remained strong. Our analysis suggests that a global recession is not around the corner. However, as we look ahead, the risk of a decline in global growth has increased.

As we scan the horizon, let me describe to you what the IMF sees as some of the major factors that could put growth at risk. Global financial conditions have tightened appreciably in the last few months, with a significant global selloff in many major financial markets in the last quarter of 2018.

While there has been a partial retracement of that selloff in the new year — globally, markets are now looking for signs that the financial cycle may finally be turning. That is especially true in the United States, which has been further ahead in the economic and financial cycle compared to most other regions.

In addition, investors are focused on the Federal Open Market Committee, trying to judge whether the Federal Reserve may be close to ending — or at least pausing — its recent series of interest-rate hikes. Other key concerns include the slowdown in the Chinese economy, continuing trade tensions, and political risks such as Brexit.

In fact, 2018 was the most difficult year for markets since the global financial crisis. Almost every asset class saw negative returns. The few major areas that showed positive results were 'safe haven' assets such as US Treasuries, UK gilts and Japanese Government Bonds.

2018 also saw the return of significant volatility to global financial markets, after a prolonged period of very low volatility. The VIX index, which is often seen as a proxy for market anxiety, saw several spikes over the course of the

year. Markets have recovered somewhat in the new year — with stocks making up about half of their 2018 losses, and with credit spreads tighter by about one-third.

The tightening in financial conditions is important because it can have an impact on downside risks to growth. This relationship is encapsulated in the IMF's *Growth at Risk* approach, which was first introduced in the October 2017 edition of our [Global Financial Stability Report](#).

*Other key risks on the horizon include additional weakening in economic activity; a further tightening of financial conditions; trade policy concerns; and political risks, as exemplified by the Brexit issue*

Using statistical techniques, we project a distribution of possible outcomes — which, in turn, helps us identify the most adverse scenarios located in the ‘left tail’ of the distribution (with a 5 percent likelihood of occurring). Over time, we can track the changes in these 5 percent tail scenarios, and we can analyse how they respond to changing economic and financial conditions.

We have just run our *Growth at Risk* model for the United States, which finds that risks to US growth have increased somewhat. The distribution has moved slightly to the left compared to the third quarter of 2018, even after accounting for the partial retracement of the market selloff.

One key driver for the tightening of global financial conditions was the negative data surprises we saw in parts of the world in 2018. Euro area economic data were weak; data from emerging market were often disappointing; and even the strong US economy began to show signs of a slowdown.

Another important catalyst was a pessimistic season of ‘forward guidance’ from corporate management — underscoring trade fears, political uncertainty (especially in Europe and the United Kingdom), rising labour costs, and slowing economies worldwide. In the United States, corporate earnings growth is projected to decline in 2019.

Together, these two trends led to lower market expectations for inflation. We can see this clearly when looking at inflation swaps, which are among the most important instruments for determining market inflation forecasts for the United States and the euro area. In both regions, markets are predicting that inflation will remain subdued over the next five years.

Options on inflation swaps allow us to estimate the implied probabilities for potential inflation outcomes in the future. These options suggest that inflation is likely to remain low with there being little chance of US or euro area inflation hitting 3 percent for a full year, over the next five-year period.

This outlook for inflation has led markets to expect a more dovish path for central banks. In the United States, markets now expect the Fed to stay 'on hold' in 2019-20. By contrast, the current 'dot plot' from the Federal Open Market Committee has a median forecast of two hikes in 2019. How these Fed projections and market forecasts are reconciled, will be one of the key questions for 2019. For the ECB, markets predict the first hike in 18 months — up from 12 months as recently as October.

Meanwhile, many observers foresee that the end of the current financial cycle may be getting closer in the United States. A variety of economic and financial variables display late-cycle behaviour. Although financial conditions are tightening, credit spreads are still narrow by historical standards, and M&A activity has been strong — a factor that we often see near the end of cycles. The yield curve has begun to flatten—a process that tends to occur before the onset of a downturn. Corporate margins may have peaked; wage growth is picking up; and unemployment is very low.

There are additional signs of late-cycle behaviour, especially in the US bond market. Term premia and credit spreads are compressed today, as they usually are near the end of the cycle. In addition, bond markets may be underpricing credit risk. Probabilities of default, calculated using widely used models, are very low despite a much higher level of corporate debt. Easier financial conditions lead to lower default forecasts in these models, causing investors to tolerate higher credit risk. That's when credit problems tend to build up in markets.

A deterioration in corporate credit quality is a growing concern among market participants, as well as among regulators. In some countries, corporate debt levels have spiked in the [decade since the global financial crisis](#), and they have remained high in other major markets. The increasing issuance of lower-rated debt, with fewer covenants or other investor protections, has led to heightened scrutiny by the Federal Reserve, European regulators, and others.

Weaker corporate credit could become a major problem if forecasts of lower earnings turn out to be correct. The weak tail of corporations, whose earnings are only just high enough to cover their interest costs, could become vulnerable to default if the economy slows down and if their earnings become insufficient to service their debt. This weak tail could grow larger if the downturn is severe, as it did in the United States in 2000 and in 2008.

Moreover, the nonbank financial sector has come to play an increasingly important role in the provision of credit, as banks have reined in their lending due to competitive pressures, regulation and other factors. As a result, the market for [leveraged loans](#) has grown significantly worldwide—and, remarkably, in the United States it is now larger than the high-yield bond market.

Collateralized Loan Obligations and loan mutual funds now play a dominant role in the leveraged loan sector. Private equity, hedge funds and pension funds also have a large footprint in nonbank lending, both through CLOs and direct loans. Worries about credit quality made 2018 a bumpy year for US credit markets. There were major episodes of investor selling during the year, and December was the first month in a decade where there was no issuance in the US high-yield market.

Policymakers have limited means to take remedial action in nonbank lending, even as credit quality deteriorates. Liquidity and maturity mismatches among asset managers are a significant concern. With banks no longer willing

to provide liquidity, a flood of investor redemptions could lead to significant market dislocations if asset managers need to sell.

Today, much of the nonbank sector remains uncovered by macroprudential policies. Few policy tools are now available, because some only apply to money-market funds rather than the wider set of investment funds. Authorities should explore a wider range of macroprudential measures to address these issues.

Emerging markets have also been affected by the market selloff. Portfolio inflows fell, although they have come off their lows in recent weeks. Rising spreads and higher volatility have caused emerging market and frontier issuers to face higher funding costs and lower investor demand.

China remains front-and-centre for global financial markets, with a great deal of focus on the health of the economy and the tariff dispute with the United States. Volatility in Chinese markets could have a negative impact on other emerging markets. The correlation between Chinese stocks and other emerging-market equities has been rising since trade tensions flared up last year. Another area of vulnerability for emerging markets is a stronger dollar, because emerging-market corporates ramped up their dollar borrowing in recent years to take advantage of low funding costs.

China's stock market was the worst-performing major market in 2018, as trade tensions flared up amid regulatory tightening. Stocks with significant US exposure were especially hard hit. Although the authorities have introduced measures to ease conditions, funding costs did not fall appreciably, perhaps due to lenders' concern about the creditworthiness of corporate borrowers.



This year, the authorities have introduced several additional measures to ease conditions, and local markets have started the year on a modestly positive note.

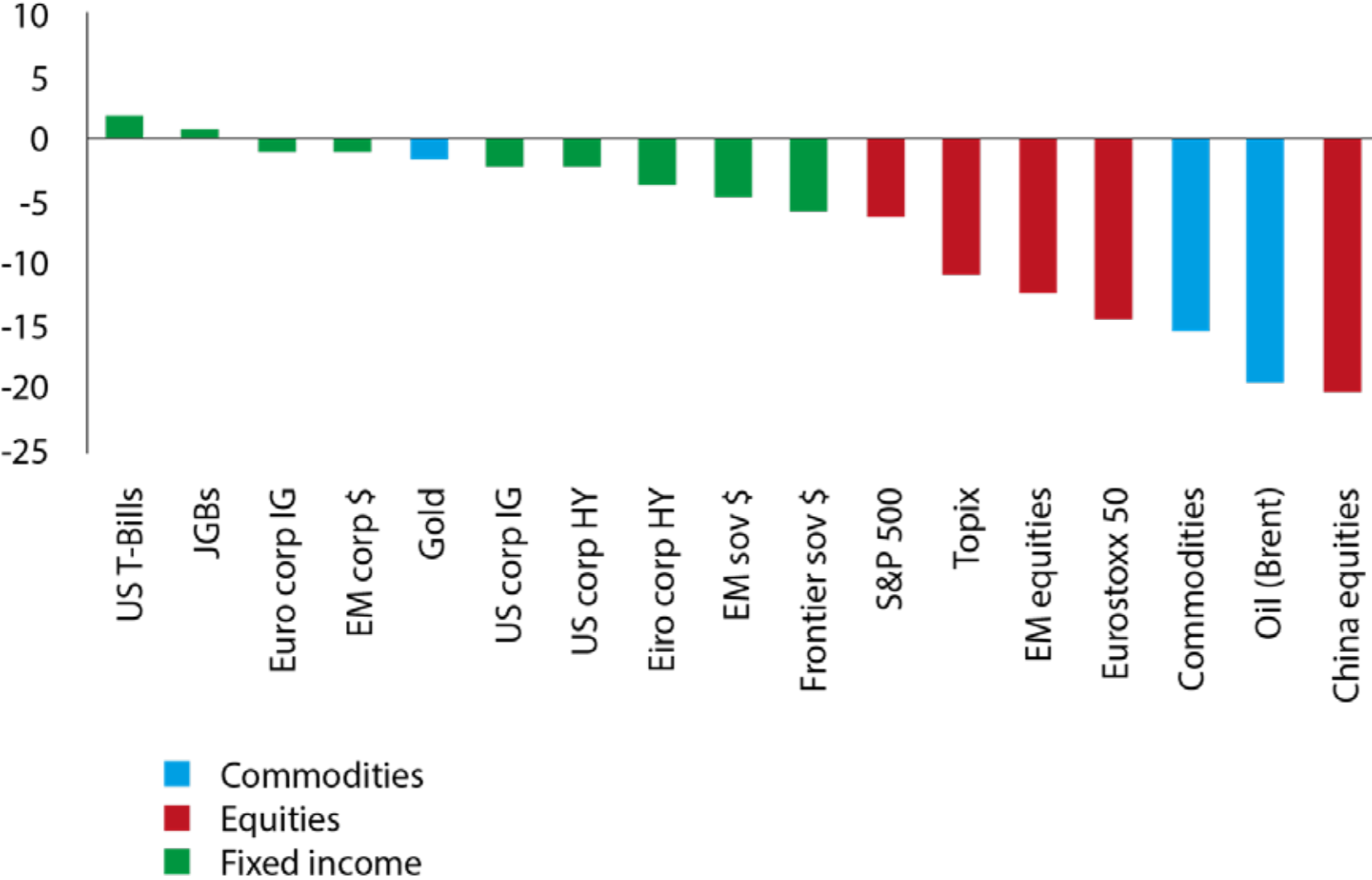
Turning to Europe, Brexit-related uncertainty remains very high. UK stocks have significantly underperformed global equities over the past few years. Volatility in the sterling foreign-exchange options market has spiked, and the demand for protection against depreciation grows, especially around key risk periods such as the run-up to Brexit.

In Europe, another risk facing investors is the 'sovereign-bank' nexus. This is the negative feedback loop that builds up when banks face problems because of the credit woes of their home countries. Banks typically have large holdings of government bonds issued by their home countries, but these bonds lose value when markets begin to worry the home country's credit risk. An escalation of credit-related worries about a country leads to an escalation in credit risk for the banks themselves.

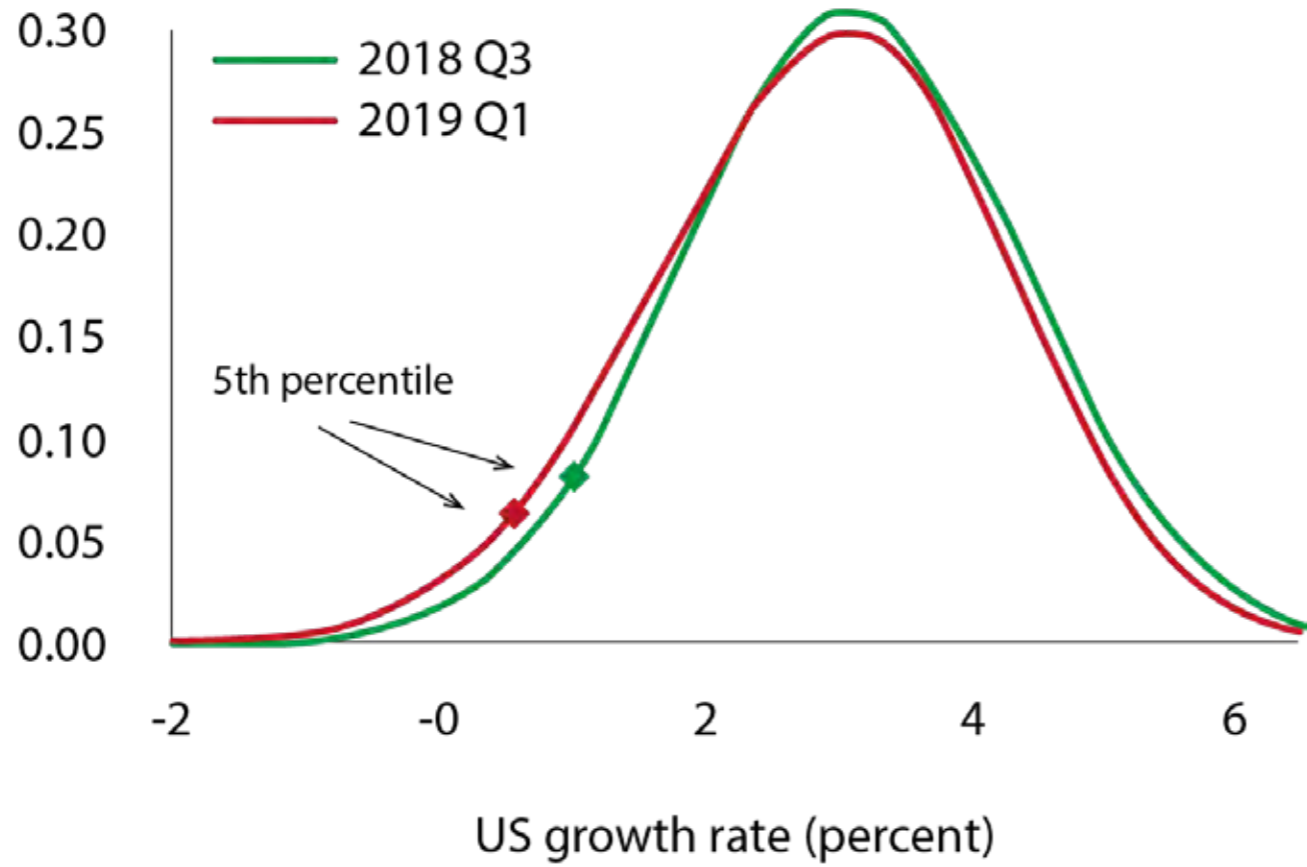
Italy was in the spotlight for much of the year amidst the budget standoff with the EU, given its banks' large holdings of Italian government securities, or 'BTPs.' Yield spreads between BTPs and German bunds flared up in the summer, and they have yet to fully recover, while Italian equities underperformed at the height of the tension.

To summarize what I have outlined here today: global financial conditions tightened in the fourth quarter of 2018, on the back of a correction in corporate valuations. They saw a partial retracement this year, with equities recovering about half of their losses, and with credit spreads tightening by about one-third. But global conditions are still tighter on net.

Figure 1. Returns by asset class during 2018 (percent)

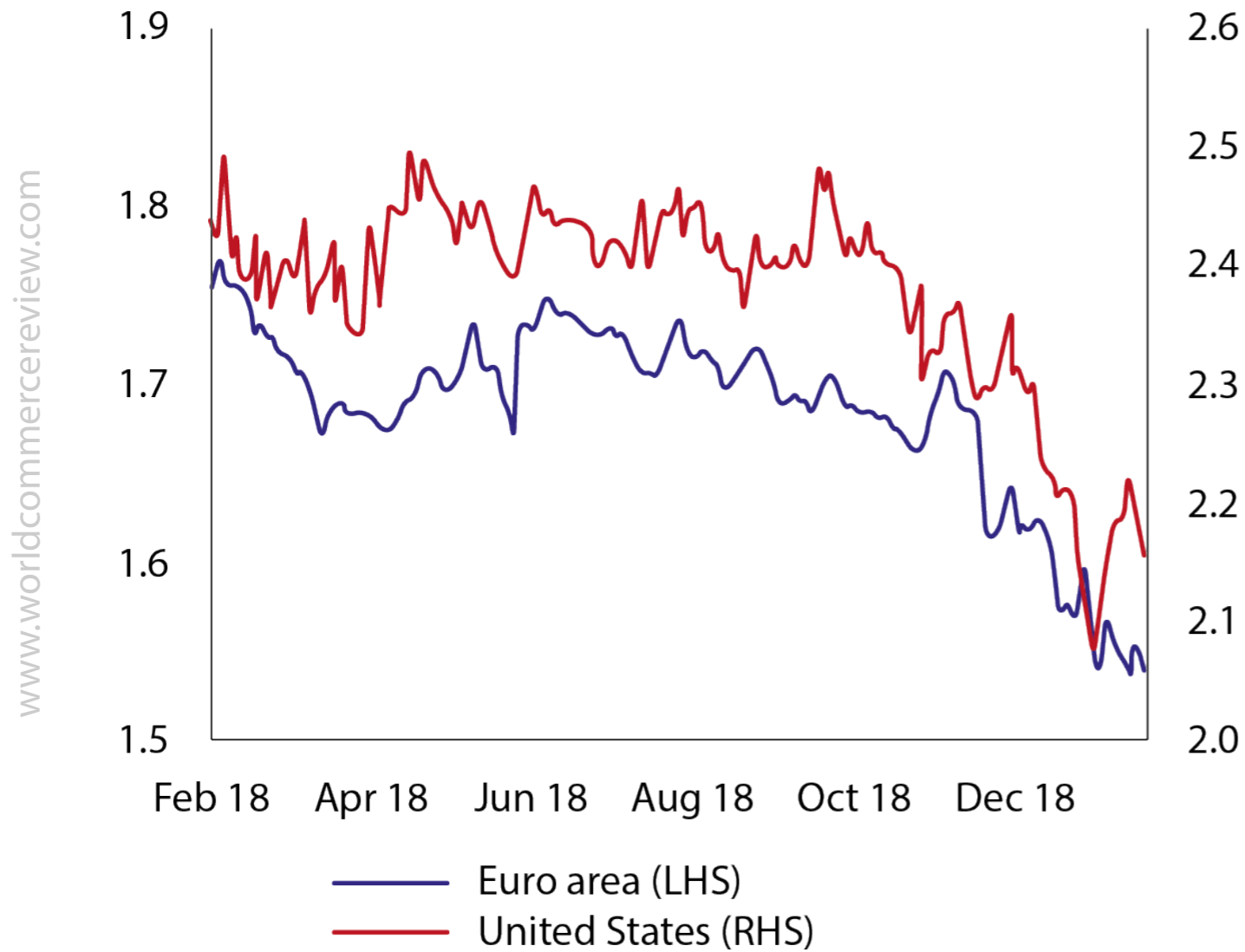


**Figure 2. US growth forecast, one year ahead (probability density)**



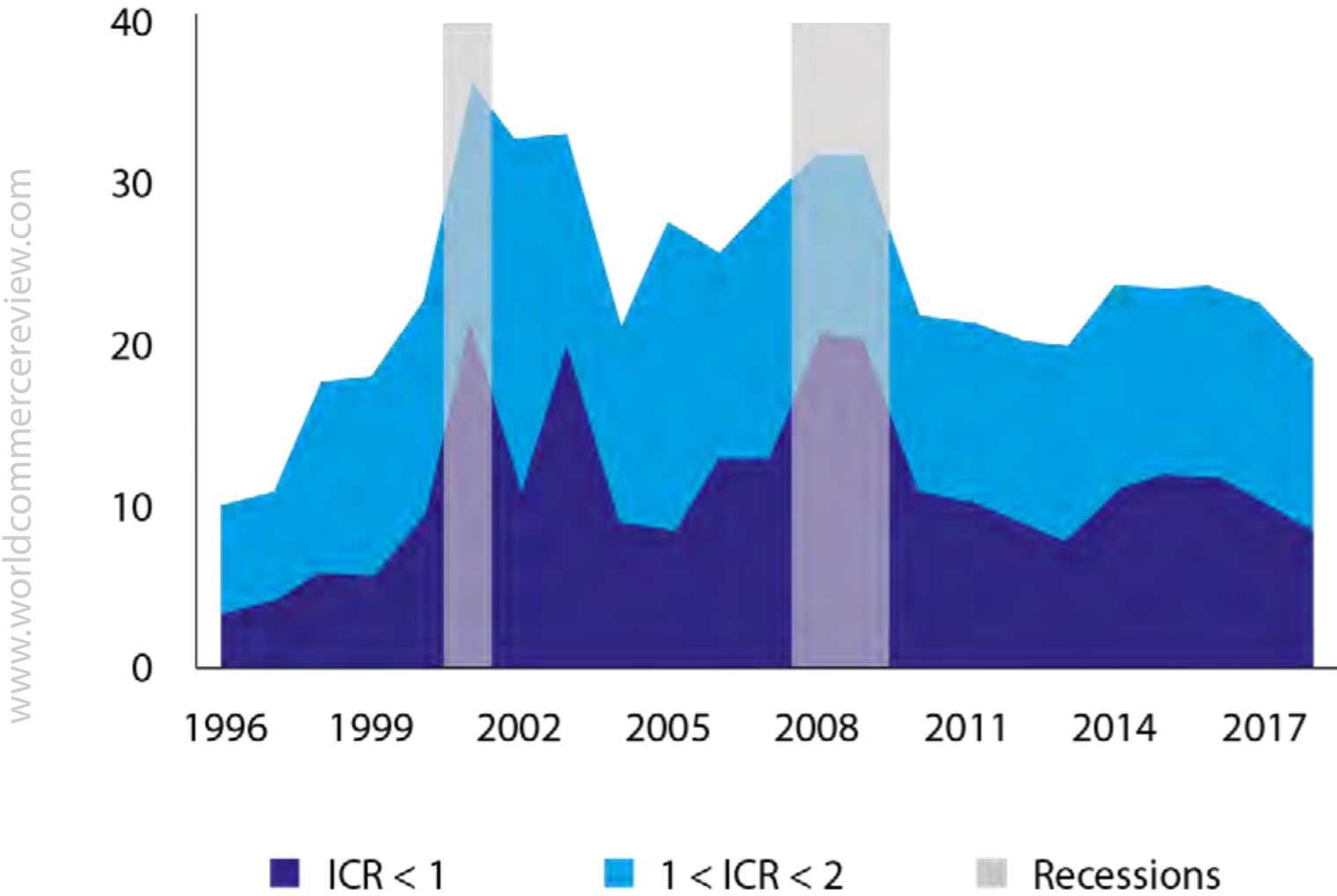
**Figure 3. Market pricing of inflation protection**

5Y5Y inflation swap forward rate, percent

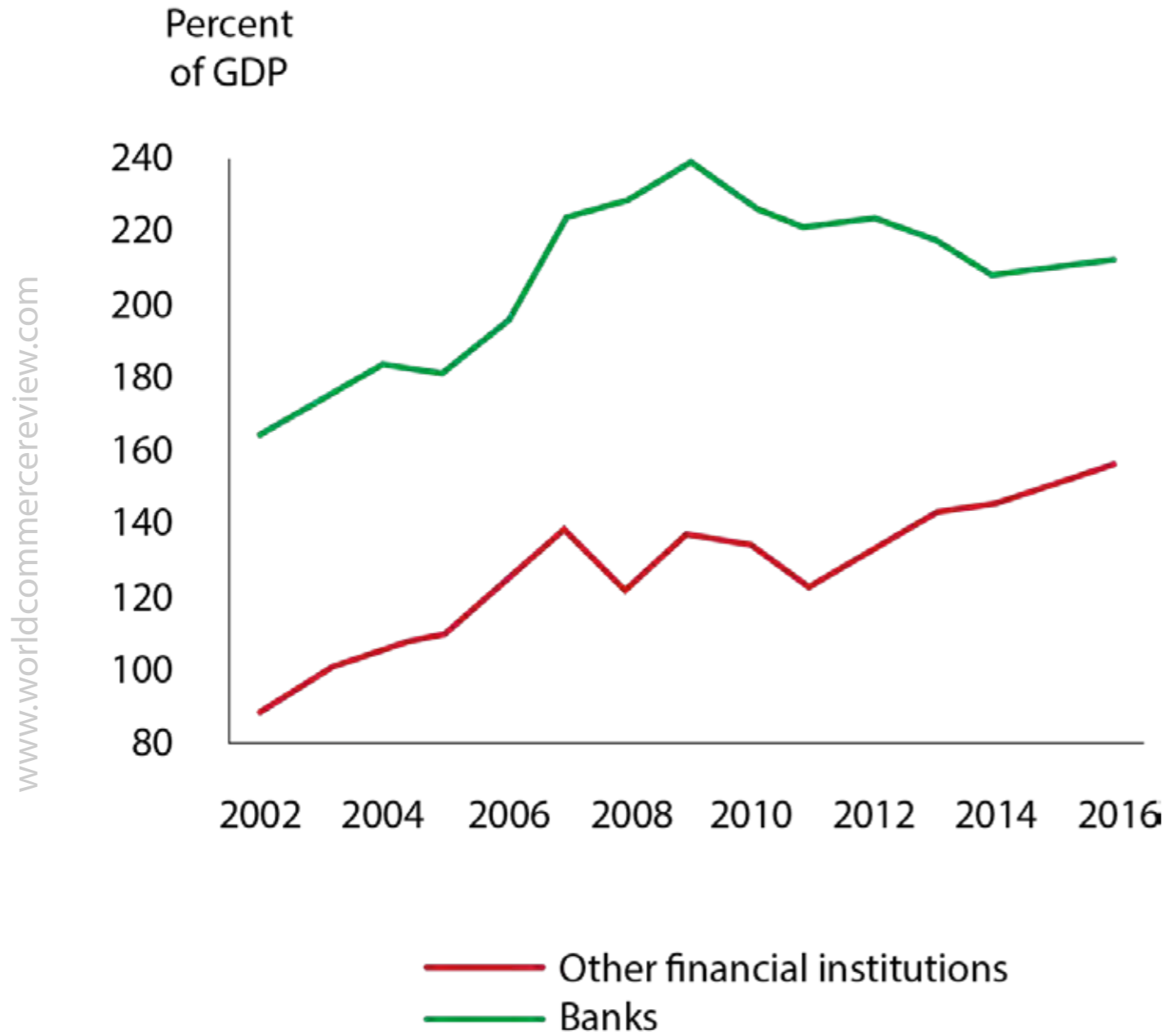


**Figure 4. Weak tail of US companies by interest coverage ratio**

Share of US companies with ICR < 2, percent of total debt



**Figure 5. G-20 bank and other financial institutions' assets**



Moreover, the data suggest that the financial cycle in the United States could be approaching its end. Other key risks on the horizon include additional weakening in economic activity; a further tightening of financial conditions; trade policy concerns; and political risks, as exemplified by the Brexit issue.

At the IMF, we'll continue to monitor these global financial trends very closely, as we approach our Spring Meetings in April — when we'll publish the next edition of our *Global Financial Stability Report*. ■

**Tobias Adrian is Financial Counsellor and Director of the International Monetary Fund's Monetary and Capital Markets Department**

*This article is based on [remarks](#) at the OMFIF, New York, January 24, 2019*





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# Dancing with the dragon: can the EU and China rescue the WTO?

Comprehensive WTO reform has never been more urgent. Bart Broer argues that the Sino-European relationship could safeguard the world's trading regime

**T**he World Trade Organization, conceived in 1994 by no fewer than 124 ambitious nations endeavouring to liberalize and regulate global trade flows for decades to come, is broken. Once a beacon of hope for the value-based multilateral order, the organization has recently come under renewed pressure.

On the western front, Donald Trump has instituted a protectionist economic policy, not shying away from imposing import duties on US partners and competitors alike – culminating in the ongoing ‘trade war’ with Beijing.

On the eastern front, China’s authoritarian state-led economy continues to raise questions of inconsistency with pivotal WTO principles of transparency and national treatment. Other members of the organization, such as the European Union, the other BRICS countries and Japan, keen on preserving the WTO’s status as the legal backbone of international trade, find themselves caught in a consequential geopolitical struggle between the world’s two largest economies.

### **The WTO, a long way from home**

Criticism on the functioning of the WTO is not a novelty. Rather, ever since its inception, participating members have discussed pathways for reform. Multilateral trade negotiations under the WTO essentially came to a standstill after the completion of the Uruguay Round, negotiations for which lasted from 1986 to 1993.

The latest round to liberalize global trade flows, known as the Doha Development Round, failed principally because of insurmountable differences between developed nations and developing countries on a range of issues, most crucially of which the provisions on special and differentiated treatment (SDT). These provisions grant developing countries flexibility in implementing their obligations under WTO law whilst authorizing developed nations to treat the former more favorably than other WTO nations.

The Doha negotiations, having commenced in 2001 and still ongoing, have proven largely unsuccessful as no significant trade liberalization measures were agreed upon. As annual negotiation sessions continued to fail, the divide between the developed nations and developing countries widened. The WTO came under increased scrutiny from both sides of this divide.

*... discussions with Beijing on structural economic issues straining the Sino-European relationship and the future of the WTO is not only possible – it may be the best shot Europe has at safeguarding the continuity of the world's trading regime*

The advent of a protectionist-mercantilist US foreign and economic policy, as well as the growing self-assurance with which China is asserting itself on the global economic stage, have fanned the flames even more: comprehensive WTO reform has never been this imperative and urgent. Broadly speaking, the WTO is considered to urgently require modernisation on two fronts: first, on the breadth of its rulemaking competence, and second, on its operational working arrangements.

### **Europe taking the plunge**

The EU has been most proactive and outspoken both in vocalizing what it considers dysfunctional about the WTO and in proposing concrete pathways for reforms. It released a concept paper in September 2018 enumerating pathways for substantive as well as procedural modernisation. In *substantive* terms, the EU holds that there is a need to broaden the WTO's negotiation mandate, as illustrated by the repeated failure of the aforementioned negotiation rounds.

Like-minded nations should more freely initiate 'plurilateral' negotiations within the framework of the WTO on topics of common interest – eg. investment facilitation, small and medium-sized enterprises, e-commerce, transparency, and opening up the financial and services sectors.

Once an agreement amongst like-minded states has been struck, it will be enforced by the participating states and open to voluntary accession by other WTO members. Such a process was followed with the Government Procurement Agreement (GPA) and allows for the WTO to escape the Doha deadlock. However, it also risks disintegrating the legal framework of the organization, with different groups of nations being subject to divergent trade liberalization regimes.

Fuelled by the alleged inconsistencies between China's state-planned economy and the principles of transparency and national treatment under WTO law, the EU urges members to consider reforms to "*rebalance the system and level the playing field.*" European businesses continue to face considerable challenges in accessing the Chinese market due to Beijing's longstanding provision of subsidies to some its economy's most critical sectors, the institution of joint venture requirements, and the limitations placed on foreign ownership.

Moreover, the EU calls for a revision of transparency rules, allowing WTO members to adequately establish whether certain subsidy provisions qualify as trade distortions. Likewise, rules to establish whether a private entity is pursuing private or government-supported economic aims must be updated. SDT, currently claimed by over two-thirds of the WTO membership, is at risk of diluting calls of those countries in real need of development assistance.

It must, therefore, be fine-tuned to ensure that the privileges claimed under SDT are as targeted as possible. Countries claiming these privileges must also be widely encouraged to 'graduate' to the status of a developed nation.

### **Brussels' extended hand**

The *procedural* reforms the EU is advocating must be understood in the context of demands originating in Washington. The Trump administration claims that the WTO Appellate Body (AB), a panel of seven judges empowered to review decisions by the first-instance Dispute Settlement Body (DSB), is inefficient and ineffective, lacks judicial independence and applies inconsistent legal reasoning – to the detriment of the United States.

President Trump has therefore moved to block AB appointments. In December 2019, two out of the three current judges are set to retire, thereby failing to meet the minimum threshold of three judges required to deliver a judgment.

Aiming to accommodate US concerns, the EU has proposed a series of procedural reforms that can be effectuated with relative ease and swiftness. AB members should be appointed for a longer period of time to guarantee their independence; their position should be full-time, rather than part-time; and the AB must publish its final decision within 90 days of the lodging of the appeal unless agreed otherwise by all Parties. The EU furthermore suggests an annual exchange session between WTO members and the AB, allowing members to comment on the AB's jurisprudence and its procedural functioning.

Lastly, the EU proposes to change the text of the Dispute Settlement Understanding (DSU), annexed to the 1994 Marrakesh Agreement, to include that an outgoing AB member shall "complete a pending appeal in which a hearing has already taken place during that member's term" – a practice that has become custom in recent years, prompting the US to speak of a 'sweeping' of AB competences.

Brussels' proposals draw heavily on longstanding US concerns – in particular with regard to the alleged overstretch and deficiency of the AB. The Trump administration has declared AB reform non-negotiable – yet procedural reform is not an independent objective per se: Trump is holding the AB hostage as a means to generate additional leverage and political clout for *substantive* reforms.

Even though the US has been less outspoken than the EU in advocating these substantive reforms, both the EU and the US share concerns about China's authoritarian, state-led economy. They both characterize China as a 'non-market economy', heavy on industrial subsidies and trade-distorting measures, and as such seemingly inconsistent with WTO obligations.

### **Shared concerns, divergent strategies**

Indeed, both Brussels and Washington view the economic rise of China with great unease. This unease is



exacerbated by fears of the gradual rise of an alternative, Sino-centric global trade order through the founding of the Asian Infrastructure Investment Bank (AIIB) and the coming into being of alternative means of bilateral dispute settlement. Bilateral, Belt and Road Initiative (BRI)-inspired MoUs have included pathways for the resolution of international commercial disputes under Chinese law – outside the conventional WTO framework.

What sets Brussels and Washington apart, however, is their response. President Trump has chosen to apply maximum pressure on Beijing and instigate a 'trade war' through the imposition of tariffs on Chinese imports, whilst so far rejecting any meaningful proposal to reform the WTO. Trump anticipates that supporting Brussels' proposals may put his negotiation position vis-à-vis Beijing at risk – in case Beijing endorses EU proposals, Beijing would no longer feel pressured to the greatest possible extent.

Brussels, having found Washington reluctant to commit to WTO modernisation, has opted to follow a reconciliatory course of action. In late November 2018, the EU circulated two proposals to the WTO General Council. The first of these, submitted jointly with China, Canada, India, Norway, New Zealand, Switzerland, Australia, the Republic of Korea, Iceland, Singapore, and Mexico, was aimed at breaking the deadlock in the AB.

It reflected many elements the EU had put forward in its concept paper two months earlier: a proposal to clarify that the legal issues on which the AB is competent to rule do not include the meaning of 'domestic legislation'; to hold annual exchange sessions; and to ensure that the AB publishes its findings within the 90-day timeframe.

The second proposal was submitted jointly with China and India and is somewhat more audacious. It proposes that the selection process of AB members start automatically when a position becomes vacant. This suggestion unquestionably throws down the gauntlet to Washington.

## **Sino-European proposals: taking the back road**

It must be noted that both communications allude to procedural reform alone. Crucial reform issues are sidestepped, illustrating the considerable differences between the EU-led group of 'developed countries' and the China-led group of 'developing nations'.

Nonetheless, the EU and China have managed to agree on procedural reforms, as both parties have a strong interest in securing the short-term survival and functioning of the WTO. China, the world's largest exporter and second-largest importer of goods and services, has a clear interest in a functional WTO that guarantees unhampered trade. It also has an interest in a functional and effective dispute settlement system in order to defend itself from mostly western claims it regards as unsound and politically motivated.

Similarly, by cooperating with the EU, it intends to create goodwill to prevent Brussels from siding with Washington in the trade conflict: a European-American multilateral imposition of tariffs against Beijing will inflict even greater damage on the Chinese economy – and on the legitimacy of the Chinese Communist Party.

Lastly, China has an interest in conserving the privileged status of developing WTO members; in ensuring that decisions on reforming the WTO continue to require consensus; and in impeding developed nations from 'fighting our state-owned enterprises in the name of WTO reform'.

The EU portrays itself as a staunch supporter of the multilateral trading system and aims to ensure that the power vacuum created in the WTO by the retreat of Washington is not filled by Beijing exclusively. The EU is keen to prevent that rules are replaced by might. As such, it has an interest in shielding the multilateral trading system from attacks regardless of their geographic origin.

It has filed cases at the WTO against the US on the imposition of metal tariffs as well as against China for unfair technology transfers and a failure to uphold and enforce intellectual property rights. Above all, the EU is keen on employing the WTO to address the many inconsistencies of the Chinese economy with international commercial law, and to apply pressure on the Chinese government to undertake meaningful, substantive reforms to truly open up its domestic market to foreign operators.

### **Let's get serious: pathways for genuine modernisation**

China and the EU are now the world's two largest economies that remain committed – in one way or another – to investing in a resilient and sustainable WTO. The question therefore begs itself whether Sino-European cooperation on genuine, long-term and substantive WTO reform is conceivable.

Prima facie, it appears inconceivable for Beijing to endorse Brussels' 'wish list' for substantive WTO modernisation. Fundamental differences in the structures of the Chinese and European economy seem to not allow for cooperation on substance. Yet a number of avenues for cooperation that surpasses procedural reform can be identified.

The EU and China may seek to initiate plurilateral negotiations within the framework of the WTO on issues of likeminded interest. Largely uncharted WTO territory of common concern to both the EU and China may include investment facilitation, small and medium-sized enterprises (SMEs), e-commerce, the implementation of the Trade Facilitation Agreement, and the opening up of the global financial services sector.

With China and the EU being ardent proponents of the Paris Agreement, plurilateral efforts on the employment of the WTO for the realization of the Sustainable Development Goals is conceivable. Naturally, opting for the plurilateral path may bring the EU and China to terms, but simultaneously risks fragmenting the multilateral trade regime. By excluding the US from these discussions, the existence of the WTO may be called into question.

A reasonable path forward may be to initiate discussions on issues in which the US has a clear interest to participate, such as the effective enforcement of intellectual property rights, the liberalization of e-commerce, and the role of SMEs.

In the event of a dispute arising, the EU and China may invoke Article 25 DUS, which provides for Parties to a dispute to agree to *“expeditious arbitration within the WTO as an alternative means of dispute settlement of certain disputes that concern issues that are clearly defined by both parties which shall agree on the procedures to be followed.”*

Article 25, worded rather vaguely, thus allows for the creation of alternative, case-by-case arbitration systems. Theoretically, it can be envisaged that the EU and China opt to settle their disputes under Article 25 in such a way that precisely mirrors the existing WTO dispute settlement mechanism. If successful, other WTO members may agree to use the arbitration terms under which the EU and China apply Article 25 as a blueprint for the resolution of their respective disputes.

This would yield the EU and China considerable political leverage against the US, whilst maintaining – albeit in a roundabout way – the WTO as the pillar of international trade. A potential risk of such a course of action would, evidently, be the lack of enforcement under Article 25 as well as great legal uncertainty for the settlement of future disputes.

The EU and China may use their annual High-level Economic and Trade Dialogue, or lower-level equivalents, to strengthen mutual understanding about some of the ‘elephants’ straining the Sino-European relationship, such as European agricultural subsidies, subsidies in the Chinese steel and aluminum industries, and lack of national treatment for European companies operating in China.

Even though agreement on these issues may be inconceivable, cooperation on less sensitive issues (eg. cooperation on the connectivity agenda to fill the infrastructure investment gap in Central Asia) may also serve to create goodwill on both sides.

### **Next up: a delicate balancing act**

In any case, Sino-European collaboration on relatively insensitive aspects to WTO reform such as improving the efficiency of the Appellate Body, allocating additional resources to the WTO Secretariat, and organizing yearly exchange moments between the AB and the WTO members, may serve to build confidence and mutual trust.

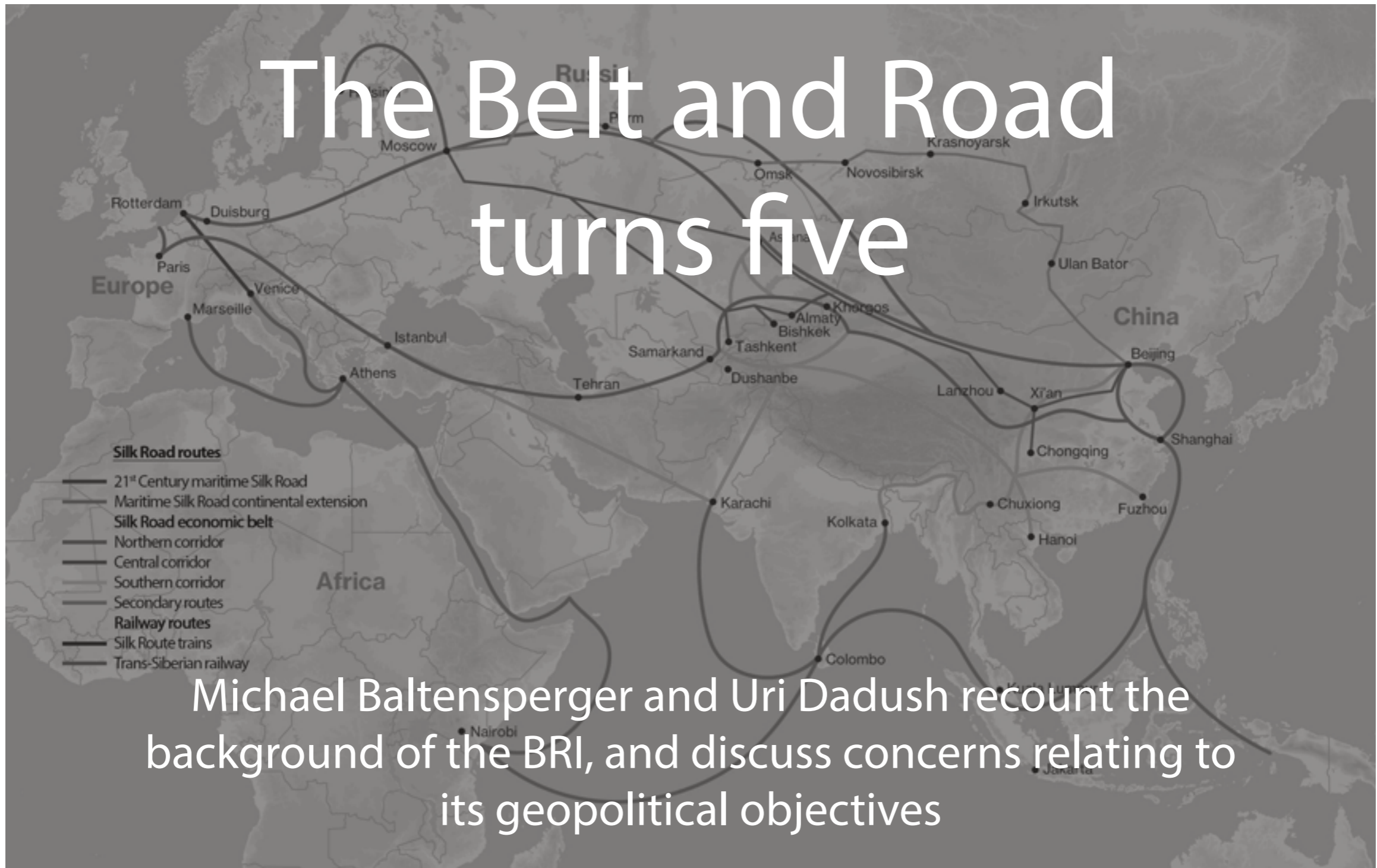
Even though cooperation on structural issues, such as the role of state-owned enterprises or transparency in the provision of subsidies, may be many bridges too far, both sides stand to gain from continuing their work. The endeavours of the recently established EU-China Vice-Ministerial Working Group on WTO Reform are welcome in that regard.

The EU's economic, political and security dependency on the US greatly limits its margin of discretion to team up with China on WTO reform. Nonetheless, partnering with Beijing on issues of procedural relevance may enable Brussels to guarantee the short-term functionality of the WTO whilst not aggravating Washington.

Frank and downright discussions with Beijing on structural economic issues straining the Sino-European relationship and the future of the WTO is not only possible – it may be the best shot Europe has at safeguarding the continuity of the world's trading regime. ■

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# The Belt and Road turns five



Michael Baltensperger and Uri Dadush recount the background of the BRI, and discuss concerns relating to its geopolitical objectives



China's Belt and Road Initiative (BRI) is an international trade and development strategy. Launched in 2013, it is one of the ways China asserts its role in world affairs and captures the opportunities of globalisation. The BRI has the potential to enhance development prospects across the world and in China, but that potential might not be realised because the BRI's objectives are too broad and ill-defined, and its execution is too often non-transparent, lacking in due diligence and uncoordinated.

This Policy Contribution recounts the background of the BRI and its context, what is known about the extent of the initiative and the intentions behind it. The initiative could address very large infrastructure investments gaps, which is welcome and needed. China's goal of forging stronger links with its trading partners around the world is legitimate assuming, of course, the underlying intent remains peaceful.

Though many observers welcome the BRI, many others oppose it for good reasons, while others misunderstand it and oppose it for bad reasons. We identify and discuss concerns about the initiative that relate to its geopolitical objectives, its priorities, its geographic scope, the role of state-owned enterprises, the allocation of resources and issues of transparency and of due diligence. In particular, we show that this initiative deals with a vast number of countries that are at very different states of development, and that an apparent lack of well-defined priorities holds the initiative back. We also highlight the issue of debt overload which is distressing several BRI countries and discourages further projects.

There are improvements that China and other stakeholders in the BRI could make to get the most from their investments. The BRI, to be effective, needs to meet the basic conditions of a trade and development strategy, which are clear objectives, adequate resources, selectivity, a workable implementation plan, due diligence and clear communication. Involvement of multilateral lenders could help with this. Finally, China must improve the

evaluation of the risks and costs of BRI projects and step up its approach to due diligence to demonstrate that it respects the long-term interests of those countries that are at the receiving end of its BRI projects.

### **Introduction**

Over the last four decades world trade, spurred by advances in information, transportation and communication technologies, as well as liberalisation policies, has come to play a central role in countries' development strategies. A far greater share than before of the world's GDP is traded, China is the biggest trading nation and developing countries as a group now account for more than 40 percent of world trade.

*China's heft and the rapidity of its rise present a unique challenge to the established powers; the BRI is gaining traction at a time when the United States and the European Union are on the defensive*

Meanwhile, in 2016 just one quarter of world merchandise trade took the form of consumer products (UNCTAD, 2018). Trade in primary commodities, parts and components, and capital goods accounted for three quarters of world trade, feeding complex international production networks – so-called global value chains. These networks are organised around three regional hubs: China, the European Union (centred on Germany) and the United States (World Bank, 2017). Participation in global value chains allows poor and rich countries to exploit comparative advantage in a more articulated way, while consumers benefit from lower prices and increased variety.

To capture these opportunities, and to consolidate friendships and enhance security, policymakers in China, the EU and the US have promoted economic integration in their regions ('the near abroad'). Each has taken a different path, reflecting their priorities and histories. The most ambitious of these endeavours has been the progressive enlargement of the European Community from six original members to a European Union of 28 countries, which have put into practice the four freedoms, namely the movement of goods, services, capital and people, across their territory.

The EU has also forged Economic Partnership Agreements, which include a mix of aid, trade and policy coordination, with several dozen countries in its near-neighbourhood in eastern Europe, the Middle East and North Africa and sub-Saharan Africa. Less comprehensive in scope and more tightly focused on international trade is the network of Free Trade Agreements orchestrated by the United States and encompassing nearly all countries in North, Central and South America, with Argentina and Brazil notable exceptions.

Meanwhile, to widen their circle of friends and to strengthen their position in global value chains in sectors such as automobiles, electronics and food processing, the US and EU have increasingly reached beyond their immediate regions, striking trade and investment deals with countries on the other side of the world.

## What is the BRI, exactly?

While the EU and US have reached out to partners in their different ways, Chinese economic diplomacy has not been passive; in fact, reflecting China's comparatively recent opening 40 years ago, the contrary is true.

Even before the BRI was launched in 2013, China had concluded some twenty trade agreements, started negotiations on a regional trade agreement with 15 other Asian nations<sup>1</sup>, concluded about 100 bilateral investment treaties, established a significant foreign aid and cultural exchange programme, launched two international development banks and become a major investor in natural resources across the developing world.

China joined the World Trade Organization in 2001 after protracted negotiations and has played an increasingly active role in the International Monetary Fund and the World Bank in recent years. After many years of lobbying, the Chinese renminbi was included in 2016 as one of five currencies forming the Special Drawing Right<sup>2</sup>.

The Belt and Road Initiative (BRI) was the latecomer in China's extensive set of international economic initiatives, but might well turn out to be the most ambitious. Just five years after its launch, the BRI has become the organising framework for China's economic relations with about half of the world's nations of any size.

The earliest mention of the BRI was in a speech given by Chinese president Xi Jinping in Astana, Kazakhstan, on 7 September 2013 (Xi, 2013). The framework he set out has featured consistently in his speeches since and has served as the foundation for the 100 or so Memorandums of Understanding (MoU) between China and other BRI participating nations.

Recalling the Silk Road of ancient times, a trade route which linked China to Europe through Central and South Asia, Xi proposed a five point plan:

1. Policy consultation on joint development strategies and regional integration among all countries along the Silk Road;
2. Improved road connections and transport infrastructure that would facilitate creation of an economic belt (hence the name 'belt and road');
3. Reduced barriers to trade and investment;
4. 'Monetary circulation', including currency convertibility for trade and investment purposes and acceptance of each other's currencies, implying an increased role for the renminbi;
5. Increased exchanges among people (students, tourists, researchers, professionals in various fields) to share knowledge and promote understanding.

The fundamental motives of the BRI are like those of US and EU international economic diplomacy: to consolidate friendships and to capture commercial opportunities

Xi also set out a basic principle of the BRI, a familiar refrain of Chinese foreign policy that is important for understanding the way the BRI functions: *"We respect the development path and domestic and foreign policies pursued independently by every country.... we will never interfere in internal affairs"*.

The signal here is that the BRI is essentially a business proposition and it does not carry with it a dose of 'extraneous' conditions, such as those relating to macroeconomic imbalances or governance, and nor does it imply the creation of an alliance.

The fundamental motives of the BRI are like those of US and EU international economic diplomacy, namely to consolidate friendships and to capture commercial opportunities.

However, the BRI is different in both design and execution, reflecting China's development path and the global outlook of its leaders.

- First, under the BRI umbrella, China emphasises investment in infrastructure and in trade facilitation ('connectivity') more than it does, for example, elimination of tariff and non-tariff barriers. A government white paper (NDRC, 2015) on the BRI states: "... with regard to transport infrastructure construction, we should focus on the key passageways, junctions and projects... We should build a unified coordination mechanism for whole-course transportation, increase connectivity of customs clearance... We should push forward port infrastructure construction... We should expand and build platforms and mechanisms for comprehensive civil aviation cooperation..."

Projects that form part of the BRI – some of which preceded the initiative and have been subsumed under it – tend to be very large. They include, for example, a \$3.19 billion high-speed railway connection between Jakarta and Bandung in Indonesia, a \$3.14 billion railway link between Dhaka and Jessore in Bangladesh<sup>3</sup>, and a railway line between Serbia's capital Belgrade to Hungary's capital Budapest for \$3 billion<sup>4</sup>.

The BRI goes beyond transport to include energy and industrial facilities, such as the construction of several nuclear reactors in Pakistan for more than \$6.5 billion, hydropower projects in Pakistan totalling \$5.7 billion, a \$2.2 billion investment by State Grid Corporation of China in Brazilian energy infrastructure and a \$2 billion industrial park in a special economic zone in Kenya.



In emphasising infrastructure, China creates an outlet for its know-how and capacities in building and operating transport and energy facilities – ie. roads, bridges, railways, ports, airports, power stations and electricity grids. According to the OECD steel committee, between 2006 and 2015, Chinese steel-making capacity more than doubled and now represents almost half of global steel-making capacity, yet global capacity utilisation in the steel industry declined from about 80 percent to 70 percent. To a limited extent, BRI infrastructure projects help mitigate the problems arising from these excess capacities.

- Second, the BRI explicitly aims to strengthen connections between China's poor and remote western regions and nations to the west, south and north of these regions, and with China's flourishing coastal agglomerations. Per-capita gross product in the western provinces of Qinghai and Xinjiang are about a third of gross product per capita in Beijing and Shanghai (National Bureau of Statistics of China, 2018) and reducing this gap by integrating these regions into global markets is a major goal of Chinese policy.
- Third, China's state-owned enterprises, such as Sinopec Group, China Communications Construction Group, China National Petroleum Company, State Grid Corporation of China, Power Construction Group of China and China Railway Construction Corporation, rather than its private sector, dominate the deals struck under the BRI and their implementation.

They are often of a turn-key variety, ie. not necessarily requiring much by way of competitive external procurement. State-owned banks, such as the Industrial and Commercial Bank of China and China Construction Bank, are the main source of finance for these projects. These SOEs might not always operate at the frontier of efficiency, and some have only limited experience of operating outside China, but they have the size, access to finance, access to low cost labour and engineering and risk-taking capacity to embark

on infrastructure projects with a long-term horizon in difficult environments. These state-owned firms are primarily profit-driven, and they typically offer finance at commercial rates.

However, when the need arises, they can also be guided by their political masters to include in their assessments of projects not just intrinsic profitability but broader national objectives, such as increasing trade, improving access to raw materials and sustaining employment.

- Fourth, with the rate of return to domestic investment declining, China needs overseas outlets for its very large domestic savings. In the five years to 2007, China's economy grew on average in excess of 10 percent a year, while in the five years to 2017, it grew at a rate of between 6.5 percent to 7 percent. This large deceleration was not accompanied by a decline in the domestic investment rate, but by an increase from around 41 percent of GDP to around 45 percent of GDP, implying a sharp decline in the efficiency of domestic investment.

Fifth, unlike nearly all other large providers of bilateral and multilateral development finance, China's investments under the BRI come with few safeguards such as those related to environment, consultation of civil society and fiscal sustainability. Consistent with China's policy of non-interference in domestic affairs, even fewer conditions are attached to the BRI related to issues such as human rights, democracy and governance.

It is important to note that, while the BRI, differently from the EU and the US, emphasises infrastructure rather than trade agreements, that does not mean that trade agreements are neglected. In recent years, a considerable effort has been devoted to establishing a global network of agreements which are clearly intended to be complementary and synergistic with the BRI.

In Table 1, the countries in shaded rows are those listed as BRI participating countries by the China International Trade Institute. Of the 44 countries listed as either having or envisaging trade agreements with China, 29 are BRI participants. Of these, 16 have a trade agreement with China in force, nearly all of which were concluded or were under negotiation before the BRI was launched in 2013.

However, of these 16 BRI countries with a trade agreement, 14 are negotiating a revised and presumably deeper trade agreement. Another group of BRI countries, 10 in number, do not have trade agreements with China and are negotiating them. In yet another group of BRI countries, 3 in number, trade agreements are under consideration.

The effect of the trade agreements with the 29 BRI countries in Table 1 is significant. China's combined trade with the BRI countries in Table 1 is greater than that with Japan and South Korea combined. Since China already faces low Most-Favoured Nation (MFN) applied tariff rates (0-3 percent on average, trade-weighted) in its two main export markets, namely the US and the EU, Beijing has achieved or through the BRI is on the way to achieving, largely unimpeded access to world markets<sup>5</sup>.

Related to trade and to the objective of improving understanding among nations, the BRI also places considerable emphasis on the temporary movement of people. China is already the largest source of students and tourists abroad, mainly in the direction of Western nations. In 2017 there were 847,000 Chinese students abroad<sup>6</sup>, of whom more than 430,000 were in the US<sup>7</sup>, UK<sup>8</sup> and Australia<sup>9</sup>.

However, Chinese students and tourists also represent a large proportion of visitors to BRI countries. And in 2016, China hosted more than 200,000 students<sup>10</sup> and 2 million visitors from BRI countries (National Bureau of Statistics of China, 2018).

**Table 1. China's trade agreements (shaded rows = BRI countries)**

Partner country	China's exports in \$ billions (rank)	China's imports in \$ billions (rank)	Trade agreements		
			In force	Being negotiated	Under consideration
Hong Kong, China	287.3 (2)	16.7 (24)	✓		
Japan	129.3 (3)	145.7 (2)		✓	
Korea, Rep.	93.7 (4)	159 (1)	✓	✓	
Vietnam	61.1 (6)	37.2 (12)	✓	✓	
India	58.4 (7)	11.8 (28)	✓	✓	
Singapore	44.5 (10)	26 (14)	✓	✓	
Malaysia	37.7 (12)	49.3 (8)	✓	✓	
Australia	37.3 (14)	70.9 (7)	✓	✓	
Thailand	37.2 (15)	38.5 (11)	✓	✓	
Indonesia	32.1 (17)	21.4 (18)	✓	✓	
United Arab Emirates	30.1 (18)	10 (31)		✓	
Philippines	29.8 (19)	17.4 (22)	✓	✓	
Canada	27.3 (20)	18.3 (21)			✓
Saudi Arabia	18.7 (25)	23.6 (15)		✓	

<b>Pakistan</b>	17.2 (26)	1.9 (64)	✓	✓	
<b>Bangladesh</b>	14.3 (31)	0.9 (75)	✓		
<b>Chile</b>	12.8 (33)	18.6 (20)	✓		
<b>Myanmar</b>	8.2 (37)	4.1 (46)	✓	✓	
<b>Israel</b>	8.2 (38)	3.2 (52)		✓	
<b>Colombia</b>	6.8 (43)	2.5 (55)			✓
<b>Panama</b>	6.3 (44)	0 (144)		✓	
<b>Peru</b>	6 (46)	9.5 (33)	✓	✓	
<b>New Zealand</b>	4.8 (51)	7.1 (34)	✓	✓	
<b>Sri Lanka</b>	4.3 (53)	0.3 (103)	✓	✓	
<b>Cambodia</b>	3.9 (58)	0.8 (76)	✓	✓	
<b>Switzerland</b>	3.2 (62)	39.9 (10)	✓		✓
<b>Macao</b>	3.1 (63)	0.1 (117)	✓		
<b>Kuwait</b>	3 (65)	6.4 (36)		✓	
<b>Norway</b>	2.6 (71)	3.2 (51)		✓	
<b>Oman</b>	2.1 (78)	12 (27)		✓	
<b>Qatar</b>	1.5 (95)	4 (47)		✓	
<b>Costa Rica</b>	1.5 (96)	0.7 (79)	✓		

<b>Mongolia</b>	1 (110)	3.6 (48)			✓
<b>Laos</b>	1 (111)	1.4 (71)	✓	✓	
<b>Nepal</b>	0.9 (116)	0 (155)			✓
<b>Bahrain</b>	0.8 (120)	0.1 (134)		✓	
<b>Mauritius</b>	0.8 (120)	0 (158)		✓	
<b>Georgia</b>	0.7 (121)	0.1 (137)	✓		
<b>Papua New Guinea</b>	0.6 (124)	1.6 (65)			✓
<b>Brunei</b>	0.5 (127)	0.2 (105)	✓	✓	
<b>Fiji</b>	0.4 (137)	0 (163)			✓
<b>Iceland</b>	0.1 (157)	0.1 (131)	✓		
<b>Moldova</b>	0.1 (168)	0 (154)		✓	
<b>Occ. Palestinian Terr.</b>	0.1 (175)	0 (183)		✓	

Source: Bruegel based on WITS database, China Ministry of Commerce and China International Trade Institute. Note: The blue-shaded countries are those listed as the 65 participating countries in the BRI by the China International Trade Institute. Trade volumes and country ranks are for 2016.

## A gap in the market

Parties to the BRI have reason, on security and geopolitical grounds, to befriend China, or at least not to alienate it. Home to 1.3 billion people, and already the world's largest economy by some measures, it is both a source of fear and attraction. On narrow commercial grounds alone, China's offer to participate in the BRI is one that many countries can't refuse.

To start with, China's rise as an importer acts as a powerful incentive to join the BRI. China's imports of goods and services in 2017 amounted to \$2,208 billion, third in rank after the US and the EU (intra-EU imports excluded). Since 2007 these imports have grown at an annual rate of 8.8 percent compared to 3.9 percent in the US and 3.2 percent in the EU (intra-EU imports excluded).

Over the same period, China's economy is less reliant on exports as its exports as a percentage of GDP have declined from 35 percent to 20 percent, and its current account surplus in percent of GDP has declined from 9.9 percent to 1.4 percent (World Bank, 2018a). China is no longer perceived as just a source of cheap imports. It is now the largest export market for 20 countries<sup>11</sup>, including large and medium-sized economies such as Brazil, Indonesia, Australia and South Korea, and 48 countries ran a merchandise trade surplus with China in 2016.

The Chinese trade balance reflects its role as a manufacturer and assembler in global value chains – China runs a trade deficit on primary products and a trade surplus on manufactured goods. Countries that run a trade surplus with China are those that supply raw materials (especially oil but also agricultural commodities, metals and rubber), those that supply components for electronics, such as integrated circuits or LCDs, especially the Asian newly-industrialised economies, and those that supply high-end machinery and consumer goods, eg. Switzerland.



China holds an especially strong hand in negotiating with these countries. Countries that run the largest trade deficit with China are those that have the largest consumer markets: the United States, the European Union and India. They are among the most openly sceptical of the BRI.

Second, China has become a large foreign investor and finance provider. Since 2007, China's outward FDI flows increased from \$27 billion to \$125 billion, ranking fourth in the world, after the US, EU and Japan (UNCTAD, 2018). China has also rapidly become a large foreign creditor, as its external assets have increased from \$2,416 billion in 2007 to \$6,926 billion in 2017, the 8<sup>th</sup> rank in the world (IMF, 2018).

Although it is difficult to compile precise data, partial statistical evidence and anecdotal evidence suggests China is now the largest foreign investor in many developing countries across Asia, Africa and Latin America. For example, Jayaram *et al.* (2017) estimate that, in addition to being Africa's largest trading partner by a factor of three, China is now the first provider of infrastructure financing, third provider of aid, and owns the fourth largest stock of FDI in Africa despite being a latecomer.

Third, insofar as the BRI is seen as an infrastructure arrangement, it fills a large unmet need. The *Global Infrastructure Outlook* (Global Infrastructure Hub, 2017) finds that over half of global infrastructure investment needs in the next decades are going to arise in Asia, where \$21 trillion is needed in the period up to 2030. Comparing these needs with current investment trends, the *Outlook* identifies an investment gap in Asia of \$3.3 trillion up to 2030<sup>12</sup>, with \$1.4 trillion missing for telecommunication projects, \$0.9 trillion missing for energy projects and \$0.5 trillion missing in each case for transportation and water projects.

Taking these numbers at face value, in Asia alone there is an annual infrastructure investment gap of \$275 billion. To put this number into perspective, it compares with \$18.5 billion in total lending by the World Bank Group (World

Bank, 2018b)<sup>13</sup> to South Asia, East Asia and Pacific and Europe and Central Asia, and to \$29 billion of combined operations by the Asian Development Bank<sup>14</sup> in 2017. Infrastructure investment needs on the African continent and in the Americas are smaller but the investment gaps are still significant, amounting to \$2 trillion and \$3 trillion, respectively (Global Infrastructure Hub, 2017).

The need for infrastructure in developing countries is unmet for many reasons, the most important of which is the high-risk and uncertain return associated with long-term investment in environments with weak governance, volatile macroeconomic and political conditions, and fragile public finances.

Compounding these deterrents to infrastructure investment, foreign creditors, beginning with the multilateral development banks, have been led by a combination of unhappy experience and the pressure of civil society to adhere to extensive conditions. These come in four main types: a) safeguards relating to sustainability, impact on the environment and on communities; b) conditions relating to governance and macroeconomic stability; c) conditions relating to the financial sustainability of the project; d) procedures relating to procurement, such as open competitive bidding. A pervasive concern about corrupt decision-making underpins the adoption of several of these safeguards. While many of these precautions are clearly necessary, their cumulative effect can result in extremely long project design, approval and execution times. For example, the average duration of all World Bank projects (not just infrastructure), from board approval to conclusion is 5.6 years<sup>15</sup>.

However, this estimate does not include project preparation and, for infrastructure, the complete project cycle might take twice as long. To communities with urgent needs for water, roads or electricity (not to mention to politicians who want to respond to these needs within an election cycle) the attraction of proposals that can cut through many of these impediments, can be approved quickly and that are turn-key, thus avoiding complicated procurement rules and coordination between multiple providers, is obvious.

Fourth, initial participation in the BRI requires only the signing of a brief four or five page confidential memorandum of understanding, which commits the country to very little beyond agreeing to work with China in line with Xi's framework to identify specific infrastructure projects that might or might not materialise<sup>16</sup>.

In short, the BRI appears to bring with it significant opportunity while not asking for much other than for giving consideration to specific projects or deals that improve the 'connectivity' to China. The devil is in the details of the projects that follow, which typically require government guarantees and the pledge of collateral.

It is thus not surprising that many countries near and far from China's neighbourhood have expressed a strong interest in the BRI, and that the Chinese have responded. Since its formulation as a proposal to nations in Central Asia, the BRI offer has been extended to South East and South Asia (The 'Maritime Silk Road' sailing south from China along the Indian coast onto the coast of Eastern Africa and onto Europe), and then to eastern and southern Europe, Russia, the Arab countries, East Africa and, most recently, Latin America.

In a short time, the BRI has become the touchstone of China's bilateral economic diplomacy and central to its foreign policy. It is Xi's signature initiative and China's Communist Party formally adopted the BRI under its Party Constitution at the National Party Congress in 2017.

### **An early assessment**

The BRI is a young initiative. But, after five years, enough information exists to provide an initial assessment of the strategy. As more data becomes available on the performance of BRI projects, it will be possible to produce a more rigorous evaluation of its progress.

The BRI responds to the unfilled need for investment in infrastructure across the developing world and offers improved access to the world's fastest growing large market. As such, it should be viewed benignly, but it is not. Many observers view the BRI with suspicion. Official donors in Japan, the European Union and the United States have been especially active in voicing concerns. In this section we identify both those concerns that we believe reflect misunderstandings or that are, to a lesser or greater degree, exaggerated, and – crucially – those that reflect the BRI's genuine shortcomings.

### Geopolitics

Many critics claim that the BRI is not really a trade or development initiative but a drive to extend China's influence. This charge is part true but is also disingenuous. From the Marshall Plan to the European Coal and Steel Community and to the (ill-fated) Trans-Pacific Partnership, initiatives such as the BRI have been motivated by geopolitical and security considerations as much as by economics.

Undoubtedly, China's heft and the rapidity of its rise present a unique challenge to the established powers. It does not help that the BRI is gaining traction at a time when the United States and the European Union are on the defensive. The US Administration has embraced protectionism. The EU is reeling from Brexit and from the advance of national populism across the continent. To assuage worries about its growing weight, China's leaders never tire of declaring that they have no ambition to dominate or to replace the United States in its global leadership role. But should China be believed?

At the core of the debate over China's influence are vastly different perceptions about what China is trying to do. For example, Yan Xuetong, a prominent Chinese political scientist wrote that China believes countries should follow their own paths: “[China] views national sovereignty, rather than international responsibilities and norms, as the fundamental principle on which the international order should rest” (Yan, 2019).

In contrast, Jim Mattis, the former United States Secretary of Defence, widely considered a moderate, stated in his letter of resignation to President Donald Trump that it was *“clear that China and Russia, for example, want to shape a world consistent with their authoritarian model – gaining veto authority over other nations’ economic, diplomatic, and security decisions – to promote their own interests at the expense of their neighbours, America and our allies.”*<sup>17</sup>

To these political debates must be added the hand-wringing over China’s *Made in China 2025* plan<sup>18</sup>, which sets leadership in high-tech industries as an objective, in direct competition with Germany, Japan, the United States and the other advanced economies – and with a hefty dose of state support to boot. Although the two dozen or so high-tech firms with the highest stock market capitalisation are still predominantly American, Chinese firms in the digital and other sectors are quickly catching up in terms of research and development expenditure and are increasingly replacing European and US incumbent firms in leading R&D positions (Veugelers, 2018).

Valid as these geopolitical and macroeconomic concerns might turn out to be – a matter on which we choose not to deliberate here – it is important to judge the BRI on its merits as a trade and development initiative.

### Objectives and priorities

The world is by now familiar with the EU’s and the US’s trade agreements. Stakeholders might accept or object to specific provisions in the US and EU agreements, or they might accept or reject them outright, but they know quite precisely what they are dealing with. Similarly, the World Bank’s approach to lending and the conditions associated with it are clearly spelled out, as, typically, are the Bank’s priorities in engaging with specific countries. In contrast, the BRI’s objectives as stated, for example, in Xi’s Astana speech and as subsequently applied in practice, are extremely broad and its modalities are undefined.

For some observers, this passes as pragmatism ('The Chinese Way'), but in reality, it reflects China's difficulty in coordinating such a vast overseas enterprise. As a result, many inside and outside China are confused about the scope of the BRI.

Thus, international observers such as the World Bank, the Center for Global Development and the Center for Strategic and International Studies, describe the BRI differently as *"an ambitious effort to improve regional cooperation and connectivity on a trans-continental scale"* or as a *"vast investment scheme"*, or as *"an infrastructure financing initiative for a large part of the global economy."*

In its 2015 white paper (NDRC, 2015), the Chinese government described the BRI as aiming to create a single market, ie. as *"promoting orderly and free flow of economic factors, highly efficient allocation of resources and deep integration of markets."*

The lack of clarity has political consequences since those who oppose the BRI can define it pretty much as they wish. It also has economic costs since those tasked with executing the BRI can assume that 'everything goes' and pick and choose those projects or activities that suit them best, rather than those that correspond to well-defined development priorities.

### Geographic scope

If the BRI's objectives are not clearly communicated and understood, its geographic priorities are even less so. Intended to replicate the 'Silk Road' in Xi Jinping's original formulation, in the 2015 white paper the BRI is described as covering, but not *"limited to, the area of the ancient Silk Road. It is open to all countries, and international and regional organisations for engagement, so that the results of the concerted efforts will benefit wider areas"* (NDRC, 2015).

In one analysis, the BRI is intended to link China with some 65 other countries that account collectively for over 30 percent of global GDP, 62 percent of population, and 75 percent of known energy reserves (World Bank, 2018c). More recent estimates put the number of countries that are part of the BRI in triple digits.

Even the largest development programmes are normally directed at specific regions, or at countries belonging to a well-defined group (eg. the Least-Developed Countries). These programmes also provide some sense of country priorities within them. Not so the BRI. For example, Hillman (2018) identifies the six main geographic channels most often mentioned as constituting the BRI, and the countries most often mentioned as part of each channel. He finds that except for Pakistan – a BRI poster programme – Chinese projects are just as likely to be found outside this group of countries as within it.

### Corridors

It is difficult to identify a shared agenda among BRI countries, even within the same geographic corridor. Clearly the needs of poor nations such as Pakistan, Myanmar and several in Central Asia and East Africa, are very different than those of EU members such as the Czech Republic, Portugal and Greece, which the BRI supposedly aims to reach. Countries within the same corridor have world-class infrastructure; in others infrastructure is inadequate.

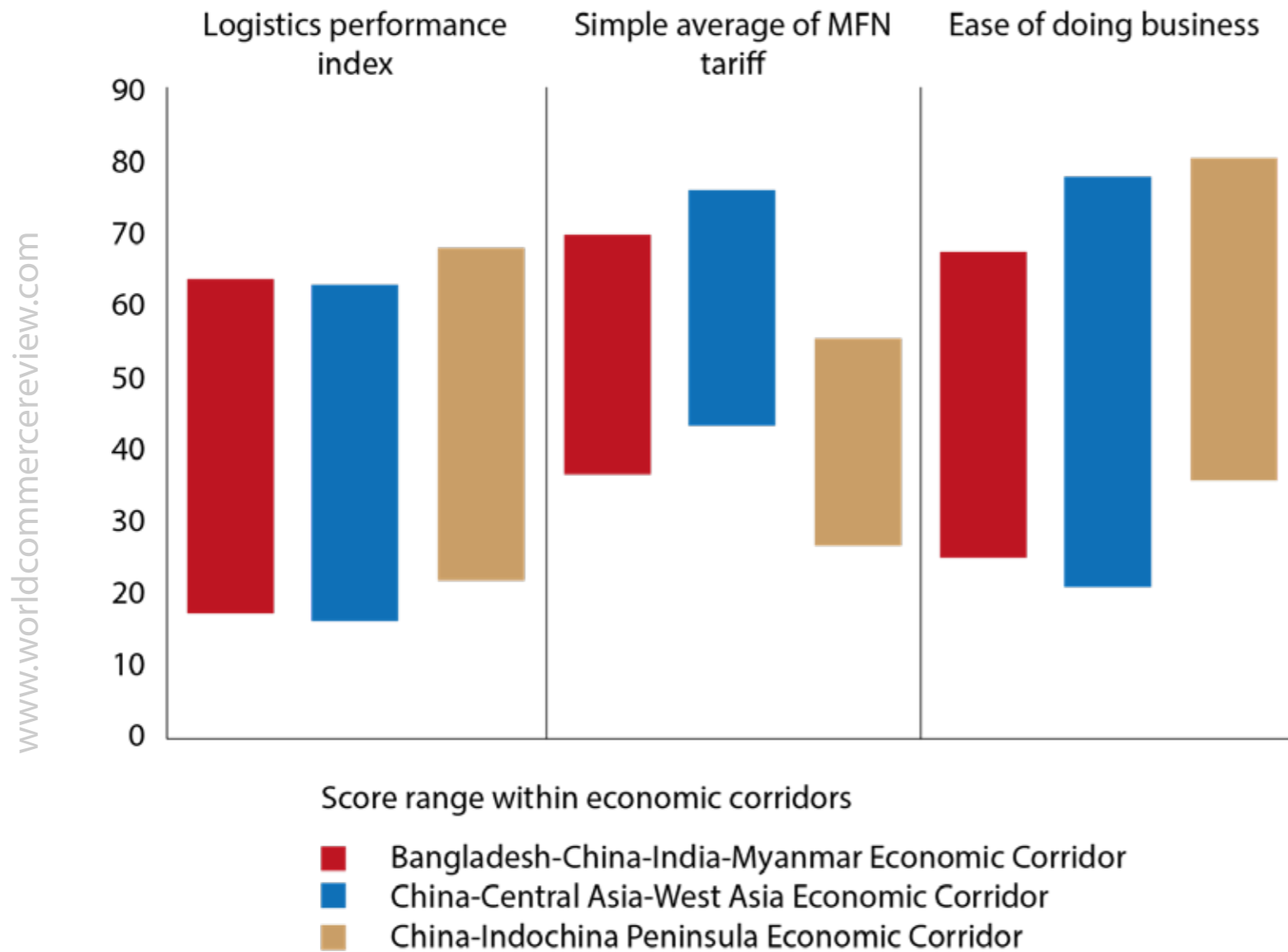
In the same corridor there are countries with good and bad logistics, liberal and restrictive trade policies, and strong and weak business climates (Figure 1). No guide is available from the BRI on how interventions across such a diverse group will be identified and prioritised.

### State-owned enterprises

China's state-owned enterprises play a major role in the BRI. These firms certainly display genuine advantages, such as low costs and well-honed skills in their areas of specialisation, but they also often benefit from subsidised



**Figure 1. Countries within same economic corridor show significant differences in terms of logistics performance, trade policy and business environment**



Source: Bruegel based on World Bank (2018d) and WTO et al (2018).

Note: Bars show the range of scores attained by countries within each economic corridor. All scores were rescaled to a range from 0 (lowest) to 100 (highest).

financing, soft budget constraints, monopoly or oligopoly positions at home, privileged supplier and customer relationships, an implicit or explicit state guarantee and various forms of other non-transparent subsidies. These SOEs will also tend to favour Chinese suppliers<sup>19</sup>.

Here is yet another indication that China's state capitalism and its one-party political system sit uneasily in a liberal-democratic world order. The US Congress agrees on little nowadays, but there is consensus across the political spectrum that Chinese policies have to change and that if they do not 'something has to be done about China'. This view is shared to a greater or lesser degree by the US's major allies<sup>20</sup>.

These criticisms of China are well-grounded as they relate to the internationally most competitive products, such as steel, aluminium, solar panels, semiconductors and the already mentioned high-tech sector. But it is unclear whether this argument also extends to the kind of infrastructure projects being realised under the BRI. If Chinese firms withdrew from the infrastructure sector in developing economies, would others take their place?

A dataset<sup>21</sup> of World Bank infrastructure projects open to internationally competitive bidding suggests that over the last decade, Chinese firms have superseded western firms and gained a dominant share in construction, provision of capital equipment, and project design and engineering. In 2007, 5.5 percent of funds for World Bank projects outside of China were awarded to Chinese companies; in 2017 this share stood at 36 percent of total procured project costs outside China. Chinese firms now mostly face competition from developing countries such as Turkey.

As mentioned previously, few private-sector investors are eager to underwrite the risky long-term infrastructure projects that Chinese SOEs are eagerly taking on. Perhaps this is the reason why, while many policymakers and politicians are vocal about the distortions associated with the BRI, the private sector is quite silent.

## Allocation of resources

The BRI is also often criticised inside China. The main objection is that it is a waste of resources in a country that is still relatively poor and requires more investment in its own backward regions. Estimates by Dreher *et al* (2017) suggest that total official finance given by the Chinese government could amount to \$350 billion between 2000 and 2014, equal to approximately 0.5 percent of GDP generated in that period in China.

This is a significant sum for a developing country and compares favourably with the \$360 billion of official development aid (ODA) and official development finance that was spent in the same period by the United States government. However, most of China's estimated \$350 billion outlay consists of export credits and loans extended at market rates. Counting only official finance granted on

ODA-like terms, Dreher *et al* (2017) estimate Chinese foreign aid between 2000 and 2014 to amount to at least \$75 billion, an amount similar to ODA disbursements from the Netherlands in the same period (OECD, 2018). Thus, China's ODA may amount to only 0.1 percent of GDP between 2000 and 2014<sup>22</sup>.

## Transparency

Lack of transparency is perhaps the defining trait of the BRI and the projects carried out under its umbrella. For example, the BRI is undoubtedly a very large programme, but how large? The amount China has committed under the BRI is unknown and the additional amount envisaged is vague. Numbers mentioned, which may include projects launched before the BRI, range from \$1 trillion over an unspecified period to \$8 trillion over 20 years (Hurley *et al.* 2018). But the formal pledges made up to 2014 to the Silk Road Fund, managed by the Central Bank of China, stood at just \$40 billion.

The discrepancy in these numbers reflects the fact that China's finance comes principally on commercial terms from its state-owned infrastructure firms and development banks, the China Development Bank and the Export-Import Bank of China, and that the grant element in most loans is small or non-existent. These banks do not disclose their lending sums and precise terms are difficult to identify.

The situation is especially murky for those projects that are non-debt generating and take the form of BTO (build, transfer and operate) arrangements, where the main obligation is to buy the product (eg. electricity) at a predetermined price. Other projects are paid off in the form of natural resources according to agreed price formulas, and some are carried out in exchange for a share of ownership in the mine, port or facility in question. How the cost and risks of BRI projects are shared between China and partners and according to which criteria, are not specified.

This lack of transparency in projects financed contrasts with the way in which development finance is normally provided through multilateral channels and most bilateral ones. The provision of aid and the clearance of a World Bank or, say, United Kingdom Department for International Development investment project is subject to a well-defined and transparent review process.

In contrast, deals struck under the BRI and involving Chinese commercial banks are not<sup>23</sup>. Even the BRI MoU between China and its partners is typically not publicly available. The involvement of China-supported multilateral banks could provide a remedy, but their participation remains marginal at this stage.

### Due diligence

Another criticism levelled at the BRI is that some projects, such as a \$12 billion refinery in Ecuador<sup>24</sup> or a \$4 billion railway line between Addis Ababa and Djibouti<sup>25</sup> have been discontinued or seen enormous financial losses. To be

sure, as the long and difficult experience of the World Bank shows, this is not the first-time infrastructure projects in a difficult developing country context have run into trouble. Most recently, the World Bank had to cancel a \$265 million road project in Uganda<sup>26</sup>.

However, there is a widespread view, which is also often shared by Chinese observers, that not enough due diligence is present in BRI projects. The ability of the client to repay, either because of risks inherent in the project, or because of macroeconomic and fiscal constraints, stands out as an issue to which Chinese operators are not paying enough attention.

The possibility that over-eager lenders can push unwary borrowers into bankruptcy or default is not new and not limited to China – as shown by the collapse of banks and companies during the Asian financial crisis, the sub-prime crisis in the United States, the euro area sovereign debt crisis and the large official lending to poor countries that eventually had to be forgiven (with conditions) under the Highly-Indebted Poor Countries Initiative and the Paris Club.

Nor is the build-up of unsustainable sovereign debt usually associated with a single project. World Bank (2019), which analyses the rising indebtedness of low-income countries, shows that the phenomenon is overwhelmingly the result of increased current spending, not investment in infrastructure.

Still, the fact remains that some BRI projects are very large compared to the size of the economies of the countries where they are implemented, as in the case of Laos and Montenegro, and that, moreover, projects tend to come in bunches (port, airport, road, all to develop the same region), which can make the overall package too large for the recipient's GDP.

There are well-known examples of Chinese lending proving unsustainable. An international airport and a deep-sea port near Hambantota in Sri Lanka, financed largely with loans from the Export-Import Bank of China, have been running large losses since completion. To escape mounting debt, the maritime port has since been leased for 99 years to China<sup>27</sup> and the airport will be operated by the Indian Airports Authorities<sup>28</sup>.

Recently, the government of Pakistan ran into a current account crisis on the back of large BRI infrastructure projects that increased public debt and worsened the balance of trade. Now, the country is seeking financial assistance from the IMF<sup>29</sup>. Related worries arise over the financial sustainability of the China-Laos railway line as the project cost, \$6 billion, is equivalent to half of Laos's yearly GDP<sup>30</sup>.

Several of the countries interested in the BRI have low credit ratings, high debt and weak governance, and appear set to borrow new large amounts from China. Hurley *et al.* (2018) identified eight countries where high debt levels, low credit ratings and high likely borrowing under the BRI cause concern: Djibouti, the Maldives, Laos, Montenegro, Mongolia, Tajikistan, Kyrgyzstan and Pakistan. Most of these countries have borrowed from the Export-Import Bank of China for very large infrastructure projects, the costs of which amount to double digit percentages of the countries' GDPs.

### **Policy implications**

China's efforts to forge stronger links with its neighbours and more widely with its trading partners around the world are legitimate, so long, of course, as the underlying intent remains peaceful. The same can be said of any other country. The focus on infrastructure is welcome and needed.

Enhancing bilateral trade by building transport infrastructure and concluding trade agreements will ultimately have the effect of stimulating global trade as well. The infrastructure investments under the BRI could reduce *global* trade

costs by between 1.1 percent and 2.2 percent (de Soyres *et al.* 2018), even without accounting for efforts to improve the operation of customs and reducing other forms of barriers to trade.

Two facts are clear. First, China, the world's most populous nation, is not ready for a wholesale departure from the state-capitalist development model that has worked so spectacularly for it, and of which the BRI is in some sense an offshoot. Second, China is fully committed to the BRI and, one way or the other, it is going to continue along that path.

But the BRI, to be effective, needs to meet the basic conditions of a trade and development strategy, which are clear objectives, adequate resources, selectivity, a workable implementation plan, due diligence and clear communication. The established donors are right to be concerned that some of these conditions are not met, especially regarding issues related to due diligence and, more specifically, fiscal sustainability.

Detailed proposals for revamping the BRI are beyond our scope. But it is obvious that the BRI needs a better articulated, coordinated and more transparent plan that identifies objectives by corridor and by country and in each case specifies modalities. Clear communication is important given China's size and the challenge of coordinating such a broad endeavour within and outside of China.

In a politically-charged environment, a failure to clearly define the BRI risks inflaming and empowering the opposition. Most importantly, China must do a better job of evaluating the risks and costs of projects. Chinese firms and banks have plenty of bad domestic loans to worry about; they do not need a set of international debt crises to deal with as well.



The BRI is and should remain primarily a Chinese initiative to retain its advantages in terms of access to financial resources, speed and execution. However, a more systematic effort to collaborate with multilateral institutions and learn from accepted standards where it is possible to do so – such as is envisaged in the MoU signed in 2017 with the multilateral development banks, could help overcome some of the BRI's shortcomings.

A more transparent approach is likely to help Chinese and international firms to decide where their investments should go. And, if China envisages a BRI that will require several trillion US dollars of investment, it would surely benefit from leveraging its own efforts using other funds from bilateral and multilateral donors, and from the international private sector.

For many developing countries and even for some relatively wealthy nations such as Australia, New Zealand and EU members to the south and east, the BRI could represent a significant commercial and infrastructure investment opportunity and should be viewed as such. But, considering the preceding discussion, these nations should take special care in evaluating the projects and the commercial conditions attached to them.

They should not rely on their Chinese counterparts for ad-hoc project proposals, and should instead develop their own infrastructure strategies based on a benefit-cost analysis of the main projects, yielding clear priorities. Obviously, money must be repaid, and the ability to pay for a large project must be evaluated based on the overall national fiscal condition, not just on the project's intrinsic profitability.

The Great Powers that vie with China for influence and for markets would be well advised to adopt a constructive stance toward the BRI. While insisting that China reforms its initiative along the lines of greater transparency, improved due diligence and safeguards, the EU and US should also acknowledge that there are very important areas of synergy between their own efforts and those of China.

The BRI is consistent with their development efforts. It should be easy to see that infrastructure investment in Africa and expanded African trade can also improve the EU's commercial and investment prospects, and might even be in Europe's security interest writ large. The EU also has an interest in a Eurasian land bridge, which could provide a non-trivial boost to Europe-Asia trade (García-Herrero and Xu, 2016).

The EU has also responded by highlighting its own connectivity initiatives linking the EU and Asia, which remain very modest in scope in comparison to the BRI<sup>31</sup>. Similarly, Latin America, in whose prospects and stability the United States has a vital economic and security interest, could benefit greatly from the BRI.

A notable effect of the BRI is to pose a challenge to the established donors to increase and accelerate their provision of infrastructure in developing countries and even within their own borders. Insofar as the BRI represents increased competition for stodgy development banks in infrastructure provision, that is all to the good.

The Compact with Africa (CwA), a G20 initiative that began under the 2016-2017 German G20 presidency, is intended to stimulate investment in African infrastructure by improving macroeconomic management, strengthening the business environment and attracting private sector interest. About a dozen African nations have joined the Compact and initiated a wide range of reforms. The CwA is an example of the kind of response that is needed, though one that remains untested for lack of enough private sector response to date. ■

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## Endnotes

1. The Regional Comprehensive Economic Partnership (RCEP) includes: Australia, Brunei, Cambodia, China, India, Indonesia, Japan, Laos, Malaysia, Myanmar, New Zealand, Philippines, Singapore, South Korea, Thailand and Vietnam.
2. See <https://www.imf.org/en/About/Factsheets/Sheets/2016/08/01/14/51/Special-Drawing-Right-SDR>
3. Data from the China Global Investment Tracker published by the American Enterprise Institute.
4. Ibid.
5. By contrast, China's largest trading partners face high MFN applied tariffs in China. For example, the EU faces 8.2 percent tariffs on its non-agricultural products exported to China on average (trade-weighted), and the United States 6.5 percent (WTO et al, 2018). China has recently announced unilateral MFN tariff reductions across a wide range of products.
6. See <https://migrationdataportal.org/data>
7. See <https://www.migrationpolicy.org/article/international-students-united-states>
8. See <https://www.ukcisa.org.uk/Research--Policy/Statistics/International-student-statistics-UK-higher-education>
9. See <https://internationaleducation.gov.au/research/International-Student-Data/Pages/default.aspx>
10. See [http://usa.chinadaily.com.cn/epaper/2017-03/02/content\\_28409976.htm](http://usa.chinadaily.com.cn/epaper/2017-03/02/content_28409976.htm)
11. Based on WITS (2018) trade indicators. This number is likely to be higher in reality as many oil exporting economies which export to China (Saudi Arabia, Iran, United Arab Emirates) do not report their exports to China. Furthermore, data is only for Mainland China and a significant share of exports reported to Hong Kong are likely to be directed to China.
12. A similar study by the Asian Development Bank (2017) projected infrastructure investment needs in Asia to sum to \$26 trillion between 2016 and 2030.
13. See <http://www.worldbank.org/en/about/annual-report/fiscal-year-data>
14. See <https://www.adb.org/news/adb-2017-operations-reach-289-billion>
15. Authors' calculations using data from <http://projects.worldbank.org/>
16. One such memorandum, between China and the government of Victoria, a province of Australia, was recently made public at the insistence of opposition parties and the Australian Federal Government; see <https://www.abc.net.au/>

[news/2018-11-12/victoria-china-belt-and-road-infrastructure-agreement-released/10487034](https://www.worldcommercereview.com/news/2018-11-12/victoria-china-belt-and-road-infrastructure-agreement-released/10487034)

17. See, for example, <https://edition.cnn.com/2018/12/20/politics/james-mattis-resignation-letter-doc/index.html>

18. See <http://english.gov.cn/2016special/madeinchina2025/>

19. Ghossein et al (2018) collected data on how Chinese-financed BRI projects select the firms that execute them. The authors find that very little information is available as most state-owned Chinese lenders do not disclose their lending activities: “The limited available data however indicate that Chinese companies account for the majority of BRI-procurement, even in light of their high share of total infrastructure projects in developing countries” (Ghossein et al, 2018).

20. This consensus has resulted in at least two concrete steps. First, the EU and the EU have separately brought WTO cases against China, challenging its status as a market economy. And, in 2018, the EU, Japan and the US joined forces to change the rules of the WTO to combat hidden subsidies and intellectual property theft, a thinly veiled attempt to target China specifically. On 12 November 2018, the EU, Japan and the US submitted proposals to the WTO’s Council on Trade in Goods that propose stricter rules for the disclosure of government subsidies and introduce administrative sanctions against offending members. These proposals aim mainly at subsidies from Chinese government agencies or state-owned enterprises, which are alleged to lead to overcapacity and disadvantage non-Chinese companies. Furthermore, the EU, Japan and the US plan to increase protection of trade secrets, such as source codes, with instruments within and outside the WTO.

21. See <http://www.worldbank.org/en/projects-operations/products-and-services/brief/summary-and-detailed-borrower-procurement-reports>

22. In 2016, China reported granting 0.36 percent of its GDP as ODA to the OECD Development Assistance Committee, while the United States reported granting 0.15 percent of its GDP.

23. According to Hurley et al (2018), “for multilateral institutions such as the World Bank and the AIIB [Asian Infrastructure Investment Bank], the financing terms for loans to sovereign governments are publicly available. This practice is also followed by most bilateral development finance institutions. However, CDB [China Development Bank] and China Exim

Bank do not disclose the terms of their loans, making it difficult, if not impossible, to accurately assess the present value of the debt owed by a country to China”.

24. See <https://blogs.platts.com/2016/02/15/ecuadors-refinery-dream-fuel-for-thought/>

25. See <https://www.scmp.com/business/banking-finance/article/2170549/botched-chinese-railway-project-africa-warning-belt-and>

26. See <https://www.ft.com/content/cfc5faf2-a81a-11e5-9700-2b669a5aeb83>

27. See <https://www.ft.com/content/e150ef0c-de37-11e7-a8a4-0a1e63a52f9c>

28. See <https://economictimes.indiatimes.com/news/politics-and-nation/sri-lankan-government-reworking-mou-on-airport-deal-with-india/articleshow/65281702.cms>

29. See <https://www.ft.com/content/005393f2-cd2d-11e8-9fe5-24ad351828ab>

30. See <https://asia.nikkei.com/Politics/China-s-Belt-and-Road-rail-project-stirs-discontent-in-Laos2>

31. See [https://eeas.europa.eu/regions/central-asia/52916/connecting-europe-asia-eu-strategy\\_en](https://eeas.europa.eu/regions/central-asia/52916/connecting-europe-asia-eu-strategy_en)

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# Has AI really lived up to the hype?

In many cases AI is changing the world. Nikolas Kairinos talks about the evolution of AI and the prospects on the horizon for society

**A**rtificial intelligence, or AI, should hardly be considered a new innovation. After all, the field of AI is almost 70 years old. The foundations for AI and machine learning (ML) were laid down during the Second World War, when British computer scientist Alan Turing and his team created the Bombe machine to decipher 'Enigma' codes used by the German forces to send messages securely.

It was only in 1956, however, that the term 'artificial intelligence' was first adopted at the Dartmouth Conference, after which research centres surfaced across the US and UK to explore the potential of this technology.

But, despite its rich history, it is in the 21<sup>st</sup> century that we have really begun to see some meaningful developments. For one, investors are funding billions into AI research to support the rapid rise of startups seeking to develop new AI capabilities. In 2017, London's AI companies benefitted from over [£200 million of investment](#); a year-on year increase of over 50%. The trend was mirrored nationally. In total, AI companies raised almost £500 million – more than double the amount raised a year prior.

On a global level, the picture is similar. According to a recent report by McKinsey Global Institute, AI could contribute additional global economic activity worth around [\\$13 trillion by 2030](#), by which point around 70% of companies will have adopted at least one form of AI.

Fuelled by vast global funding for research and development, the hype that surrounds AI is unavoidable. But what is the current state of AI – and is it in a position to actually live up to the hype?

### **The hype cycle**

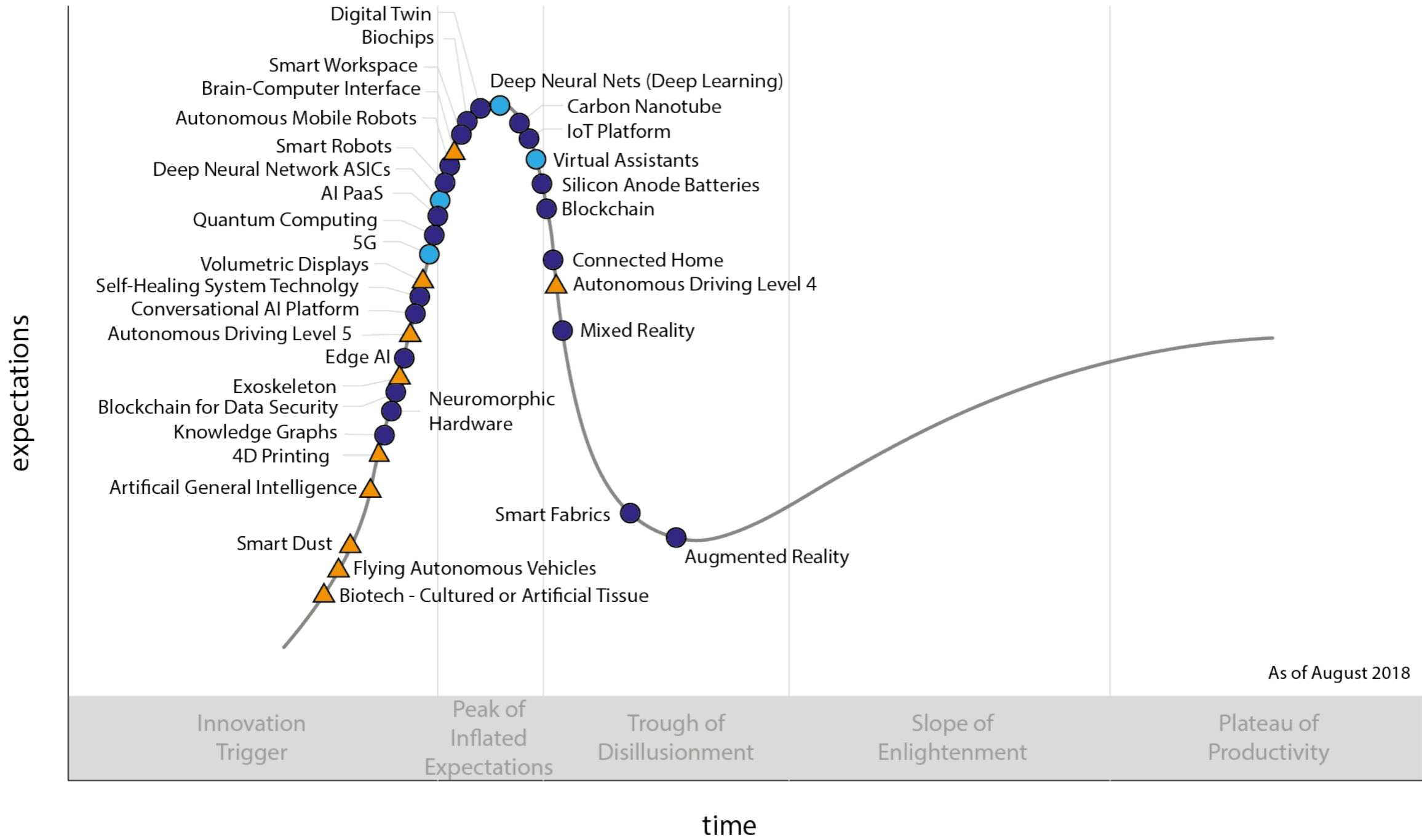
The AI revolution is hardly in its infancy; however, there is also a long way to go before AI is affordable and accessible enough for widespread adoption. Like with any other new technology, it will take time for the market

to mature; we have seen this transition play out when business intelligence, cloud computing and big data first became available en masse.

The *Gartner Hype Cycles* offers a helpful illustration of the maturity and adoption of technologies. Most recently, the August 2018 'hype cycle' plotted the progression of certain aspects of the broader AI market, giving an insight into how industries are adapting to this tech.

At one end of the cycle – the so-called 'innovation trigger' stage – we have emerging technologies, many of which are generating discussion in the media but are still largely obscure to the everyday person. These include 4D printing and 5G.

*The combination of people and AI – a collaborative intelligence – is far more powerful than either of these on their own*



Plateau will be reached:

- less than 2 years
- 2 to 5 years
- 5 to 10 years
- ▲ more than 10 years
- ⊗ obsolete before plateau

Deep Neural Nets (Deep Learning) and Virtual Assistants have already reached the second stage, the 'peak of inflated expectations.' Here, highly publicised projects offer embellished projections of what society will look like once these innovations are widely adopted – everyday responsibilities will become easier to manage, our businesses will become more profitable, and we'll have much more time on our hands to focus on more pressing tasks.

This peak is driven largely by the media, which showcases success stories and benchmarks the realms of possibility that new technologies offer. It's no surprise that this stage is quickly followed by a downward curve, or the 'trough of disillusionment', when the public and organisations become increasingly frustrated that the technology has not delivered on the scale anticipated.

AI has invariably followed this common pattern that all emerging technologies go through. Vendors sell promises of 'game-changing' solutions that actually turn out not to be as sophisticated or remarkable as they were initially made out to be.

That's not to say that the potential of AI and deep learning has diminished. Obstacles have naturally been met along the way, but these technologies are poised to deliver huge cost-saving and efficiency benefits in the long-term if we remain patient and continue to push the boundaries of these solutions.

### **Will AI take over our jobs?**

The fear mongering element of AI has certainly played on the minds of consumers, employees and organisations alike. As computers become more sophisticated and their capabilities grow, a headline we commonly see in the press is – will humans be pushed out of their jobs?



The simple answer here is, no. People often fear the worst-case scenario, but in fact I believe that technology is only making people better and more effective at their jobs. For one, AI largely removes the need for us to complete tedious and time-consuming tasks; routine queries from customers, for instance, can easily be attended to by a chatbot or virtual personal assistants (VPAs).

Indeed, with AI increasingly making its way into the workplace, chatbots and VPAs are now augmenting human performance in many organisations. And Gartner predicts that by 2021, 70% of organisations will assist their employees' productivity by integrating these tools into daily business operations.

Nevertheless, human involvement in AI is paramount to its success. The combination of people and AI – a collaborative intelligence – is far more powerful than either of these on their own. By relegating routine tasks to AI tools, people will have more time to dedicate to tasks that can add real value to their organisations (or their own lives).

### **The current state of AI**

It's easy to think that this innovation hasn't lived up to the hype if we're following the futuristic predictions of robots and flying cars commonly seen in the movies.

But in many cases, AI is already changing the world – oftentimes, these changes have so seamlessly transitioned into our daily lives that we have barely noticed them. Here are some examples.

### **Retail**

Naturally, companies within the retail space are at different stages of adoption when it comes to AI. But that doesn't mean this technology isn't drastically re-shaping the market in terms of how we buy, sell and market products.

The e-commerce industry, for instance, has witnessed explosive growth in recent years; data from [Statista predicts](#) that there will be a 246.1% increase in global sales from \$1.3 trillion in 2014 to a massive \$4.5 trillion in 2021.

Everyone will be familiar with massive retailers like ASOS, which is pioneering the online fashion industry. Indeed, e-commerce has changed the game when it comes to how the everyday person discovers and procures their next purchase.

As foot traffic in physical stores declines, more people are turning to convenient forms of shopping where they don't have to spend hours trawling up and down clothing aisles. Meanwhile, businesses are increasingly relying on AI product recommendations to add a level of personalisation that isn't on offer in a physical store environment.

In fact, among retailers surveyed recently by SLI Systems that are already using or planning to use AI, the most popular applications include those that support personalised product recommendations (56%), apps to handle customer service requests (41%) and chatbots (35%).

A personalised shopping experience is clearly high on the list of priorities for retailers. And companies like ASOS and Amazon are showcasing exactly how AI is able to cater to changing consumer demands. Thanks to machine learning site-search algorithms, statistical programming and predictive analysis of large data sets, these e-commerce platforms are able to recommend products that are tailored specifically to a person's individual preferences – all by tracking their online browsing history.

## Finance

The finance industry has typically been ahead of the curve when it comes to experimenting with new technology.



'FinTech' has arguably been one of the most popular buzzwords of the past decade, signalling the speed of transformation taking place within the sector.

AI tools are on hand to offer constructive solutions to problems like risk management. Over a quarter (26%) of asset and wealth manager firms already rely on AI to inform big decisions according to PWC, with this figure only set to rise as the technology becomes more sophisticated.

The foundation of this capacity to inform decisions lies in AI's unparalleled ability to process vast amounts of information in short periods of time; it can scan and interpret news stories, broker reports and market sentiments from across the internet in a matter of seconds and make recommendations derived from powerful predictive models. The human experts then decide how to use that information.

One firm taking advantage of this solution is BlackRock. The global investment management corporation built an operating system that connects people and technology to manage money in real time.

The AI-powered solution, [Aladdin](#), combines sophisticated risk analytics with comprehensive portfolio management, trading and operations tools on a single platform. Not only does this facilitate more informed decision-making, it also makes risk management and trading infinitely more efficient.

### Learning through AI

AI is changing society at the most fundamental level – including how we teach our children and learn new skills ourselves.

Long gone are the days of relying solely on in-class learning and textbooks. We are already witnessing the power of AI and machine learning to communicate information in a more effective and engaging manner, tailoring to the abilities and preferences of each student.

The ability of this technology to automatically learn and improve from experience means that digital platforms are able to understand what method of teaching is generating the best response, and thereafter cater to the user's unique learning styles.

Through continued use, an EdTech platform might learn that a particular student responds best to visual stimulation – so it will find diagrams, pictures, and videos to illustrate the key points and make the learning experience more interesting and tailored.

Importantly, this isn't limited to the remit of the classroom. Virtual classrooms and e-learning now give students who are unable to attend school the same access to education as a child sitting in a traditional classroom setting. Meanwhile, these tools are being used by working professionals seeking to learn a new skill outside of the office – whether this is learning a guitar or picking up a new language.

### **The future of AI**

Despite the huge progress that has already been made in this field, we're still at the early stages of innovation. And naturally, as these AI tools proliferate throughout the market and become available to organisations large and small, we will no doubt continue to see the enormous benefits that these technologies offer.

The impact of AI and its adoption is evidently not linear – but we cannot deny that it is making a drastic difference to the way society operates. Over time, these changes will continue to make our lives just that little bit less complicated. ■

### ABOUT THE AUTHOR

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# Bermuda's global leadership in the FinTech space

The Bermuda Department of ICT Policy and Innovation outline how Bermuda is creating an environment for FinTech that will make the Island a centre of excellence

**F**inTech is transforming the way we do business and has sparked the creation of innovative new technologies that deliver financial services in ways never before imagined.

Optimizing on its status as a blue-chip jurisdiction, Bermuda has quickly become a global hub for FinTech enterprises and innovation and continues to make strides in the space, both locally and globally.

With its significant expertise in regulatory management, the Island has developed cutting-edge ICO legislation. Its legislative framework has created a unique environment that prioritises regulatory certainty, investor confidence and compliance with international Know-Your-Customer (KYC) and Anti-Money Laundering (AML) regulations. There are many benefits to the certainty and stability that the framework provides to the industry, which attracts the best-structured companies to be a part of the Fintech Bermuda ecosystem.

As Bermuda's FinTech push continues to bear fruit with more companies setting up on the Island, the vision of this Government is to establish a sound regulatory environment and to establish a centre of excellence where companies can do business securely. As of February 13 of this year, 66 FinTech-related local and exempted companies were already listed on the Bermuda register.

This kind of momentum and activity requires the right resources and support and so, the Government of Bermuda created the Fintech Business Unit (FBU), fully dedicated to managing and overseeing Bermuda's rapidly expanding FinTech space.

The FBU has three main goals:

- To promote Bermuda as the jurisdiction of choice for technology companies;

- To encourage economic growth, job creation and revenue generation; and
- To introduce education, professional development, and awareness programmes in order to bolster the local workforce as it gains the technical skills needed for jobs in FinTech.

Coupled with the Island's sound regulatory environment and its global reputation as an excellent place where companies can look to do business, the professional development specific to the industry will ensure that Bermudians can fully participate in its development. ■

**Bermuda Department of ICT Policy and Innovation**





# San Marino: at the forefront of blockchain

The San Marino Republic is at the forefront of Distributed Ledger Technology and has just published specific blockchain technological legislation for firms.  
Stefano Loconte reviews



In the last few months the San Marino Republic has been the leader of an ambitious project expressing specific rules for the various technological applications of the Distributed Ledger Technology with transparency, clarity and simplicity, to capture the attention of international investors.

On 27 February a group of experts has been appointed to achieve this objective and, anticipating most of the countries that are operating on this kind of project, Delegated Decree n. 37 of 2019 has been published, dictating specific regulation about the blockchain technology for firms.

### **Blockchain and ITOs: opportunities and threats**

There something clear since a long time: cryptocurrencies and the blockchain technology, basically, represent an epochal change.

The innovations variety offered by the blockchain system doesn't stop, moreover, at cryptocurrencies, but it performs until it absorbs the venturing world and investment of innovative start-up phase firms, which seem to have a very interesting growing potential.

It is, of course, in this context that ICOs (Initial Coin Offering) start playing, a digital financing collection realized through an offer to the investors of a precise new issue of crypto coins quantity - commonly known as token- in return for cryptocurrencies or currencies with legal effect.

Since the goods offered to financiers consist of a virtual coin called token, it is normal to classify ICOs as ITOs (initial token offering). It is absolutely interesting to observe the word ITO which is an acronym of 'Initial Token Offering' or an 'Initial offering of token', an expression used in the stock exchange glossary, where 'Initial Public Offering' means a shares offering of a certain company that needs to be listed on a regulated market for the first time.

In the meantime, ITOs represent a crowd funding amply used nowadays by the start-up firms based on the blockchain to finance particularly innovative projects.

The ITO's diffusion, which impressed the cybernetic world in 2017 and 2018, has been supported by the easy way to collect, even enormous, funds in a few minutes with the absence of the word's instrument.

However, in the meantime, the lack of an ad hoc legislation for this new phenomenon has generated many difficulties considering that the token results more or less subjected to financial market legislation.

*San Marino has produced a model of clarity, precision and efficiency which deserves the attention of the market*

Therefore, the need for an international regulation has been growing to avoid the potential obstacles represented by the different qualifications carried out by individual countries, as already reiterated at European level by the European Securities and Markets Authority (ESMA), which on January 9<sup>th</sup> published *Advice to the European Union Institution*, as well as the European Banking Authority (EBA), which on the same day, dealt with the legislation applicable to the crypto assets with the *Report on Crypto-assets*.

This need, together with the one to count on the prevision of a structured and clear ITO's process, bring the operators moving to countries with more specific rules.

This is why an updating of the legislation system of each country, on the basis of the above mentioned technological innovations, represents a powerful engine to increase the competitiveness and each one's positioning in the global market.

As said, the countries' task becomes even more difficult due to the additional problems that the blockchain phenomenon has generated.

First of all, it is not clear what kind of tax treatment applies to cryptocurrency transactions, a question on which European jurisdiction has widely discussed, but which needs a solution from individual national laws.

Secondly, token and cryptocurrency transactions could be used to commit crimes: operations are dematerialized, and take place between subjects who, purchasing and investing all over the world, cannot be easily tracked down. Due to the anonymity an easy exposure to recycling risks is enormous.

## **The San Marino Republic experience**

Behind all the opportunities mentioned above, as well as the criticalities, the clear and prompt approach has to be widely considered and it has been adopted by the San Marino Republic and this aspect will be also described through a comparative analysis.

With a global market that sees blockchain standing at 339.5 million dollars in 2017 and with a growth perspective of 20.3 billion, equal to 2.3 billion, the San Marino Republic has clarified its target: to create an ecosystem for innovation increasing in the Republic and becoming the European blockchain hub.

The project driven by San Marino Innovation (Institute of Innovation of San Marino Republic S.p.A.): a private law company, but exclusively State-owned, able to grant broad spectrum social and economical goals.

The Institute assumed the task to create a clear, precise and understandable legislation on the blockchain technology for firms and on this matter has been appointed a team of experts. The team has studied the various applications of blockchain technology of the main International markets and the related legislative matters and after several months of hard work, on the 27 February 2019, Delegated Decree n.37 was been published.

## **Delegated Decree nr. 37 of 2019**

The main purpose is to attract investors and position the San Marino Republic as the best legislative partner for innovators.

The legislation is aimed at firms and organizations that are operating with blockchain systems, residing not only in the San Marino Republic, but also in any other country member of the European Union, as well as non-EU, as long as it is considered suitable by the San Marino Republic legislation.

Following a specific request by the issuing subject addressed to San Marino's Innovation Institute, the Decree also provides that foreign countries' token issues could be subjected to San Marino Republic's legislation and jurisdiction.

The Decree's main strength is the opening of the ITOs market to foreign issuers without the need for the issuer to have a stable organization in this country: this choice shows a difference between the San Marino Republic's Decree and the other legislations, like the American one in which foreign settlement is essential through a stable territorial organization.

Therefore, after disclosing a specific motion and providing the information and documentation needed for proper checking, those people will obtain recognition by San Marino's Innovation Institute S.p.A. taking advantage of a legal system with high is clear and aligned to the higher tax legislation and standards of compliance.

The Decree faces the most critical aspects in financial, tax and anti-money laundering related to the blockchain technology and the above mentioned ITOs, and regulates them in twelve articles.

### **The Decree's financial aspects in a compared perspective**

With a financial overview, it seems useful to observe that a different approach has been given to the one adopted by the French system which is, instead, directly modifying its own financial text.

On the other hand, similar to the French approach are the criteria to legally qualify and classify the token. Indeed, these criteria join, not only France and the San Marino Republic, but the most part of the countries that are regulating the token, where it could be possible to distinguish the various types on the base of the indications below with an economic and financial classification.

Specifically, the approach of those digital assets, shared not only at European level, but global, on the base of the legal rights they are involved in, have to be classified as follows: 1) Payment token, regulated by the monetary code as normal means of payment; 2) Utility token, that grant the right to access the technology or service distributed by the issuer; 3) Security token, as a financial means.

The document published on 16 February 2018 by the Swiss Financial Market Supervisory Authority is to be remembered and taking into consideration as an example.

Similarly, also in England, as part of the Taskforce launched in March 2018 and composed by the Finance Ministry (HM Treasury), the Financial Conduct Authority (FCA) and the Bank of England to monitor crypto assets sector developments, the opportunity to distinguish between exchange, security and utility token, according to their uses was confirmed.

With reference to the security token, it is, otherwise, interesting to observe how the US uses the Howey test, to understand if a digital asset is connected to a financial instrument.

On the base of this test, the token is used as a financial means in the following conditions: 1) in case of money investment or other equivalent asset; 2) in case of profit agreement, as a consequence of an investment; 3) when the investment is directed at a common business; 4) the investor expects profits connected to the funds management.

Sharing this classification, the San Marino Republic's Delegated Decree firstly provides the global token definition, and then focuses on the two legislation types that could mostly impress firms and the world investors.

These are tokens, qualified as 'vouchers for services or goods purchases offered by the Institution'; and the investment ones, which represent, alternatively, depending on the submitted means, shares, financial means or issuer's equity securities. These last ones are therefore subjected to financial market legislation.

Instead, the San Marino Republic legislator has chosen to put aside (at least for the moment) the token's payment legislation, which represents a residual slice of the reference market.

Illustrating the main regulation aspects for issuing the utility token and investment token dictated by the Decree, the common rules are for both categories, the presentation of a request for the issuance of specific authorization by San Marino's Innovation Institute; the drafting of a whitepaper and a summary note to be delivered to the Institute at least 20 days before the offer; and the obligation to accurately and truthfully sponsor the same token offer.

San Marino's Innovation Institute has the right to request an integration of the information supplied by the Institution every time it is necessary to keep the system credible and transparent and, at the same time, interrupting the offer in case of law violation.

Other clarifications are also required on the offer of investment token: particularly in case of a public offering, a very articulated prospectus has to be published which is relevant to the transaction, the organization, the management and financial situation and the evolution of the issuer's activity, in line with the provisions indicated in the European Legislation and the one of the San Marino Republic regarding business, venture, financial and insurance services.

It is useful to observe how the obligation parameters of the prospectus publication recall those provided by the European Union legislation. It is also very important to note, in a comparative perspective, how the authorization



procedure expected by San Marino Republic is in line with the one adopted by the other countries all over the world.

For example, in the US there is a registration obligation by the financial market regulation, the Federal Authority (the SEC), even if, it is different from the one of the San Marino Republic where registration is not required and it has to be done within the 15 days after the token offer.

In Asian countries, like Singapore, in the case of token issuance the approval of the competent authority is required and in Europe the same obligation is imposed in France and Switzerland (where the competent authority is the FINMA)

### **Innovative aspects: trust use and tax treatment**

Proceeding with the technical analysis of the Decree's features, a forecast seems worthy of attention for innovation and pragmatism.

As a matter of fact, the possibility to create a trust as a way to manage the token issue is expected for the Institutions which realize a starting token offer and jointly or separately, the relationships with the investors and the issuer to put themselves as a market reference.

First of all, this kind of Institute, with Anglo-Saxon origin, permits the increase of the monitoring and the transactions transparency thanks to a trust legislation that in the San Marino Republic is punctual and advanced.

The avant-garde approach adopted towards trusts is the San Marino Republic's strong point: just thinking that in its jurisdiction, it established with the Constitutional Law nr.1 of 26 January 2012, a qualified institution called to settle

all disputes concerning legal relationships arising from custody or trust, regulated by any system (the Court for the Trust and the Trustee Reports)

Furthermore, the decision of the Delegated Decree to use trust as the sole representative towards the issuer permits the resolution of the typical problem connected with the ITOs, to get in touch with a very consistent investor number, the so-called shareholding diffusion.

Otherwise the reflection suggests a comparison with another Anglo-Saxon origin means, even if quite different: the 'Trust Supporters' (also qualified as popular shareholding), widespread in the sports world which consist in the submission of the shareholding property to the supporters who will assume a double role: the one of supporters and the other of investors. Practically, we can assist in the creation of supporter associations and cooperatives which have, among social purposes, the one to purchase shares of their favourite club.

That being said, to analyze a further aspect of the San Marino Republic's blockchain legislation, there is no shortage of the long-awaited tax treatment clarifications which have to be applied to cryptocurrency transactions. It concerns a complex matter that other countries are facing with many different solutions while others have not assumed a definitive position yet.

For example, the US applied the assimilation mechanism: the token type is treated like foreign currency, tax instruments or Commodity. The government tax collection agency has also issued guidelines to help taxpayers in the classification.

On the other hand in Asia, in Singapore, the national tax authority has not clarified yet how the token should be taxed.

On the European front, the situation is quite different: in Luxembourg there is a different tax treatment depending on whether the digital asset is qualified as a means of payment or not: if it represents a payment instrument, the token is treated as a foreign currency and therefore exempted from VAT; if it is used as a means of exchange, the transaction will be subjected to VAT.

Also in Lichtenstein the taxation depends on the specific token category and the capital gains on the 'digital currency token' are exempted from income tax. It is interesting to know that, in case of fundraising which is based on a charitable funds, this is totally exempted because in this country donations are not taxed. On the contrary, in France tax regulation is still being implemented.

In this overview the San Marino Republic legislation stands out for clarity. Without doubt, as a means of tax and trust, utility tokens have to be associated to foreign currencies, while the investment tokens are associated with shares, tax participative means or issuer debt securities.

In addition, concerning debts realized through token transactions regulated by the Decree, it is considered a tax exemption for IGR (General Income Tax).

### **Anti-money laundering and transparency protection**

Lastly, the anti-money laundering provisions and the transparency system deserve particular attention and these problems, as already mentioned, are deeply felt all over the world.

The Bank Secretary Act application in the US has already provided, and in this way, whoever issues and offers tokens to the market has to comply with federal anti-money laundering.

Also Singapore legislation requires strict controls on the issuer and the intermediaries who deal with the placement of the newly issued tokens. Europe, Liechtenstein and Luxembourg confirm the application of strict rules of anti-money laundering to the token exchange and offer operations.

Moreover, also in Italy, even if a specific cryptocurrencies legislation has not been created yet, we have promptly adapted to the standards required by the V European anti-money laundering Directive (Directive (EU) 2018/843, 30 May 2018); the anti-money laundering obligations were extended to include the cryptocurrencies sector, with specific obligations imposed on the exchange platforms too. France, instead, has to adapt to the above mentioned legislation, and has to do it within 2020.

With reference to the San Marino Republic, the Decree of 27 February reveals, also in this field, the maximum seriousness of a country which refuses an indiscriminate access and imposes strict rules to whoever wants to enter in its market defined effectively an ecosystem.

The Decree does not limit itself, providing that transactions are *“subjected to constant checks to fight against money laundering”* but requires further caution. Particularly, the Decree imposes that adequate checking has to be effected in a strengthened form, for instance with the modalities (already promptly contemplated by the San Marino Republic legislation on the matter, with reference to the Law nr 92 of 17 June 2008 and following modifications), used in the most risky anti-money laundering situations.

Only and exclusively, the subjects who in their own jurisdiction are submitted to checking measures equivalent to the adequate checking strengthened by the San Marino Republic legislation could have access to the system and other operations (included the token movement).

In conclusion, San Marino has produced a model of clarity, precision and efficiency which deserves the attention of the market, and could also be profitably followed by other countries. ■

**Stefano Loconte is Founder and Managing Partner of Loconte & Partners, and is a member of the Blockchain Technical Table of the Scientific Committee at San Marino Innovation SpA**

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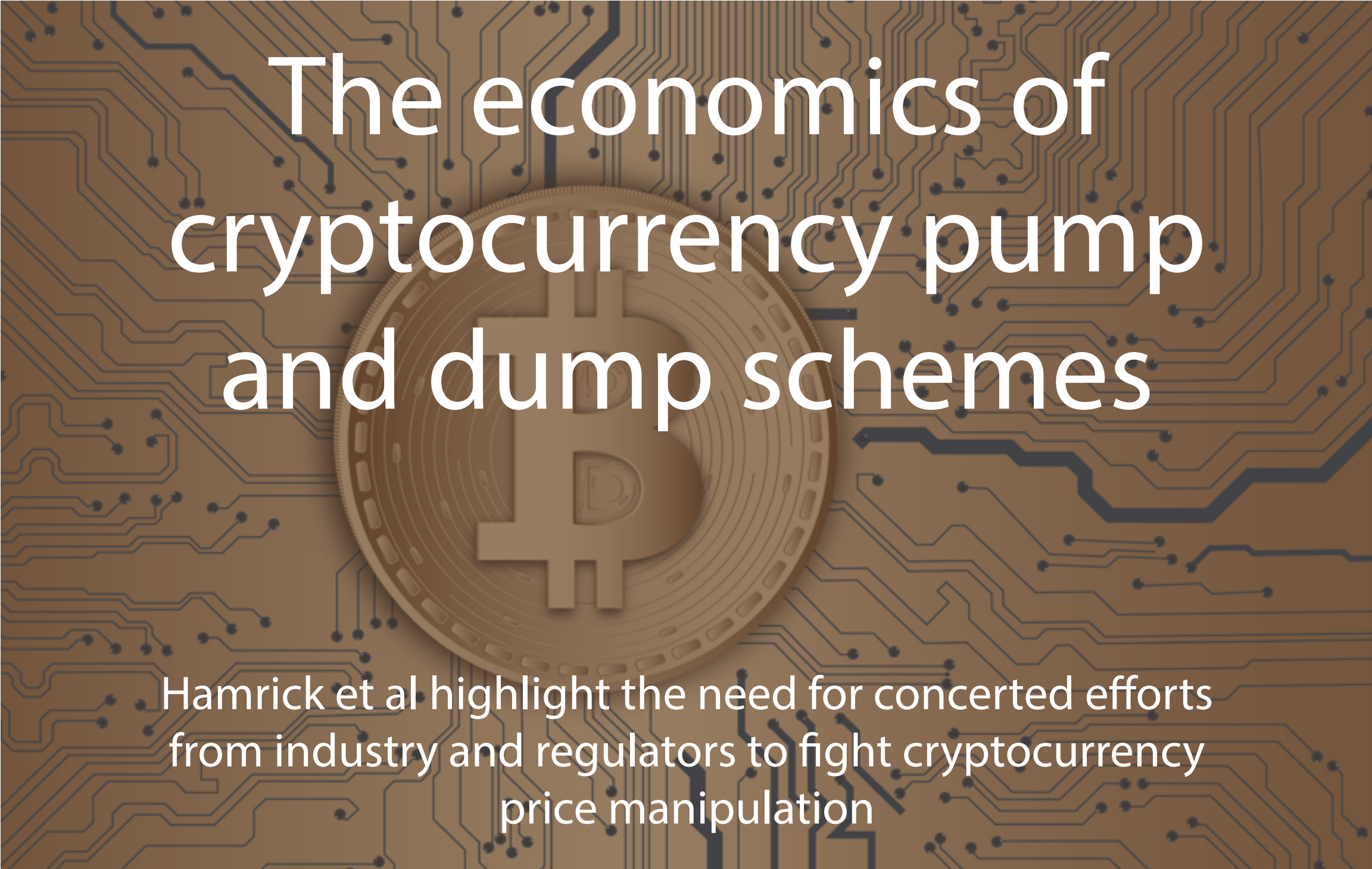


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# The economics of cryptocurrency pump and dump schemes

Hamrick et al highlight the need for concerted efforts  
from industry and regulators to fight cryptocurrency  
price manipulation



**T**he surge of interest in cryptocurrencies has been accompanied by a proliferation of fraud, largely in the form of pump and dump schemes. This column provides the first measure of the scope of such schemes across cryptocurrencies. The results suggest that the phenomenon is widespread and often quite profitable, and highlight the need for concerted efforts from industry and regulators to fight cryptocurrency price manipulation.

The digital currency bitcoin (BTC) was introduced in 2009. Bitcoin and the many other digital currencies are primarily online currencies. The key currencies are those based primarily on cryptography. Bitcoin is the leading cryptocurrency, but there are nearly 2000 others.

Bitcoin has experienced a meteoric rise in popularity since its introduction. Its success has inspired scores of competing cryptocurrencies that follow a similar design. Bitcoin and most other cryptocurrencies do not require a central authority to validate and settle transactions. Instead, they use cryptography (and an internal incentive system) to control transactions and manage the supply. A decentralised network validates transactions. Once confirmed, all transactions are stored digitally and recorded in a public 'blockchain,' which can be thought of as a distributed accounting system.

The proliferation of cryptocurrencies and changes in technology have made it easier to conduct 'pump and dump' schemes. Many of the cryptocurrencies available today are illiquid and are characterised by very low trading volumes on most days, with occasional volume and price spikes.

Cryptocurrencies have only recently become a subject of research in economics, but the topic has been of interest for longer in computer science (for early work on incentives by computer scientists, see Babaioff *et al.* 2012 and Eyal and Sirer 2014). Numerous researchers have conducted studies in order to document and combat threats such as

Ponzi schemes, money laundering, mining botnets, and the theft of cryptocurrency wallets. Ron and Shamir (2013) attempt to identify suspicious trading activity by building a graph of bitcoin transactions found in the public ledger.

In the case of economics research, Gandal *et al.* (2018), showed that the first time bitcoin reached an exchange rate of more than \$1,000, the meteoric rise was likely driven by fraud in the form of fraudulent trading activity. Griffin and Shams (2018) found that tether, a digital cryptocurrency that is pegged to the US dollar, likely led to a significant fraction of the increase in the price of bitcoin and other cryptocurrency prices during the meteoric rise in cryptocurrency valuations in 2017.

*As mainstream finance invests in cryptocurrency assets, it is important to understand how susceptible cryptocurrency markets are to manipulation*

In our recent work on cryptocurrency pump and dump schemes (Hamrick *et al.* 2018), we quantify the scope of these schemes on Discord and Telegram, two widely popular group messaging platforms with 130 million users and 200 million users, respectively. Both platforms can handle large groups with thousands of users, and they are the most popular outlets for pump and dump schemes involving cryptocurrencies.

Technologies like Telegram and Discord allow people to easily coordinate such schemes. Telegram is a cloud-based instant messaging service using voice over internet protocol (VoIP). Users can send messages and exchange photos, videos, stickers, audio, and files of any type. Messages can be sent to other users individually or to groups of up to 100,000 members.

As of March 2018, Telegram had 200 million active users. Discord, first released in 2015, has similar capabilities and 130 million users as of May 2018. Discord and Telegram are primary sources for cryptocurrency pumps and have been used for pump and dump schemes on a large scale. Perhaps because of the regulatory vacuum, many of the pump groups do not hide their goals.

We identified 3,767 different pump signals advertised on Telegram and another 1,051 different pump signals advertised on Discord during a six-month period in 2018. The schemes promoted more than 300 cryptocurrencies. These comprehensive data provide the first measure of the scope of pump and dump schemes across cryptocurrencies and suggest that this phenomenon is widespread and often quite profitable.

The data collection required for the analysis was substantial. Pump data were gathered by collecting messages posted to hundreds of dedicated Discord and Telegram channels using their APIs and manually labelling messages that signalled pumps.

We also collected price data on nearly 2,000 coins across 220 cryptocurrency trading exchanges from [Coinmarketcap.com](https://www.coinmarketcap.com), the leading website of aggregated data on cryptocurrency trading, during the six-month period from January to July 2018. This gave us a total of 316,244,976 price data points across all of the coins listed. The data collected are at the finest granularity presented by [Coinmarketcap.com](https://www.coinmarketcap.com) at the time of collection, that is, five-minute intervals. We then matched the extracted pump signals announced on Discord and Telegram with the trading data.

We next measured the 'success' of the schemes, which we define to be the percentage increase in the price following a pump. Ten percent of the pumps on Telegram (Discord) increased the price by more than 18% (12%) in just five minutes. Recall that the January–July 2018 period was a period in which cryptocurrency prices and trading volume were falling significantly. Hence, such percentage increases were 'achievements' for the pump schemes.

Finally, we examined what factors explained the ability to increase price. The most important variable in explaining success of the pump is the ranking of the coin, where ranking is based on market capitalisation (which is highly correlated with trading volume). Coins with lower market capitalisation typically have lower average trading volume. Lower average volume gives the pump scheme a greater likelihood of success.

We found that pumps using obscure coins with low market capitalisation were much more profitable than pumping the dominant coins in the ecosystem – the median price increase was 3.5% (4.8%) for pumps on Discord (Telegram) using the top 75 coins; it was 23% (19%) on Discord (Telegram) for coins ranked over 500. (bitcoin is the top ranked coin and has rank #1.) We discuss the effect of other variables on the 'success' of the pumps in our paper.

Three other (essentially) concurrent papers also examine pump and dump schemes on cryptocurrencies, but with a different emphasis. Kamps and Kleinberg (2018) use market data to identify suspected pump and dumps based on

sudden price and volume spikes. They evaluate the accuracy of their predictions using a small sample of manually identified pump signals. Xu and Livshits (2018) use data on roughly 200 pump signals to build a model to predict which coins will be pumped. Their model distinguishes between highly successful pumps and all other trading activity on the exchange. Li *et al.* (2018) use a differences-in-differences model to show that pump and dumps lower the trading price of affected coins.

Our work is different from the other concurrent work in several important ways. First, we have collected as many pump signals as possible from channels on Discord and Telegram. We also evaluate them all, without restricting ourselves to the successful pumps. Second, we investigate reported pumps for all coins with public trading data, not only those taking place at selected exchanges. This enables us to incorporate ecosystem-wide explanatory variables such as the number of exchanges on which a coin is traded in order to assess what makes a pump and dump scheme successful.

Why should we care about pump and dump schemes in cryptocurrencies? Recent trends indicate that bitcoin is becoming an important asset in the financial system. Further, trading in cryptocurrency assets has exploded as the market capitalisation of cryptocurrencies grew stunningly in the past few years. In February 2014, the market capitalisation of all cryptocurrencies was approximately \$14 billion.

As of February 2018, the total market capitalisation was approximately \$414 billion, before falling back to \$122 billion in December 2018. Bitcoin itself reached a peak of more than \$19,000 before plummeting over the next few months to \$6,000. Currently (as at mid-December 2018), the bitcoin price is close to \$4,000. In February 2018, there were more than 300 cryptocurrencies with market capitalisations between \$1 million and \$100 million. In January 2014, there were fewer than 30 coins with market capitalisations between \$1 million and \$100 million. The markets for such cryptocurrencies are very thin and subject to manipulation.

As mainstream finance invests in cryptocurrency assets, it is important to understand how susceptible cryptocurrency markets are to manipulation. We have provided the first measure of the widespread scope of pump and dump schemes. We encourage the nascent cryptocurrency industry, regulators, and researchers to work together to try to eliminate manipulation in cryptocurrency assets. ■

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## Endnotes

1. There have been media articles about the pump and dump phenomenon as well. Mac reported on pump and dump schemes in a BuzzFeed article published in January 2018, available [here](#). This was followed by work by Shifflet and Vigna in a Wall Street Journal article published in August 2018, available [here](#).

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# Seamless connectivity

The background of the slide features a sunset over a body of water, with a faint map overlay. The map shows the outlines of South Asian countries: NEPAL, BHUTAN, INDIA, and BANGLADESH. Rivers are also labeled: Ganga, Ghaghara, Ganges, Teesta, and Brahmaputra. The sunset is in the center, with the sun low on the horizon, casting a golden glow across the sky and water.

A series of measures taken by the Indian government has enabled a seamless connectivity through inland water transport among BBIN countries. Bipul Chatterjee and Veena Vidyadharan consider the effects on the region

**P**roviding a much-required boost to the inland water transport sector in India, the world's largest shipping firm, Maersk moved 16 containers along National Waterway 1 from Varanasi (Uttar Pradesh) to Kolkata (West Bengal) recently in February, 2019. As container cargo transport through waterways reduces logistics cost and allows easier modal shift, this is expected to be a major leap in redefining the transport narrative for not just India but also for its neighbouring countries of Bangladesh, Bhutan and Nepal.

A series of measures has been taken by the Government of India in the past few years to improve the logistics infrastructure in the country. This includes setting up of logistics parks, multimodal terminals, Sagarmala Project<sup>1</sup>, e-mobility solutions and infrastructural development of rail, road and waterways. Despite these initiatives, India's rank dropped from 35<sup>th</sup> to 44 in the recently published World Bank's Logistics Performance Index (2018). Similar decline was observed in the case of Nepal (144) Bangladesh (100) and Bhutan (149) compared to previous data of 2016.

Though the fruitfulness of the reform measures will take time to realise, it is to be mentioned that the thrust to develop inland waterways for trade and transport got intensified lately after the declaration of National Waterways Act in 2016. The National Waterway-1 from Allahabad to Haldia in the Ganga- Bhagirathi-Hooghly river system and National Waterway-2 from Sadiya to Dhubri in the Brahmaputra river are the two important waterways that are projected to play a vital role in improving the inland water transport connectivity of India with its eastern neighbours.

### **Fostering sub-regional connectivity**

The intermodal and multimodal terminals being developed at key locations of Kalughat (Bihar), Sahibganj (Jharkhand) and Haldia (West Bengal) as part of Jal Marg Vikas Project<sup>2</sup> (in National Waterway-1) are expected to

benefit Nepal bound cargo from third countries. In this context, India and Nepal have recognised inland waterways as a 'trade route' in Nepal-India Trade Treaty in a recent bilateral meeting<sup>3</sup>.

Bhutan has also signed a Memorandum of Understanding with Bangladesh in 2017 to access Bangladesh ports of Chittagong and Mongla<sup>4</sup>. Bhutan can either access inland waterway at Jogighopa (Assam, India) or at Chilmari, (Kurigram, Bangladesh). However, a tripartite agreement among Bangladesh, Bhutan and Nepal is required for

*With multiple initiatives taken by India and Bangladesh governments to improve the physical connectivity between the countries and in the Bay of Bengal sub region, none of these has to be seen in isolation*

Bhutan to access Indian and Bangladeshi waterways. Currently, Bhutan exports boulders, gypsum and oranges to Bangladesh via the land routes in India. Till now, the country has been using Kolkata port for trade with third countries. Access to Chittagong and Mongla ports via waterways would open new avenues for Bhutan as the transportation costs will lessen significantly.

Unlike Nepal, India and Bangladesh have an existing Protocol of Inland Waterways Transit and Trade (PIWTT) since 1972. Out of the six operational routes, most of the transport occurs between Kolkata and Narayanganj, which falls in Protocol Route 1 (Kolkata- Silghat).

The inter-country cargo movement between India and Bangladesh through waterways for 2017-2018 was 2,698 thousand tonnes<sup>5</sup> and has not varied considerably in the last three years. It is interesting to note that this movement is one-sided (export to Bangladesh) with fly ash constituting 98 percent of the cargo and the rest being rice, jute, steel plate, stone chips and over dimensional cargo mostly to north east India.

### **Impetus to India-Bangladesh bilateral trade**

Though the bilateral trade between India and Bangladesh has increased by more than 17 percent in the past five years, the value of imports from Bangladesh is limited to less than 15% of the value of exports from India as of year 2016-17<sup>6</sup>. Major products which are exported from India to Bangladesh are – cotton, vehicles, machinery, cereals, iron and steel, stones, and electrical equipment; while India's major imports from Bangladesh are – fabrics, yarn and fibres, clothing accessories, textile articles, plastics, mineral fuels and oil, leather and footwear.

A study conducted by CUTS International<sup>7</sup> has pointed out that the high sedimentation load carried by Himalayan rivers of Ganga and Brahmaputra (corresponding to National Waterway-1 and National Waterway-2, respectively) demands periodical dredging in these rivers to keep the channel navigable throughout the year.

While a channel of 45 metre width and 3-metre-deep is essential for the movement of vessels of carrying capacity 2000 metric tonnes, the required depth is not present particularly during lean season. This is true even in the case of waterways in Bangladesh where Class III and Class IV waterways (less than 1.82m depth) constitute about 70% of total inland water transport. The country has massive plans to dredge its major rivers to improve navigability<sup>8</sup>.

In this context, CUTS has conducted an explorative study<sup>9</sup> on the possibilities of short haul trade between India and Bangladesh in shorter stretch of waterways across the international border along the Protocol Route. The stretch of waterway between Dhubri, (Assam, India) and Chilmari (Kurigram, Bangladesh) (which are the last custom stations in India and Bangladesh respectively) is congenial for the movement small mechanised boats of 20-50 tonnes capacity, carrying perishables, cereals, stones and coal from India throughout the year.

Similarly, from Bangladesh cotton waste, potatoes and cement can be exported to India, primarily to meet the local demand. While this stretch would require dredging for the movement of big steel hull vessels, it has enough navigational parameters for the movement of small boats to ply for short distance across border during all months of a year thereby contributing to local livelihoods, bilateral trade and trust building.

This genre of cross border trade is currently operational between Karimganj (Assam, India) and Zakiganj (Sylhet, Bangladesh) wherein row boats are used to carry perishables after customs clearance to Bangladesh sailing hardly 300m across the river.

Interestingly, here also the movement of goods is from India to Bangladesh to meet the local demand. While all the 12 boats engaged here are from Bangladesh, loading and unloading are done manually in respective countries providing livelihood to local people. India and Bangladesh are jointly undertaking dredging operations in this



part of the Protocol route (Route No 3 & 4) for facilitating movement of bigger steel vessels, yet the local trade will continue as it caters to the local demand.

Thus huge investment is a prerequisite for capacity augmentation of the waterways as well as building terminals and other infrastructure. The current mode of trade relying on a single commodity (fly ash) is not economically viable and sustainable. Hence it is imperative to explore cargo that can be shifted from road/rail transport to waterways to make it economically viable. While it is challenging for waterways to compete with the relatively cheaper freight charges of railway, it cannot be seen as an alternate mode or substitute for other modes of transport instead has to be integrated with multimodal connectivity.

### **Towards seamless connectivity**

With multiple initiatives taken by India and Bangladesh governments to improve the physical connectivity between the countries and in the Bay of Bengal sub region, none of these has to be seen in isolation. The coastal shipping agreement of India and Bangladesh should be considered as an ally to inland navigation and can be extended to farther east.

Along this line, it is important to mention that access to Chittagong port in Bangladesh would be game changer for North East India which is land locked from mainland India. Sabroom district in Tripura borders Bangladesh and is about 75km away from Chittagong; however, Feni river flows through the international border separating India and Bangladesh. With a new bridge coming across the river, Tripura and other north east states will have access to Chittagong port opening new avenues for trade and connectivity.

Chittagong port which carries about 92% of the total sea borne cargo in Bangladesh faces heavy traffic congestion and delays. Most of the cargo are containerised and are destined for Dhaka which is hardly 260km away and the

time taken to cover the distance may vary from eight to twenty-four hours depending on the traffic. Except for Pangaon, there is no other inland container terminal near Dhaka despite having a good river network.

Research indicates that the Dhaka-based ready-made garments industry is keen to tranship via Haldia (India) through inland waterways, as from there it can be connected to Vizag, Colombo and Singapore through feeder services<sup>10</sup>. The research also concludes that though the transport cost of sending a container from Dhaka via Haldia is increased, by around \$160 it saves a significant amount of time by about two to three days.

Considering time as a crucial factor in logistics management, day and night navigation facilities have to be assured in inland navigation. Though Bangladesh is much advanced in inland water transport and has its vessels equipped with radar and night navigation lights put along the navigable channels at strategic points, India lags far behind.

The navigable rivers of Bangladesh are wider, deeper and in most cases are having advantage of tidal benefit. Comparatively, the National Waterways of India (NW-1, 2 and 16) do not get any benefit of tide except between Sagar Island and Kolkata. Moreover, these waterways are shallower, meandering and narrower.

In order to make inland water transport system attractive to private sector and logistics firms, a lot more needs to be done in the infrastructural and policy fronts along with river training work to ease navigation. While an Integrated Multimodal Transport Policy is in place for Bangladesh, India has come up with a draft National Logistics Policy very recently.

Apart from trade via waterways, river tourism is another area which has been gaining wide attention from both domestic as well as foreign tourists in the last decade. India and Bangladesh have signed a Memorandum of Understanding on Passenger and Cruise Services along Coastal and Protocol Routes in 2017.



The tourist vessels can sail even in shallow waters, generate revenue and provide job opportunities for local communities, artisans etc. Looking into the benefits of river cruise and water tourism, necessary infrastructural facilities need to be created for this sector as well.

Thus, the challenges that are faced currently by inland water transport sector are:

- Limited number of vessels (particularly low draft vessels) and its poor maintenance
- The projected trade potential in National Waterway-2 is mostly project based cargo (hydro-electric projects coming up in Upper Assam and Arunachal Pradesh)
- Undue advantage and uncompetitive freight charges by few private operators
- Altering interests and political influence of truck lobby leading to underdevelopment and usage of waterways
- Shifting channels, multiple channels and excessive bank erosion pose threat to construction of permanent terminals in National Waterway-2
- Need for upgradation of river systems on core routes that can support large modern vessel fleets

In conclusion, the following brief recommendations would ensure seamless connectivity through inland water transport among BBIN countries:

- Continuous data collection, monitoring, study and river training works to regulate and stabilise the channels of Brahmaputra
- Regular consultations and feedback mechanisms with industries and operators for identifying success/failure of developmental interventions and take appropriate steps to promote IWT
- Identify stretches and commodities (on demand-base) with trade potential between shorter stretches across border and design vessels accordingly
- Mandatory GPS tracking for vessels to ensure safety and security
- Removal or relaxation of product bans and other non-tariff barriers
- Comprehensive disaster management plan and pollution control measures
- Build infrastructural facilities for last mile connectivity, safe navigation and e-monitoring system bringing in more transparency to the operators, users and common public ■

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#### *Endnotes*

*1. The Sagarmala programme is the flagship programme of the Ministry of Shipping (India) to promote port-led*

development in the country through harnessing India's 7,500km long coastline, 14,500km of potentially navigable waterways and strategic location on key international maritime trade routes. It aims to reduce logistics cost for EXIM and domestic trade with minimal infrastructure investment. More details: <http://snip.ly/cbhnoe>

2. The Jal Marg Vikas Project entails development of fairway with 3 meters depth between Varanasi and Haldia (Phase-I) covering a distance of 1380 km with technical and financial support of the World Bank. More details: <http://snip.ly/bzbxol>

3. India-Nepal Joint Statement during the State Visit of Prime Minister of India to Nepal, May 2018; More details: <http://snip.ly/omxjpu>

4. More details: <http://snip.ly/gjfdq6>

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6. India-Bangladesh relations; More details: <http://snip.ly/qgts7y>

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8. Improving navigability in 100 major rivers: Ecnec approves Tk4,489cr project to procure 35 dredgers, 2018; More details: <http://snip.ly/lazp7o>

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10. Transforming trade efficiencies of Bangladesh, 2018; More details: <http://snip.ly/0csq0y>

# Human/e capitalism: work, knowledge and non-hierarchical cooperation

Paid work has become more diverse and fluid. Werner Eichhorst writes that for companies to harness the potential of workers they will need to collaborate and let them do their job

Recently, there has been an intense global debate about the future of work, mainly evolving around the role of globalization and technological innovation. Yet, many studies tend to focus almost exclusively on technology and tend to be written and read in an overly deterministic fashion, assuming, first, that a certain number of jobs are disappearing or at risk of going extinct over the next five or ten years, and second, that this is predominantly driven by technological innovation.

However, with more precise estimates being presented, there appears to be higher probability that such predictions are wrong. This has to do with the fact that the future is not determined by technological factors or trade directly, but shaped by market actors on a day to day basis, incorporating, improvising as well as adapting to the rules governing work and labour markets. Hence, while point estimates are almost certainly wrong, general and long-standing trends identified on the labour market are valuable pieces of information.

From this, we have learnt that paid work has become more diverse and fluid over time and around the globe. In a way, labour markets can be conceived as onions with different layers consisting of types of employment that differ by their closeness to and distance from the core that is made up by standard full-time employment relationship in the formal sector.

Part-time work, fixed-term contracts, temporary agency work, but also freelance work, platform work and other types of contracted labour or informal employment constitute different outside layers, characterized by highly diverse working conditions and specific aspects of flexibility. Yet, technological change, global integration and differences in labour supply and demand can move the boundaries between the different layers.

Furthermore, open-ended traditional dependent employment is changing as well, with increasing diffusion of work and non-work driven by technological options and business reorganization that favour mobile, highly flexible,



project-based work. Even the boundaries between the ins and the outs of a firm tend to become less and less clear cut, facilitating also hybrid combinations of contracts over time or even simultaneously.

While studies on technological change cannot predict precisely what is going to happen, we can extrapolate from earlier experiences and refer to the most recent wave of those studies that human work will also change its character over time. We will certainly continue to lose more routine jobs.

*... open-ended traditional dependent employment is changing as well, with increasing diffusion of work and non-work driven by technological options and business reorganization that favour mobile, highly flexible, project-based work*

In terms of occupations and sectors that are currently affected in particular we see many low- and medium-skilled manufacturing jobs, but also standard office clerk work such as banking, administration, data processing or accounting. These jobs are at risk of becoming index fossils of the recent past as what can be automated will be automated at some point if this technically and economically feasible as well as acceptable to society. This might take some time, maybe more than what some experts on technology expect. What is lost, however, is lost forever, at least in the form we know.

Yet, human work is certainly not coming to an end in the foreseeable future. But the future is open and depends on the way actors shape it. There might indeed be a darker side to this development. The future could bring more rather than less surveillance based on numbers and smart algorithms, with greater trust in figures and performance indicators than in people.

This could mean also an increased degree of routinization of non-routine work, which implies a devaluation of expertise at different levels, the devaluation of knowledge through intelligent machinery and, finally, a dequalification in many occupations. Hence, contrary to common beliefs, this could result in rather more than less routine work, more boring, but demanding, heavily monitored jobs with strictly enforced one-sided transparency and intrusiveness.

However, the productive, creative and socially progressive potential of the new world of work can hardly be realized under such conditions. In fact, it does not make sense to race with the robots and to put humans into structures that turn them into parts of a machinery. Rather, human work flourishes best if it is most different from machines.

Human capacities are excess capacities compared to programmed action, rather non-routine in addition or complementary to routines. There are competencies that only humans have and that they can use to work and



service other human beings. In these domains, humans do not compete directly with machines, and even the most advanced technologies will hardly change this. The future is about using and developing the non-technical, non-digital side as much as developing and using technology and digital solutions.

What then becomes more relevant, and most observers would certainly agree on this, is social interaction, creativity, initiative, reasoning and learning, negotiating and coordination, complex problem-solving, analytical, critical thinking, and care – but even there is some ambiguity with this as well. In principle, the dominant tasks of future jobs might move labour into a more humane direction, making work less repetitive, dangerous and boring for more and more people.

Human work matters in the end, and work by humans will be more shaped by humans themselves in the future, despite all technological innovations, quite ironically, as human abilities, experiences, improvisation matter. Less routine means that humans will be able and have to craft and interpret their jobs more substantially.

This is both empirically and normatively important and can be seen as a potential liberation from old ways of working in a more bureaucratic setting. Yet, the extent to which these genuinely human traits shape work depends on the way work is organized.

Technology does not change the fact that work is with humans, and humans have to cope with themselves and each other. The fundamentals of human relations, productivity, cooperation, struggles about boundaries remain. What can be seen as of today is the fact the future role of human work challenges the way work has been organized so far. The quality of the outcome, the service or the product, is intimately related to the quality of the work environment, the processes and structures.

The brighter side is one where human capital matters most and where it is developed in a way that is productive and human-centric at the same time. Human capital is individual, less standardized, more critical, creative, and not to be detached from the individual. In that sense, work involving human capital and oriented towards the core human capacities described above tends to be less standardized, more driven by personal skills, experiences, motivation and style.

Individuals need to bring in their skills to work, and individual characteristics become productive factors. If work depends on people's involvement and the active use of their skills, then a favourable environment is crucial. Human capital is owned by individuals, acquired over time, used and updated in interactions, it cannot be stored and saved – but its value depends on the terms of trade, supply and demand, and also on the option not to have to sell at any price.

We know from research into labour markets that individuals can expect better working conditions if their skills are less easily replaceable. It also implies that welfare state mechanisms that provide income and employment security help raise individual bargaining power.

For human capital to be productive, working conditions matter as knowledge work is also based on psychic and communicative aspects, not only cognitive. Work cannot be done without at least tacit consent of coworkers and broad acceptance of tasks, duties, deadlines, standards and some willingness to act proactively.

In the new world of work individuals are the best experts in their work. They know what they do and they also know best what could be improved. In that sense, the real experts of the working process are those working concretely, and they can be critical and professional as well. In that respect, concrete work based on knowledge is more operational rather than managerial.

Actually, this type of work requires less of traditional supervision and management. This has massive implication for knowledge, self-management, motivation, control over emotions, but also on organization and management.

Maybe this is the first time that human work and knowledge is becoming the single most important source of productivity – and as a response old organizational models are becoming obsolete. Hierarchical settings tend to undermine commitment, trust, autonomy, professionalism as they create incentives to care about hierarchical promotion and impose restrictions on others.

In fact, firms try to be productive, creative, but what they chase is most is lost partially by the way: creativity and commitment. In a hierarchical setting, much of individual creativity is invested to make hierarchical steps. Through this, traditional hierarchies undermine the things chased most: creativity, productivity, commitment in a wider, more encompassing sense.

Hierarchies reinforce power asymmetries, rewarding more instrumental creativity while productive creativity is suppressed. Creativity still needs some acknowledgement of individual spontaneity and much less direct intervention and management.

When we look at current debates about management, organization and staffing, human resource professionals are pretty much aware of these issues. In fact, one might find a potential for future-oriented development in many organizational and human resource concepts and an implicit criticism of existing practices of running firms and managing people.

Actually, many firms experiment with creative, more autonomous, less conventional ways of organizing work. Still, these zones with larger autonomy, fewer hierarchies and less rules typically face a hard time being transferred to

the main business. Future-oriented models are often only supported by lip service, still they are hardly realised in full practice in a way that is close to the original idea, given the fact that these concepts clash with existing managerial routines.

In fact, a better organization of work would raise productivity, it would allow for, and benefit from, some room for experiments, unplanned ideas, outside strict work schedules, but not isolated from them, areas to learn, permanently, with some slack.

The principle of a workshop, with crafts in many fields but less managerial intervention might be helpful as a guideline in this respect. Craftsmen and craftswomen are attentive, stubborn, experienced, responsible, quality-driven, committed, they know what to do and to adjust incrementally based on intuition and experience. In a workshop, coordination and collaboration are developed in a flexible, less hierarchical way, both community-oriented and autonomy-friendly way at the same time.

Of course, this requires independent, skilled individuals on the one hand, and on the other a working climate based on trust. This means replacing a low trust/high monitoring environment by a high trust/low monitoring environment. In this sense, firms better equipped for the future tend to avoid steep hierarchical structures and the massive accumulation of supervisory power by some.

This implies questioning leadership more broadly, with some firms experimenting with more egalitarian structures or temporary leadership only that is task- or project-based, referring to experience and mastership, but not necessarily a permanent and general type of leadership in a conventional way. Work is operational rather than managerial. This limits the attractiveness of higher positions, less energy is spent on mobility struggles.

Managerial intervention would undermine self-responsibility, professionalism, and it would lack some legitimacy in such a setting. As development and application are more integrated, innovation becomes more stepwise and more permanent, and less distinguishable from production in the classical sense.

Ideally, this model also uses the knowledge and critical thinking of all involved when it comes to new ideas and improvement. This can work if strict monitoring of workers that can be seen as mature professional is avoided. This also makes measuring everything that can be measured (even wrongly) unnecessary. Regarding pay, as external motivation and bonus/reward systems as they tend to undermine intrinsic motivation, individual incentives are increasingly counterproductive.

To some extent, the reward lies in work itself and co-ownership could become an important source of motivation and commitment. Firms of the future can be seen as collaborative workshops that combine expertise and talents, and share risks. This is better done on par.

This craft-like type of work is possible in most areas, at different skill levels, in different sectors, and not just in high skilled professional work or in traditional crafts. Progressively, we can see elements of this principle in emerging organizational models. Those who work know what to do. Just let them do their job. ■

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A hand is shown holding a small globe of the Earth. The globe is covered in lush green grass and several small green trees. In the background, two modern buildings are visible: one is a tall, glass skyscraper, and the other is a shorter, rounded building with a curved facade. The entire scene is set against a dark green, semi-transparent background.

# Collaborate for success and sustainability

David Grayson explains the dramatic growth of the quantity and quality of business collaboration linked to sustainable development

**S**ustainability is “the primary moral and economic imperative of the 21<sup>st</sup> century,” according to Mervyn King, a former governor of the Bank of England. It is also considered to be “one of the most important sources of both opportunities and risks for businesses.”

If a business aspires to continue into the indefinite future, it can no longer be hesitant or half-hearted about sustainability: it has to go ‘All In’. In a book of that title (Grayson D, Coulter C, Lee M, *All In – The Future of Business Leadership* – Routledge 2018) I argue together with Chris Coulter and Mark Lee that organisations going All In require five key interlinking and mutually reinforcing attributes:

- **purpose:** an inspiring, authentic explanation of how a business creates value for itself and for society
- **plan:** a comprehensive strategy and business plan, covering all aspects of the business – and increasingly their value-chains – which minimises negative social, environmental and economic (SEE) impacts and aims to maximise positive SEE impacts
- **culture:** innovative, engaging and empowering, open and transparent, and ethical and responsible
- **collaboration:** the skill and the will to partner with a range of other organisations including other businesses, NGOs, social enterprises, public sector agencies, academia and so on to drive sustainability at speed and scale
- **advocacy:** All In businesses speak up and speak out for social justice and sustainable development.

Crucially, leadership today requires all five attributes. So, for example, advocacy is only credible and effective if it builds on the other four attributes and so on. The quantity – and critically – the quality of business collaboration



linked to sustainable development has grown dramatically in recent decades. Early, pioneering responsible business coalitions such as Philippines Business for Social Progress (founded 1976), Business in the Community (UK, founded 1981) and Sweden's Jobs and Society (1985) tended to focus on developing a business case for action, mobilising collective corporate community involvement around particular issues including job-creation, enterprise promotion, urban regeneration and social inclusion.

During the 1990s, four 'global field-builders' – [BSR](#) (Business for Social Responsibility), [CSR Europe](#), the International Business Leaders Forum (set up by Business in the Community but now defunct) and the [World Business Council for Sustainable Development](#) – encouraged the creation of responsible business coalitions in most of the world's 100 largest economies.

*The Sustainable Apparel Coalition now has more than 200 members worldwide including major brands and retailers such as M&S, Disney and Burberry*

Increasingly, these tended also to identify and disseminate good practice in responsible business and sustainability. They were joined in 2000 by the [UN Global Compact](#).

Over the last two decades, there has been an explosion of industry and issue-specific coalitions and multi-stakeholder initiatives. These include [Better Cotton Initiative](#), [Extractive Industries Transparency Initiative](#) and the [Round-Table on Sustainable Palm Oil](#).

As Jane Nelson from the Harvard Kennedy School of Government in the US shows in a major 2017 report for the Business and Sustainable Development Commission (itself a limited-life coalition to engage businesses on the Sustainable Development Goals – SDGs), there are now few significant industries or sustainable development issues that do not have one or more dedicated collaborations.

A May 2018 report co-authored by CSR Europe and consultants PwC indicated that some sectoral trade associations, usually prompted by member companies with strong sustainability credentials, are also now becoming more active in helping their general membership to understand the material issues facing their industry.

A recent report from BSR and the Rockefeller Foundation provides a useful taxonomy of today's business collaborations. This is based on the scope of change that a collaboration seeks: organisational, market or system change. Using this taxonomy, collaborations might be, for example:

### **Organisational**

- identify and disseminate good practices and encourage more businesses to adopt them
- pool R&D efforts to innovate sustainable technological or social solutions to specified problems

## Market

- set and subsequently certify collective, self-regulatory standards
- create a 'safe space' to explore pressing business or societal and ethical dilemmas

## System change

- advocate jointly for public policy supportive of sustainable development
- tackle the systemic challenges inherent to sustainability

BSR and the Rockefeller Foundation also helpfully identify a number of critical components for high-impact collaboration:

- a compelling common purpose that brings participants together and enables each to accrue value from the collaboration
- the right partners in the right roles that bring the required authority and resources to drive the collaboration forward
- good governance that enables efficient, transparent and fair decision making
- an organisational design that is fit for purpose – with sufficient resources and staffing to operate
- accountability to the objectives the collaboration participants have committed to

We can see these components – and more – in one of the examples of industry and issues-specific coalitions that have become more popular in recent years: the [Sustainable Apparel Coalition](#) (SAC).

This was initiated by retailers Patagonia and Walmart in 2009 to address *“the urgent, systemic challenges that are impossible to change alone”*. The coalition’s vision is of *“an apparel, footwear and textiles industry that produces*

*no unnecessary environmental harm and has a positive impact on the people and communities associated with its activities.”*

Rick Ridgeway from Patagonia explains that SAC’s theory of change is *“straightforward and profound: putting standardised sustainability in the hands of key decision makers in the apparel and footwear value chain will incentivise them to make better decisions that collectively reduce the environmental impact and increase the social justice of the entire industry.”*

SAC now has more than 200 members worldwide including major brands and retailers such as M&S, Disney and Burberry and manufacturing, academic, government and NGO affiliates. At the heart of the coalition is the Higg Index – *“a suite of tools that enables brands, retailers and facilities of all sizes — at every stage in their sustainability journey — to accurately measure and score a company or product’s sustainability performance.”*

Early on, Nike was persuaded to donate the Nike Considered Index to the coalition. It became the Materials Sustainability Index, now one of the tools in the Higg Index suite.

The creation and early evolution of the SAC is well told in a short article by a leading sustainability commentator, Marc Gunther. Drawing on Gunther’s piece and other materials, it is possible to discern several critical success factors for SAC that are highly relevant to other business collaborations today.

- The initial pairing of Walmart and Patagonia was engineered by a trusted intermediary – Jib Ellison, the founder of consultancy BluSkye – who advised Walmart and its CEO, Lee Scott, on sustainability. Ellison is also a long-time friend of Rick Ridgeway

- Unlike conventional trade associations, which typically operate at the 'lowest common denominator', SAC focused on a set of companies that they were confident would want to set a high bar and move fast
- They established a rule of engagement that companies designate one person to work on the coalition and send that person to all its meetings; this ensured continuity and that individuals had authority to commit
- As with most – if not all – of the best coalitions over the years, there was a credible facilitator to hold the ring, cajole and keep moving things forward: John Whalen, a principal at BluSkye
- At the outset, Walmart and Patagonia worked hard to attract other sustainability leaders who would make this 'a club you wanted to be invited to join'. Nike, for example, had to be convinced that Walmart was serious before it agreed to participate
- The initial participants took the time to build trust and to share tangible signs of their commitment
- SAC brought in critical external friends such as Michelle Harvey of the NGO Environmental Defense Fund as a member of the SAC's board
- They were willing to build on existing good practice such as the Nike Considered Index

Interestingly, a Boston Consulting Group (BCG)/MIT Sloan Management Review study with the UN Global Compact, published in 2015, suggested that the more a company gets involved in collaborations, the more effective and valuable the company rates its collaborations.

Practice in this case – if not making perfect – certainly makes more positive. While pre-competitive collaborations are becoming much more commonplace, they are not a panacea. Businesses should approach them like any other potential joint venture. Businesses also need to ensure they are systematically capturing the learning from different collaborations they are involved in, making sure this gets assimilated by R&D, horizon-scanning, strategy, corporate diplomacy and public affairs, procurement and specialist sustainability functions – and also by teams responsible for top talent learning and development.

**Figure 1. MUST-Have Partnering Competencies - The Partnering Initiative**

<p style="text-align: center;"><b>M</b></p> <p style="text-align: center;"><u>M</u>indset</p>	<p style="text-align: center;"><b>U</b></p> <p style="text-align: center;"><u>U</u>nderstanding other sectors</p>	<p style="text-align: center;"><b>S</b></p> <p style="text-align: center;">Human relationship <u>s</u>kills</p>	<p style="text-align: center;"><b>T</b></p> <p style="text-align: center;"><u>T</u>echnical partnering knowledge</p>
<p>Humility to realise others may have more appropriate knowledge/resources</p> <p>Inclination to reach out to work with others</p> <p>Willingness to give up autonomy of decision-making</p> <p>(Measured) risk taking</p> <p>Propensity for innovation</p> <p><b>Ability to work for the benefit of the partnership as a whole</b></p>	<p>Values and culture</p> <p>Interests</p> <p>Motivations and drivers</p> <p>Resources and capabilities</p> <p>Systems and processes</p> <p>Capacity limitations</p> <p>Legal limitations</p>	<p>Ability to look from others' perspectives</p> <p>Networking and connecting</p> <p>Approaching and engaging potential partners/selling ideas</p> <p>Relationship/trust building</p> <p>Interest-based negotiation</p> <p>Facilitation</p> <p>Communication</p> <p>Coaching/mentoring</p> <p><b>Mediation/conflict resolution/troubleshooting</b></p>	<p>Understanding the partnering lifecycle</p> <p>Key principles and building blocks of partnerships</p> <p>Best practice approaches to setup and governance</p> <p>Ability to assess critically when and when not to partner</p> <p>The partnership black box of trust, equity and power</p> <p>Partnership agreements</p> <p>Reviewing partnerships</p>

In her report on Partnerships for Sustainable Development, the Kennedy School's Nelson emphasises that *"effective partnership building, especially across sectors, requires new mindsets and skill sets on the part of individuals and new capabilities and incentives on the part of institutions."*

Another member of Harvard, Professor Joe Nye, has coined the phrase *"tri-sector athlete"*, which was taken up and popularised by McKinsey's then Global Managing Partner Dominic Barton and further developed by Nick Lovegrove in his 2016 book *The Mosaic Principle*, which captures some of the key perspectives required by successful collaborators. (See interview with Lovegrove in *Global Focus* Vol 12 Issue 1).

Certainly, as more businesses recognise the growing importance of collaborations for sustainability and the need for their representatives in partnerships to be effective, they will be rightly expecting management educators and leadership training providers to offer training in collaboration. This training will also be needed by independent directors serving on the boards of sustainability coalitions and coalitions' staff. The NGO The Partnering Initiative has helpfully defined M.U.S.T – have collaboration skills. Educating for these M.U.S.T-have skills surely represents an exciting new opportunity for EFMD members. ■

### ABOUT THE AUTHOR

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# The creative economy

A photograph of a glowing lightbulb on a dark chalkboard. The lightbulb is lit, casting a warm glow. In the background, a lightbulb icon is drawn in white chalk. The overall scene is dark, with the lightbulb being the primary source of light.

Andy Haldane asks if robots will take all our jobs. Not, he says, if we turn our 'knowledge economy' into a 'creative economy' and rework our education system from 'universities' into 'multiversities'

It is creativity, and its role in improving incomes in the economy and well-being in society, that I will discuss. I hope that by analysing creativity through an economic and historical lens we can learn something about its key ingredients. Developing those raw ingredients, and mixing them appropriately, has been crucial for social and economic progress over the course of history. And what has been true of the past is likely to become even more important for driving economic and societal improvement in future.

The Bank of England is a public institution whose role is to serve the public good. We have been doing so for 325 years. The issues I will discuss – stability in our economies and societies, economic and social progress, the impact of innovation and ideas, the role of education and insurance – have remained central to public policy throughout that time. They will remain so in the period ahead.

To summarise up front my line of argument:

- Imagination and creativity are what set humans apart from other animals. They explain why human evolution has been jet-propelled, while other animals have proceeded on foot. Through their creativity, humans have followed a completely different evolutionary arc – so-called Life Version 2.0.
- Innovation and creativity are the wellspring of improvements in economies and societies. They explain the secular, spectacular rises in global living standards and well-being now seen for several centuries. Human imagination and intelligence has been the engine of progress and growth.
- Creativity and innovation can come at a cost. The US economist Joseph Schumpeter spoke of “*creative destruction*.” He was right. With innovation can come a loss of livelihood and a straining of the social fabric. That has been true of every industrial revolution.

- These disruptive side-effects do not self-heal. They need to be managed if the fruits of innovation are not to rot in the fields. That means social safety nets to protect the livelihoods of those disrupted by innovation. And it means social institutions supporting the up-skilling of people. The GSA is a social institution created precisely to meet the latter need.
- The next 50 years may bring opportunities and challenges every bit as great as any in the past. The Fourth Industrial Revolution will offer huge potential to individuals, economies and societies. But the engine of growth may change, with artificial rather than human intelligence playing a much larger role. Some have called this Life Version 3.0.
- The creative forces unleashed by the Fourth Industrial Revolution will need to be carefully managed to avoid a tear in the social fabric. This is likely to require new sets of skills, with creative and social skills at a greater premium. It may require new sets of social institutions and safety nets. And it may require a reorientation of our approach to education, training and work.
- The 'creative industries' are a thriving sector of the UK economy, generating £100 billion of value-added each year. But, in future, we may need every industry and every worker to see themselves as creative. Knowledge will not be enough. We already have a knowledge economy. In future we will need a creative one. That may call for a very different model of education and training.

### **The Great Fire**

Let me illustrate some of these points with a very simple historical example. The example is fire. The domestication of fire is, by many people's reckoning, one of the greatest-ever human discoveries. If you type 'greatest ever

discoveries' into a search engine, fire typically comes close to the top. It usually ranks alongside the wheel, gunpowder, the printing press, electricity and the internet in people's all-time top ten.

No-one of course knows quite when or where fire was first discovered or at least domesticated. But historians believe the domestication of fire may have occurred around one million years ago, when hunter-gatherer communities were first being formed. Indeed, it has been conjectured, plausibly, that fire was a key factor in allowing those communities to grow and develop. It is not difficult to see why.

*Our economies and societies will also need to reseed to harness the potential of the Fourth Industrial Revolution. For mass flourishing, our knowledge economy will need to evolve into a genuinely creative one*

Fire would have been a truly transformative technology for these communities. It served as a source of heat as well as light. Equally vital then, if less so now, fire served as protection against marauding peoples and animals. Hunter-gatherer communities typically comprised around 150 people<sup>1</sup>. This meant they faced existential threat on an almost daily basis. At a stroke, fire reduced significantly that existential threat.

These benefits meant fire quickly became one of the first and most important examples of what economists would these days call a GPT – a General Purpose Technology<sup>2</sup>. This is a technology that can be used across a wide variety of settings to a wide variety of tasks in a wide variety of places. Fire was the formative GPT for the human species, providing many of the everyday essentials of heat, light and protection.

As with many GPTs, however, perhaps the greatest benefit of domesticating fire may have come indirectly and inadvertently. It was not a benefit primitive humans could remotely have foreseen at the time. Yet it was a benefit that, in time, would transform not just human bodies but human brains, not just human lives but human evolution. That elusive, transformational benefit was *cooking*.

Fire transformed what humans ate. Cooking made edible the inedible, in particular protein-rich staples such as rice, wheat and potatoes. Cooking reduced the chances of illness from eating, by killing germs and parasites commonplace in foodstuffs. And cooking made it quicker and easier for human bodies to digest all foodstuffs, causing humans' intestinal track (the part responsible for digestion) to shorten dramatically<sup>3</sup>.

Together, these had a transformative impact on the human body. Cooking meant far less of our bodies' energies were devoted to gathering, eating and digesting food. The intestinal tract is one of the body's most energy-intensive parts. As its energy-usage fell, large amounts of energy were released to support growth elsewhere in the body. And where in the body did this unleashed energy go?



It headed north to what would in time become humans most energy-intensive organ of all – the brain. This energy surge caused the brain to grow and its neural connections to multiply. The result was an organ which, despite being only 2-3% of our body mass, today accounts for 25% of its energy consumption. This may have been one of the key evolutionary steps in human history.

It is the brain, above all other organs, that distinguishes humans from other animals. Our closest biological cousin, the primates, have physiologies which are 99%-identical to ours. Where they differ most significantly is the brain. In primates, the brain uses only 8% of the body's energies – a third of humans. It is our energy-intensive brains that put humans on an entirely different evolutionary trajectory to all other animals.

To see why, note that the pace of evolutionary progress in all animals, other than humans, is determined by biology. It occurs through a sequence of slow-moving, biological mutations. This can take millions of years to bring about recognisable change. That is why almost-all animals live in an almost-identical environment for an almost-identical lifespan doing near-identical tasks to their ancient ancestors.

Human biologies are no different. The appendix is a biological artefact. It was essential for digestion at a time when humans' diet consisted mainly of grass and vegetation in our hunter-gatherer past. But such is the sedate pace of biological evolution, the appendix is still with us, and causing us grief, hundreds of thousands of years later<sup>4</sup>. This is evidence of slow biological evolution of the type that constrains all animals.

Except, that is, humans. Many millennia ago, humans found a way of breaking free from their biological chains. The reason we know this is because the pace of human evolution has radically outstripped that of all other animals. Human environments, lifespans and tasks are unrecognisable from a hundred years ago, let alone a million. Something other than our bodies put humans on the evolutionary fast-track<sup>5</sup>.

That something was the *brain*. In particular, the energies released from digestion allowed a particular part of the brain to expand and connect - the pre-frontal cortex. This is located where our foreheads now sit. Indeed, our bodies may have adapted to meet this neurological need with the flat brow ridges of Neanderthal skulls in time replaced by the Tefal foreheads of today's *homo sapiens*.

And what exactly did this newly-installed pre-frontal cortex do? Modern Magnetic Resonance Imaging (MRI) can now tell us. Among other things, this part of the brain is responsible for *imagination*. That might sound like a rather niche characteristic, like having a good sense of humour or an upbeat personality. But in fact imagination appears to have been foundational for humans and transformational for their evolution. How so?

Imagination allows us to conceive of a future different to any seen previously. Humans' progress was now as limitless as their imagination. But imagination alone is not sufficient. Imagination without action is day-dreaming. What set humans apart was the ability to create their imagined future. The imagined was made real. That is what is meant by creativity. Imagination *with* action is creativity.

Knowledge and imagination are different creatures. To have knowledge is to know about things that exist. To have imagination is to conceive of things that don't yet exist. And to be creative is to make real those imagined things. Knowledge is vital for school exams and pub quizzes. Imagination is vital for ideas and innovation. And creativity is vital for human progress. Einstein put it thus: "*Knowledge is limited. Imagination encircles the world. Logic will get you from A to Z. Imagination will get you everywhere.*"<sup>6</sup>

Animals possess plenty of knowledge, often genetically encoded, sometimes learned through experience. The squirrel in my garden is genetically encoded to gather food for winter. It has also learned from experience that an



effective way of doing so is to befriend my daughter who provides a daily supply of nuts. It is a knowledgeable squirrel, if not as knowledgeable as the squirrels in the remake of the film *Charlie in the Chocolate Factory* that were taught by film-producer Tim Burton to crack nuts on demand.

Yet squirrels live identically to their ancient ancestors. They have evolved at a snail's pace, as have snails. That is because squirrels and snails lack imagination. Squirrels cannot imagine a world where nuts are delivered courtesy of a complex international supply chain, much less set about creating that supply chain. Nor are they likely to write a Roald Dahl novel involving oompa loompas or become the next Tim Burton.

Imagination is a uniquely human attribute. And it is an attribute that moved humans from the evolutionary slow lane to the neurological superhighway. Human progress was no longer constrained by sinews but by synapses, no longer tethered by biology but neurology. As my namesake (but no relation), the evolutionary biologist JBS Haldane, put it: *"the world shall not perish for lack of wonders, but for lack of wonder."*<sup>7</sup>

It is not just evolutionary biologists that have recognised the importance of imagination in powering societies. Economists have too. The heterodox British economist George Shackle placed imagination centre-stage in explaining the evolution of economies<sup>8</sup>. This gives rise to a model of economic progress that is subject to a high degree of intrinsic, or radical, uncertainty. Shackle has his followers to this day<sup>9</sup>.

Humans are social animals. As humans grouped in larger numbers, ideas and imaginations were collectivised and socialised. Individual intelligence gave way to collective intelligence. Many minds made for light work of the world's most complex problems. This added heat to the creative crucible, enabling humans to move at warp speed from their hunter-gatherer communities to today's hyper-connected super-cities.

Once, only around 150 people could be connected through hunter-gatherer conversations. Today, 4 billion people can be instantly connected in conversation. That number grows by 750,000 globally each day. Imaginative outpourings, good and bad, are instantly collectivised and socialised. Today, we have a societal neural network that mirrors the human brain's. Today, imagination has fulfilled Einstein's prediction; it encircles the world.

These days that troublesome biological relic, the appendix, is no longer quite so troublesome. Our brains imagined a different future, with surgery and medication, and humans then set out creating it. When the first appendectomy was carried out, in London in 1735, another biological barrier to human evolution was lifted. Over the same period, squirrels made precious little progress towards mastering just-in-time technologies.

Imagination and creativity are what distinguish the human from the animal brain. They help explain the very different pace of brain-propelled human evolution and body-propelled animal evolution. The brain rebooted humans from Version 1.0 to Version 2.0. The rest is (human) history. Fire, for reasons unforeseeable at the time, appeared to play an important supporting role in this extraordinary evolutionary story.

### **Creative destruction**

As it is creative, fire also has the potential to be destructive. No-one associated with this great institution needs any reminding of that. Nor do the residents of Paradise, California where many people tragically perished in the recent wildfires. These events are the latest in a long line of devastating and destructive fires over the millennia.

Monument is a five-minute walk from the Bank of England and a minute's walk away from Pudding Lane, where the Great Fire of London started on 2 September 1666. As destruction goes, this one takes some beating. One-third of London was destroyed, including 80% of all churches. 100,000 people were made homeless, around 25% of the

city's population<sup>10</sup>. The cost of the damage amounted to £10 million, or almost a thousand times the annual income of London at the time<sup>11</sup>.

Yet the often untold part of this story is what happened next. The response to the destruction caused by the Great Fire of London is every bit as much its legacy as the Monument that stands by the banks of the Thames. It is a remarkable a story of individual imagination and collective action – the self-same ingredients that first enabled humans to break free from their biological chains.

One response to the Great Fire was the introduction of new fire laws and regulations. The first-ever building regulations were after soon put in place, specifying the materials to be used when building houses and the minimum spacing between them. This may not sound transformational now, but at the time marked a significant rewriting of the social contract between government, businesses and households.

A second response, this time from the private sector, was to create a market previously missing entirely. In response to the devastation, a market for insuring people's homes was for the first time created. The first fire insurance company, the Insurance Office for Houses, was set up in 1681 at the back of Royal Exchange. It was the inspiration of (of all things) an economist, Nicholas Barbon.

The idea was simple enough. By pooling risks across a number of households, both the insurer and insured were provided with an extra degree of financial protection against fire risk. A problem shared was a problem halved. The newly-installed rules and regulations around house-building reduced this risk further, by protecting individually-insured households, and collectively-at-risk insurance companies, from correlated conflagrations.

This risk-pooling idea caught on. The home insurance industry grew rapidly, first in London, then Edinburgh, then across the UK. In 17<sup>th</sup> century Britain, home insurance was very much a creative industry. It was the fintech of its day. On the back of this, markets for other types of insurance began to flourish, based on the same risk-pooling principle. Lloyds of London emerged in 1688. In the space of a decade, London became the pre-eminent insurance market in the world.

And so it has remained. That first-mover advantage has locked in London's dominance for 340 years. Within a mile's radius of Monument today are hundreds of insurance companies writing billions of pounds of insurance contracts each working day. The Bank of England keeps an eye on this industry in its role as regulator. The impulse for that creative agglomeration came from the destruction of the Great Fire.

A third creative response came during the 18<sup>th</sup> century. Until then, there was no public fire service in the UK. Companies hired private companies to fire-fight or had their own fire service. The Bank of England was in a particularly vulnerable position at the time, as one of the world's largest paper factories. The Bank bought its own fire engines and hired its own firemen to help protect it from going up in smoke<sup>12</sup>.

With time, it became clear it made no sense for everyone to self-insure against fire risk. This risk was best collectivised through a municipal fire service - a 'public good', like lampposts and lighthouses. A public fire service was introduced in Scotland in 1824 and in England in 1833<sup>13</sup>. The Bank's fire engines and firemen were stood down. This particular public good also arose, with a lag, from the destruction of 1666.

From the ashes of the Great Fire emerged a new public infrastructure of laws, regulations and institutions. That supported a new private infrastructure of contracts, companies and services. And this mass flourishing created one

of the world's leading financial centres, a position London retains. The regeneration spawned by the Great Fire set the economy and society – as well as the Bank - on an entirely different course.

### **Enlightenment now?**

That is the story of fire. But it is a story repeated for most transformative innovation over the course of human history: a spark of imagination; a flame of creativity as an imagined future is made real; periodic destructive burn-outs; and an eventual mass flourishing<sup>14</sup>. History tells us it is through this evolutionary process of creative destruction that economies grow and societies improve.

But is the creative flame still burning? Prominent economists, such as Robert Gordon in the United States, have recently argued that the world may be, in Haldane's terms, at risk of perishing for lack of wonder<sup>15</sup>. This hypothesis has support, with falling returns on research and development spending. The low-hanging fruit of creative innovation may already have been picked, leaving slimmer pickings for future generations.

These fears do need, though, to be set in some context. One important piece of context is that, viewed over the long arc of history, humans have never had it so good. Stephen Pinker and Hans Rosling have recently brought home this crucial point in clear, statistical terms. Just consider the last two hundred years<sup>16</sup>.

Over that period, each generation has a bit less than 50% better off financially than its predecessor. You are almost 50% better-off than your parents and more than twice as well-off as your grandparents. Your living standards today are around 16 times higher than your Glaswegian ancestors in the mid-18<sup>th</sup> century and 11 times better-off than when the GSA was founded. That is mass financial flourishing by anyone's reckoning.

This flourishing was physiological as well as financial. Over the same period, rates of infant mortality have fallen 40 percentage points. Lifespans have doubled. Although the average age of the population has never been higher, their average *remaining* life has also never been longer. Levels of global poverty have fallen from over 90% to single figures today. Societal progress has become an entrenched social norm.

What explains these great leaps forward in economies and societies? As with any reading of history, there is no universally-agreed account. My reading of economic and social history suggests the secret sauce of economic and social progress has two essential ingredients – *ideas* and *institutions*. It was these two 'I's that were responsible for taking us from yesteryear's hunter-gatherer clans to today's super-cities<sup>17</sup>.

Let me start with the first 'i' – ideas. These have their source in another, by now familiar, i – imagination. Great leaps forward societally have always had innovation, ideas and imagination at their hub. While fire provided the spark for early *homo sapiens*, this was only the first in a sequence of technological fireworks.

In the mid-18<sup>th</sup> century, the Industrial Revolution was sparked by the firing of three ideas – James Watt's steam engine, Richard Arkwright's water frame and James Hargreaves' spinning jenny. These inventions occurred at almost exactly the same time (within a handful of years) and in almost exactly the same place (within a few hundred miles of latitudes North of Stockport). This was remarkable, if not coincidental.

The second Industrial Revolution of the mid-19<sup>th</sup> century was sparked by a different set of innovations. This time it was sanitation, electrification and internal combustion that lit the fuse on the mass-industrialisation of countries and continents. The third Industrial Revolution of the mid-20<sup>th</sup> century brought a further wave of innovation, with digitisation, computing and the internet generating a transformation of business and society.

Each of these inventions involved a creative leap of imagination. As adoption spread, each became in time a GPT, applicable across sectors, industries and geographies. Like fire, these GPTs then transformed industries, jobs and lifestyles in ways inconceivable to their creators. In each Industrial Revolution, a first imaginative step resulted in a great leap forward for societal living standards, a mass flourishing<sup>18</sup>.

In that sense the three industrial revolutions of the past three centuries fit the longer-run evolutionary arc of humankind. It is creativity and imagination, fuelled by big brains and nourished by cooked meals, that set humans on their jet-propelled evolutionary path. The rapid, ideas-fuelled, progress made by societies over recent centuries is a continuation of that ever-upward evolutionary arc.

Except, that is, for one small detail. The evolutionary arc of humans has not been ever-upward. The historical path has not been a North-bound ascent. While human ingenuity and creativity have been ever-present, economies and societies have in fact spent protracted periods crabbing sideways. Prior to the first Industrial Revolution, living standards appear to have been essentially static for several thousand years<sup>19</sup>. Living standards in Glasgow in 1750 were little different than their ancestors constructing Hadrian's Wall.

Levels of poverty, nutrition, infant mortality, height and longevity would also have been indistinguishable. Prior to the Industrial Revolution, societies and economies stood still, financially and physiologically. There was flat-lining, not mass flourishing. Societal progress was far from being a social norm.

What explains this great pause in living standards? It was not through lack of ideas and imagination. People did not suddenly make like monkeys for millennia. To the contrary, innovation came thick and fast in the pre-industrial era, from the windmill in the 12<sup>th</sup> century to the mechanical clock in the 13<sup>th</sup>, from the cannon in the 14<sup>th</sup> to the printing press in the 15<sup>th</sup>, from the postal service in the 16<sup>th</sup> to the telescope in the 17<sup>th</sup><sup>20</sup>.



It is clear pre-industrial innovation played an important role in fuelling subsequent growth. Shakespeare's imaginative genius would not have been sparked without Guttenberg's 14<sup>th</sup> century invention. Einstein would not have transformed our understanding of the world without Lippershey's 17<sup>th</sup> century creativity. Yet neither great invention translated into consistently higher living standards for the great mass of society at the time.

What was the missing ingredient? A number of historians believe it was a second 'I' – institutions<sup>21</sup>. In the words of economist Douglass North, institutions are *"humanly devised constraints that structure political, economic and social interactions."*<sup>22</sup> If ideas and imagination are the fuel and engine that drive economies forward, rules and institutions are the bolts and chassis holding societies together.

Institutions, defined broadly, play two crucial roles. First, they provide the rules of the game that allow the creative process to flourish. For example, the rule of law can help ensure property, physical and intellectual, is not stolen and contracts are honoured. This provides private individuals and companies with the foundations to flourish. Nation states without these rules of the game have been found, historically, not to flourish but to fail<sup>23</sup>. Without fire regulations and property rights, could a private market for home insurance have flourished after the Great Fire?

Second, institutions cushion the adverse side-effects of technological disruption. Innovation brings destruction for businesses and joblessness for workers. If those costs are not cushioned, the social fabric is torn and new ideas risk being strangled at birth. Institutions can help protect those made redundant or obsolescent by innovation, helping repair the social fabric. And they can retool and reskill workers to prepare them to thrive, helping loom a new fabric.

As much as ideas, the three Industrial Revolutions are a story of institutions. Institutions that provided people with social insurance, such as public healthcare and public transport, social housing and social safety nets, central banks and charities, credit unions and trade unions. And institutions that provided people with the tools and

infrastructure to reskill, such as guilds and professional associations, primary and secondary schools, colleges and universities.

The Bank of England was founded before the Industrial Revolution. But it emerged as a public institution in the 19th century. The public good provided was (and still is) monetary and financial stability. Some put the date when the Bank became a genuinely central bank at 1844, with the passing of the Bank Charter Act granting the Bank a monopoly over issuing legal tender.

A five minute walk from my office is St Paul's Cathedral. In the churchyard of St Paul's on 6 June 1844, the same year as the Bank Charter Act, George Williams set up a shelter for young men who had come to London in search of work as part of the first wave of industrialisation. These shelters offered a roof and food. Their role spread quickly across the UK then globally, like home insurance after the Great Fire. The YMCA was born.

170 years on, the YMCA is still offering food and shelter. But it now operates in 119 countries and has helped millions of young men (and, through the YWCA, women) to improve their lives. It is one of the millions of civic institutions providing social insurance to those in need. Many of these institutions, including the GSA, YMCA and Bank of England, can trace their roots to the Industrial Revolution.

Institutions turned tragedy into triumph after the Great Fire and turned stagnation into success either side of the Industrial Revolution. The lesson of history is clear. For societies to grow sustainably, we need the imagination inside our heads to generate creativity, ideas, innovation. But we also need social institutions that connect and curate these heads to generate collective intelligence and collective action.

## The Fourth Industrial Revolution

From the past to the future. A new technological wave is breaking. On some accounts, this wave could be as great as any seen previously. The so-called Fourth Industrial Revolution is associated with the emergence of a whole new class of technologies with the potential to be tomorrow's GPT<sup>24</sup>. These include machine learning, Big Data, robotics, bio-technologies and Artificial Intelligence (AI). The rise of the robot has well and truly begun<sup>25</sup>.

Machines, and indeed robots, are not of course new. Nor are fears of them rising up and taking jobs and control. The Luddites had the same concerns in the 19<sup>th</sup> century. This time, though, seems a bit different.

These machines, unlike their predecessors during the first three industrial revolutions, are capable of *thinking* as well as *doing*. Although this might sound like a small step for humankind, it is a potential game-changer.

So far in human history, humans have kept one-step-ahead of the machine by gravitating towards tasks out of robotic reach. That has meant cognitive tasks. This spawned the growth of educational institutions, with universal primary and then secondary education and then the rapid expansion of colleges and universities. In other words, humans used the self-same neurological advantage over machines as had earlier put them on an entirely different evolutionary arc to other animals.

Except, unlike with animals, it is not clear humans will retain their cognitive lead over machines. If current rates of machine advance were to continue, it is simply a matter of time before humans lose pole position. And, once passed, what hope of humans ever catching up? As the evolutionary arc of humans split from animals thousands of years ago, the upwards arc of machines may be about to detach from humans.

Some of the writing is already on the wall. In 1997, a significant milestone was passed when the IBM supercomputer Deep Blue beat the world chess champion, Gary Kasparov. A generation later in 2016, another milestone was passed when an algorithm called AlphaGo, developed by AI company DeepMind, for the first time beat the world champion at Go (a game considerably more complex than chess), Lee Sedol.

These are just board games and two-person board games at that. The game of life is infinitely more complex, involving many-more moves among many-more combinations of players. Nonetheless it is worth asking how machines compare when it comes to the everyday, but complex, tasks humans perform. Looked at function by function, some of that paranoia about the rise of the robots begins to look justified.

The processing capacity of super-computers already exceeds the human brain by an order of magnitude. Courtesy of Moore's Law, that gap will widen at an ever-increasing rate over time. For some critical faculties - seeing, hearing, learning - machines are already well ahead of humans. The sensors in a self-driving car have far-better vision than any human. Alexa already does a much better job of hearing than Andy. And AlphaGo learned thousands of years of human knowledge within a matter of months.

Against that backdrop, there has been a surge of recent interest in the potential for large-scale job losses, as machines displace humans. This fear is not new. Fears about job displacement have been a recurrent theme for 300 years, as machines first displaced agricultural workers and, more recently, factory workers.

These shifts were huge. In 1750, half the labour force worked in the primary sector. Today, it is 1%.

Estimates of the potential scale of *future* job displacement are highly uncertain. Studies suggest between 10% and 50% of the global workforce could see their jobs disrupted significantly, if not displaced entirely, over the next 10-

15 years<sup>26</sup>. At the upper end, that would be almost 2 billion people globally whose livelihoods could be significantly disrupted. This is vastly more than any previous industrial revolution.

As in the past, the costs of this disruption are unlikely to be spread evenly. Recent studies have shown that those at greatest risk are likely to work in sectors and regions still reeling from earlier Industrial Revolutions. Jobs among lower-skilled workers doing routine tasks in the service sector in post-industrial towns and cities are ripe for automation<sup>27</sup>. The BBC website has an app which puts this probability at 83%.

If that were the path followed by the Fourth Industrial Revolution, it could be a recipe for another 'I' – inequality – as various studies have shown<sup>28</sup>. Earlier industrial revolutions were also associated with rising levels of inequality, at least in their initial phase. Against a background of uncomfortably high starting levels of inequality in some countries, that could raise already-grave concerns about the inclusiveness of societies.

Just in case I haven't depressed you enough already, it is possible to paint a more dystopian picture still. The science fiction writer Raymond Kurzweil, among others, has speculated about the possibility of a 'singularity' – a point where machines surpass the functioning of the brain in *every* task<sup>29</sup>. Estimates vary on when this point might be reached, if ever. But a number place it this century.

The singularity, were it to arrive, would mark a second inflexion point for humankind. The course of human history, beyond that singularity point, is not just unknown but unknowable. It is, by definition, beyond the limits of even our imagination. At that point, human control over our own destinies could be lost forever. This is not biological extinction, in the sense of dinosaurs and dodos. But it could be neurological extinction.

Were the singularity to arrive, some have argued this would take societies to their next evolutionary state<sup>30</sup>. If Life Version 1.0 was defined by *biology* and Version 2.0 by *neurology*, then Version 3.0 would be defined by *technology*. The engine of societal progress would no longer be human ingenuity, imagination and intelligence. Instead it would be artificial ingenuity, imagination and intelligence. Scared yet?

### Co-evolution

Don't be. I want to argue that loss of human jobs and control of their destinies is far from being the only possible, or even the most likely, ending to this story. Humans can remain in work and masters of their own destiny. As in the past, there are good grounds for optimism. This will, however, require some fundamental changes to human skills and human work and in the social institutions supporting them.

One reason for optimism is that, for the foreseeable future, humans are likely to retain their upper hand across a number of tasks. One such set of tasks are those requiring large doses of creativity involving leaps of imagination or bespoke design. Super-computers have designed and created international supply chains for nuts. But they are no more likely than squirrels to replace Roald Dahl or Tim Burton any time soon.

A second set of tasks not easily machine-reproducible involve interpersonal or social skills. There are robots for childcare and social care. But I doubt they will become the norm. People are social animals and value social interaction above all else. I cannot see a robot replacing GSA lecturers in my lifetime. The BBC app tells me a teacher, childminder or artist has a probability of being automated of less than 10%. Even if you are an economist, it is only 15%<sup>31</sup>.

If anything, we might see the demand for these skills grow in the period ahead. It has been estimated that, between now and 2030, demand for jobs where creativity is a key skill could increase by 30-40%. Demand for jobs with high

levels of social and emotional skills are forecast to increase by 25%<sup>32</sup>. For all the jobs lost, new ones will be created in a different image, mirroring the pattern in previous Industrial Revolutions.

We may also need to be more creative about how we define 'creative'. TV programme-makers are creative, but so are computer program-makers. AI is about as creative an activity as you could imagine. NESTA have tried to classify the creativity of tasks. Their estimates put the number of people currently in creative professions at between a fifth and a quarter<sup>33</sup>. Were jobs to evolve in line with expectations, that fraction could rise to more than a third in the next decade.

For a great many tasks, it is probably wrong to even think of jobs being displacement. More likely, their nature and the skills required will evolve. Take medicine. Many aspects of clinical diagnosis and prescription are routine. Armed with Big Data on someone's genome and health history, an algorithm could diagnose many ailments, and prescribe treatments, as well as humans if not better. Would doing so sound the death knell for doctors and surgeons?

I suspect not. Medical professionals are likely to draw increasingly on data and algorithmic insights. But there will be an accompanying, increasingly important, role for human judgement, explanation and empathy. Indeed, it is already the case that these human skills are often among the most highly-valued by patients. In a world of robo-medical advice, the balance of doctors' skills will shift further in this interpersonal direction.

As with much of human history, this will be a case not so much of humans versus machines as humans *with* machines. The evolutionary arc of humankind will not switch, discretely, from one defined by neurology to one defined by technology. What we could see instead is a co-evolutionary arc with minds and machines, neurology and technology, co-mingled and complementary<sup>34</sup>. In a number of tasks they already are.



Take chess. A generation on from Deep Blue beating Gary Kasparov, you might expect machines to have taken an unassailable lead. In fact, they have not. The world chess championship is not waged between mainframes. If you asked who or what was the best chess player in the world today the answer would be a human, albeit a human working with a machine. Chess has followed a co-evolutionary arc.

Perhaps this is simply a matter of time. But our brains themselves are far from static. This is not a case of technological hare racing neurological tortoise. Our brains are more energy-efficient than super-computers, by a factor of perhaps 1,000<sup>35</sup>. One reason is because they are hyper-connected, with around 100 billion neurons each with 1,000-10,000 connections. No digital web comes even close to this scale of connectivity.

Moreover, these connections are not static; they are hyper-flexible. Our brains are not a plug wired once. They are constantly re-wiring themselves, a phenomenon known as neuro-plasticity<sup>36</sup>. Unlike biological adaptation, this re-wiring takes place relatively rapidly and can be significant. This rewiring is particularly significant at times of extreme shifts in environment – for example, personal trauma or technological change.

Guttenberg's printing press did not just spark Shakespeare's imagination. It sparked a re-wiring of all of our brains<sup>37</sup>. As communication switched from word to print, different neurological processes were needed for comprehension and deliberation. In response our brains adapted, as had our *homo sapiens* brains years earlier. The future AI revolution could generate a similar re-wiring of the super-computer between our ears.

Perhaps it has already started. When the AlphaGo algorithm beat Lee Sedol in 2016 the decisive move came in Game 2, Move 37. With that move, the algorithm broke all previous human playing conventions, built up over thousands of years of play. If you watch the documentary of the match, Move 37 appeared to personally traumatise the World Champion Lee Sedol<sup>38</sup>. He promptly lost the game and, in time, the match.

Much less widely reported on, but for me as interesting, is what happened in Game 4, Move 78. This move was played not by the AlphaGo algorithm, but by Lee Sedol. This, too, broke all centuries'-old human conventions; it was the imagined made real. Watching the film, Move 78 appeared to send the AlphaGo algorithm into meltdown. It was digitally traumatised, began playing erratically and promptly lost the game.

It is difficult to know what prompted Lee Sedol to create an untried and untested move. Perhaps the personal trauma of Move 37 caused some re-wiring of his brain. Perhaps out of destruction was forged creativity, as after the Great Fire. If so, this would be an example of co-evolution in practice, with the neurological and the technological combining in a mutually beneficial cycle.

Since 2016, humans playing Go have adapted their playing strategies learning from the ever-improving algorithms. The same was true of Chess champions after Deep Blue. Move 37, or its successor strategies, has become a new human convention. This creativity was machine-assisted. But it is human creativity nonetheless, just as *Hamlet* was the creation of Shakespeare not Guttenberg and the theory of relativity was the creation of Einstein not Lippershey.

What applies to board games applies to other spheres of human endeavour. Driverless cars are not, in the main, driverless. Most have a human override for situations where the algorithm experiences circumstances outside its sphere of knowledge, the automotive equivalent of Move 78. Alexa hears better than me and learns faster than me. But I can still deliver a better talk about creativity to students at the GSA, even if I did draw on her knowledge in putting it together. If that ever changes, I can always pull the plug.

### **Institutions for the 21<sup>st</sup> century**

At the same time, this co-evolutionary path will not be an easy one. Even if (and it is a big if) as many jobs are created as are destroyed by the Fourth Industrial Revolution, there will be transitional costs and societal casualties

to manage. As during past waves of innovation, making a success of this revolution will require a reworking of the social infrastructure if these costs and casualties are not to tear the social fabric.

There are many possible dimensions of this reformation. One of the most important is close to the GSA's heart – education. This is also an issue close to the Bank of England's heart. Education on economic and financial matters is one of the public goods the Bank can provide and is providing. Our educational programme, comprising school visits and curriculum materials, has developed dramatically over recent years and is now reaching around a third of schoolchildren across the UK<sup>39</sup>.

This economic and financial knowledge is crucial. We hear a lot these days about our knowledge-based economy and with good reason. Like human evolution, our economies are evolving in ways which give prominence to digital over physical assets. Intellectual property (the brain) is often more important than physical property (the body), and software (neurology) is often more important than hardware (biology), in driving growth in our companies and economies<sup>40</sup>.

The rapid emergence of a knowledge-based economy has important implications for educational institutions. They were designed, in the UK in the 19<sup>th</sup> century, as factories for the manufacture of knowledge on an industrial scale. At the time, they worked well. In an increasingly knowledge-based economy, this suggests these knowledge-factories will become even more important in the future than they have been in the past.

That is the right answer but for the wrong reasons. What will be needed in future is not improved knowledge-factories producing more *knowledgeable* students. What will be needed instead are creativity-academies producing a more *creative* workforce. In future, we will not need people simply to get from A to Z - Alexa is faster and cheaper

at doing that. We need people who can navigate everywhere. That means creativity not knowledge, imagination rather than intelligence, EQ as well as IQ.

The most-watched TED talk of all time is not on signature topics of global importance such as climate change, inequality or even robotics, as important as these are. It is about (of all things) education and given by (of all things) a British educational expert, Ken Robinson<sup>41</sup>. It has had a remarkable 56 million views on YouTube, or about 56,000 times more than my TED talk on a topic of global importance<sup>42</sup>.

Robinson's TED talk is now 13 years old, but its message could not be more topical. Robinson says that our current education system tends to teach creativity *out* of children, rather than *into* it. The audience spontaneously applaud. In standard tests of creativity, at what age do you think people's scores peak? The answer is around age 6. That, not-coincidentally, is around the age children start school.

If creativity holds the key, why not teach it *in* rather than *out*? That may sound odd. We often think of creativity as somehow innate or genetic, like having red hair or a good sense of humour. On this view, teaching creativity is like teaching someone to grow a funny bone. It is not. It is perfectly possible to teach someone to be funny – there are courses aplenty on it. And it is possible too to teach them to be creative.

Philip Bond teaches a course on creativity at the University of Manchester. Creativity is not the result of random lightning strikes of inspiration. It is about creating the right environment for lightening to strike in the first place. The shapes and colours of our offices are important. Eating and sleeping patterns matter. Walking helps. Meeting new people matters. New experiences work wonders (and wonder)<sup>43</sup>.

Creativity does not require an apple to land coincidentally on the head of a genius, any more than it requires the coincidence of a Watt, a Hargreaves and an Arkwright in the late 18<sup>th</sup> century in latitudes North of Stockport. Creativity is a core skill in us all – indeed, the one skill we know is uniquely human. But nurturing it requires the right environment, as Ken Robinson’s reflections on our educational systems make clear. Apples are less likely to fall on our heads if we are deskbound.

This point is not confined to creativity. Today’s educational system is heavily skewed towards developing cognitive skills in the young. This made sense during the first three Industrial Revolutions as humans sought to keep ahead of machines that were long brawn and short brain. As machines’ cognitive capacity grew, so too did the demand for institutions offering higher-level cognitive skills, such as colleges and universities.

These institutions were the right response to the challenges of first three Industrial Revolutions. They are unlikely to be the right response to the fourth. The rise of the thinking machine means the future world of work will no longer require narrowly cognitive skills. And in a world of 100-year lives and 70-year careers, educational institutions will need to equip old and young alike with these skills. Developing cognitive skills in the young was a brilliant model for the past 300 years, but not one for our educational future.

Many different models are possible. Elsewhere, I have called one possibility *multiversities*, as distinct from universities<sup>44</sup>. The *multi* serves double-duty. It connotes the need for these new institutions to expand their disciplinary horizons and become less subject-singular. History shows that creativity breakthroughs are often sourced in straddling disciplinary boundaries, in being subject-plural. Creating the right environment for creativity often means breaking free from disciplinary silos.

Indeed, if we are to embed a cross-disciplinary culture, we may need to rethink how we classify subjects. Traditional domain-knowledge may make less sense in a creative rather than knowledge-based economy. A new classification system might recognise subjects like creativity and digital literacy, emotional intelligence and empathy, entrepreneurship and design. These would, by design, straddle disciplinary boundaries.

The multi also signifies the need to straddle generational, as well as disciplinary, divides. Education will need in future to cater for old and young alike, making lifelong learning a reality. Rather than the sequential model, with first education and then work, we would instead have a rotation model over a career. Universities currently tend to be a one-way street into work. Multiversities would operate like career roundabouts with turnoffs into both work and study.

This would be a fundamental shift, culturally and educationally. Even if we pushed our peak age of creativity into early adulthood, that still leaves a long creative downslope during which our capacity to teach ever-older dogs ever-newer tricks would become ever-more difficult. Lifelong learning and re-skilling of adults has been difficult to make a reality for a reason. The right infrastructure will be needed to support this shift and to create the incentives to sustain it through our 100-year lives.

For understandable reasons, there has been an upsurge in interest in this issue recently, including in the UK. Philip Augar is leading a government review of post-18 education which is due to report this year<sup>45</sup>. Both of the main opposition parties have also initiated reviews. The Centenary Commission on Adult Education (of which I am a patron) began work just last month to assess the future needs of the educational system<sup>46</sup>.

There are already models which may offer some clues on a future direction of travel. The Open University celebrates its 50<sup>th</sup> birthday this year. Since its inception, it has been a model of flexible lifelong learning, vocational and

cognitive. Its students combine work and study, typically through part-time distance learning. It is the UK's largest university with over 170,000 students.

A future educational model needs importantly to embody this sort of flexibility – the flexibility to combine work and study through a career, with educational credits which accumulate over time and which are portable between institutions. The current post-18 model operates like a driving license – obtained during the early years but then rarely if ever refreshed or augmented. The future world of work may call for a model which is more like a training schedule for a marathon, which builds capacity over time.

Creating the right incentives to engage in a career-long marathon training programme is not easy. There is a reason relatively few people run marathons and fewer still enjoy the experience. But a number of options are being tried. In 2016, Singapore introduced a credit system for lifelong training - SkillsFuture Credit. These credits can be drawn down at any stage of an individual's career to support approved skills-related training. Denmark has a similar system in place for those displaced from work.

## **Conclusion**

Creativity flowed from the Great Fire. Our economies and societies will also need to reseed to harness the potential of the Fourth Industrial Revolution. For mass flourishing, our knowledge economy will need to evolve into a genuinely creative one. And our social institutions, including our educational institutions, may need to be radically reworked. It is a time to make the imagined real. ■

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# The EU and money laundering

Money laundering scandals at EU banks have become pervasive. Joshua Kirschenbaum and Nicolas Véron detail the current AML architecture's fundamental weaknesses and propose a new framework

**M**oney laundering scandals at EU banks, often linked to Russia, have become pervasive. Reform of anti-money laundering (AML) supervision is urgent. Illicit actors have repeatedly moved billions of dollars through individual banks. This flow sustains the Kremlin's patronage system at home by serving as an outlet for elites while it simultaneously corrodes institutions, commerce, and politics in Europe.

The current system, which leaves AML enforcement to national authorities, is broken. As we explained in a [recent paper](#), a new EU agency tasked solely with AML supervision is the antidote. Without dramatic change, the problem will continue to fester.

The existing architecture has three fundamental weaknesses. First, national AML supervisors have no efficient way to communicate and coordinate, neither with one another nor with the European Central Bank, which has overall responsibility for bank oversight in the euro area.

Second, the system leaves supervisors in very small countries on their own, with relatively limited capacity and resources, in the face of a sophisticated transnational threat. Third, it encourages the growth in 'weak link' countries of financial sectors catering to suspect clients of Russian and other origin. The outcome is undue political influence and sometimes even capture.

A dedicated European-level AML agency would solve coordination problems, develop strong capability and deep expertise, and enjoy sufficient political independence. This would result in more proactive supervision, more aggressive fines, and the establishment of credible deterrence.

[Recent cases](#) have touched [Cyprus](#), [Denmark](#), [Estonia](#), [Germany](#), [Latvia](#), [Malta](#), the [Netherlands](#), and the [United Kingdom](#). In the most [dramatic case](#), €200 billion was pumped through the Estonian branch of Danske Bank,

Denmark's leading lender. At Danske Bank's branch in Estonia, non-resident shell-company clients moved massive sums through a concentrated number of accounts, generating huge fees. Management knew that the clients represented unknown sources of money from Russia and the Commonwealth of Independent States, but they failed to act for years.

No one can say with certainty whose money transits these banks, and that is part of the problem. Professional facilitators set up opaque channels precisely to obscure the ultimate purpose of these transactions. Sometimes the proceeds of corruption may be used to purchase luxury real estate. Other times, the flow may stem from, or facilitate, organised criminal activity. And there is no reason that the Russian government could not tap these same networks to carry out [interference activities](#) in the West. The flow likely contains elements of all of these, and more.

*The European Union must change its supervisory architecture to fight money laundering*

Since 2012, the European Central Bank has been the [prudential supervisor](#) of all banks in the euro area, overseeing governance, capital adequacy, and lending practices. But AML supervision is excluded as a 'business conduct' issue, which remains the sole province of [national authorities](#).

Meanwhile, financial services are passported across the entire Single Market, and fines for AML violations have generally been small – although they have recently begun to increase in some member states.

As was the case with prudential supervision before 2012, today's AML architecture leads to perverse supervisory incentives. It leaves too many avenues for untoward political and regulatory influence on the part of those who benefit from a reliance on money of dubious provenance, creating a vicious circle of supervisory failure in the more vulnerable countries. Even if some member states have effective AML supervisory regimes, the failure is systemic from a European perspective because there is always a weak link.

The fix, unavoidably, is a strong central authority at the European level. The European Union has recently decided to enhance the AML responsibilities of the European Banking Authority (EBA), but this change is too incremental to fix the problem. The EBA can only intervene too late and not forcefully enough. Under the soon-to-be-enacted legislation, it will be unable to do much until after a failure of national authorities has been established, and even then there would be no [meaningful penalties](#).

Instead, a new agency should serve as a single information hub and a unitary decision-making body that takes proactive measures. The central authority may then re-delegate certain tasks and decisions to national agencies, as has happened with competition policy enforcement, or indeed prudential supervision, for example.

A new, dedicated EU AML agency should supervise banks and non-banks alike across the Single Market. It should **not be the European Central Bank**, because its authority would be limited to the banking sector and only within the euro area, leaving scope for weak links at non-bank institutions or in non-euro area countries. As the US experience demonstrates, **fragmentation** of AML supervision across segments of the financial sector impairs its efficiency. In a first phase, at least, financial intelligence units would remain scattered at the member-state level, but the European AML supervisor can be equipped to interact with all of them in an efficient way.

To be sure, the creation of a new agency would increase the complexity of the EU supervisory landscape and should not be taken lightly. But the critical importance of AML supervision to the integrity of Europe's financial system justifies the effort. It would also demonstrate to the general public that the European Union is able to address its most serious challenges credibly and not just tinker at the edges. AML reform is a top priority from a European financial sector and security perspective. It would be good European politics, too. ■

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*This article was originally published on [Bruegel](#)*



# How Europe could yet take the lead in the global EV development race

The electrification of vehicles has become a key trend in the automotive sector. Simone Tagliapietra and Reinhilde Veugelers consider how Europe might best attempt to catch and overtake other countries in the development race

**T**he automotive sector is important for the EU economy. Accounting for 4% of EU GDP, it employs 8 million people and ranks among the main EU sectors in terms of exports and research and development (R&D). And because of its long supply chain, the sector has a significant multiplier effect on the EU economy.

The automotive sector is currently at the centre of a global transformation, driven by four key trends: electrification, autonomous driving, sharing, and connected cars. While each of these interconnected trends is already visible in daily life, their full deployment is not yet guaranteed, nor is the speed of take-up.

The electrification of vehicles has become a key trend in the automotive sector, driven by clean energy and climate-change concerns and policy interventions – such as support for zero-emission vehicles and carbon taxes – intended to reduce greenhouse gas emissions. We can expect EVs to proliferate in the future. On the technology side, improvements are quickly reducing electric-vehicle (EV) production costs, in particular by reducing battery costs. On the policy side, to meet commitments assumed under the Paris Agreement, more governments are increasing their support for zero-emission vehicles, banning dirty vehicles and supporting the deployment of EVs and their charging infrastructure.

In a recent [Policy Contribution](#) we investigated the position of the European automotive industry in a scenario in which electrification substantially progresses. In this blog post we summarise the results of our study, which are – surprisingly – encouraging for Europe.

### **Electric vehicles in Europe: the demand side**

Data on registrations of electric vehicles reveals that the global EV market remains, to date, still a small part of the overall car market. In all major countries, EVs in 2017 had shares well below 5% of total vehicle registrations. But it



is growing rapidly. This growth is particularly manifesting itself in China. As a consequence, the major market for electric vehicles is nowadays in China.

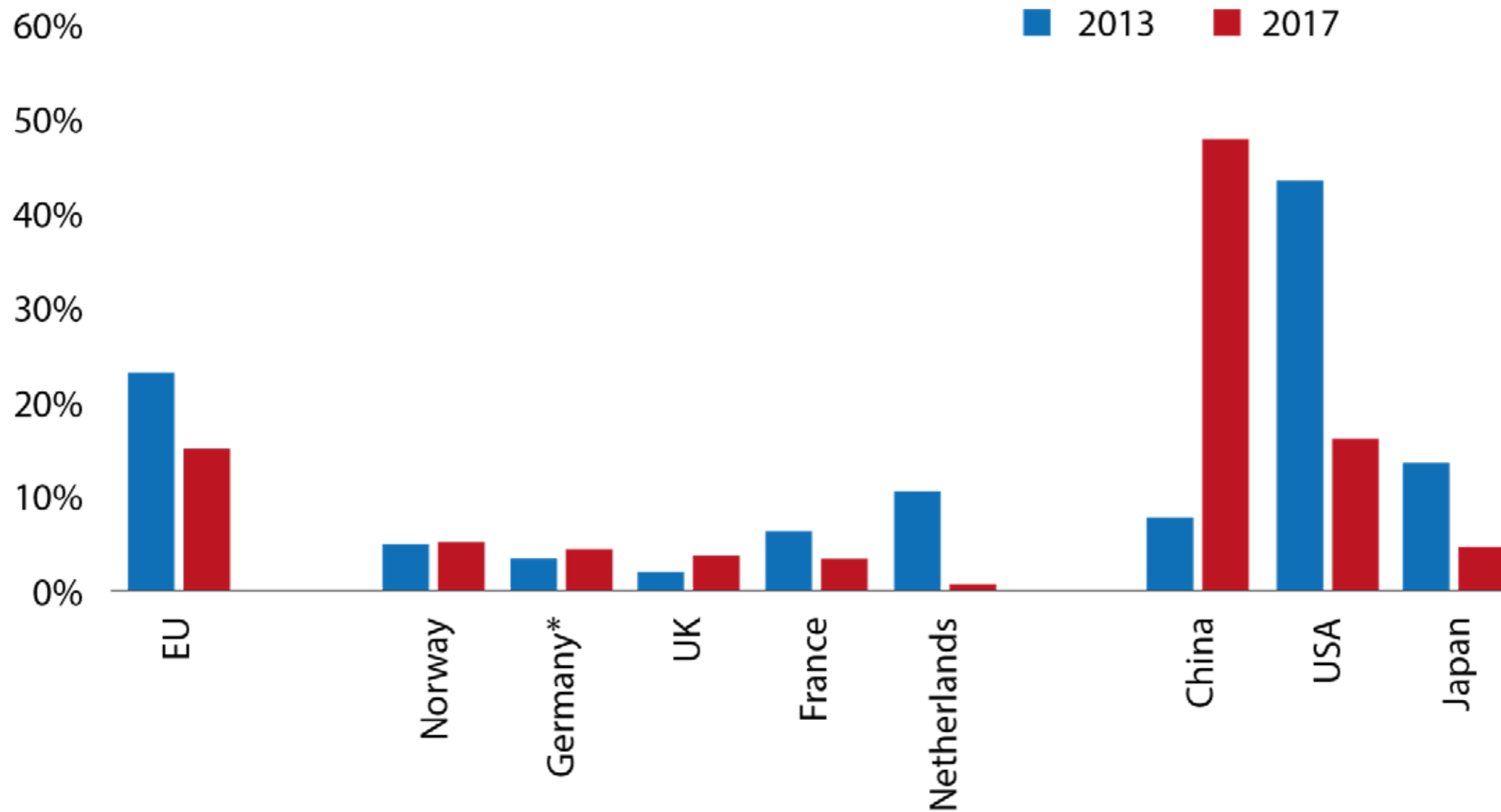
While the EU (with 23%) and the US (with 48%) dominated the worldwide EV market in 2013, by 2017 China had a clear lead, with 48% of global EV registration, leaving far behind the US (with 16%) and the EU28 (with 15%). Within the EU, Germany and the UK increased their shares of the global EV market, while France and early-adopter the Netherlands experienced declines between 2013 and 2017 (Figure 1).

### **Electric vehicles in Europe: the supply side**

China is also the source of another crucial trend in global EV manufacturing: over the last few years, it has rapidly established itself as the global leader, leaving Europe and other regions behind. While Japanese and US firms were

*The gap in policy ambition between Europe and China is huge*

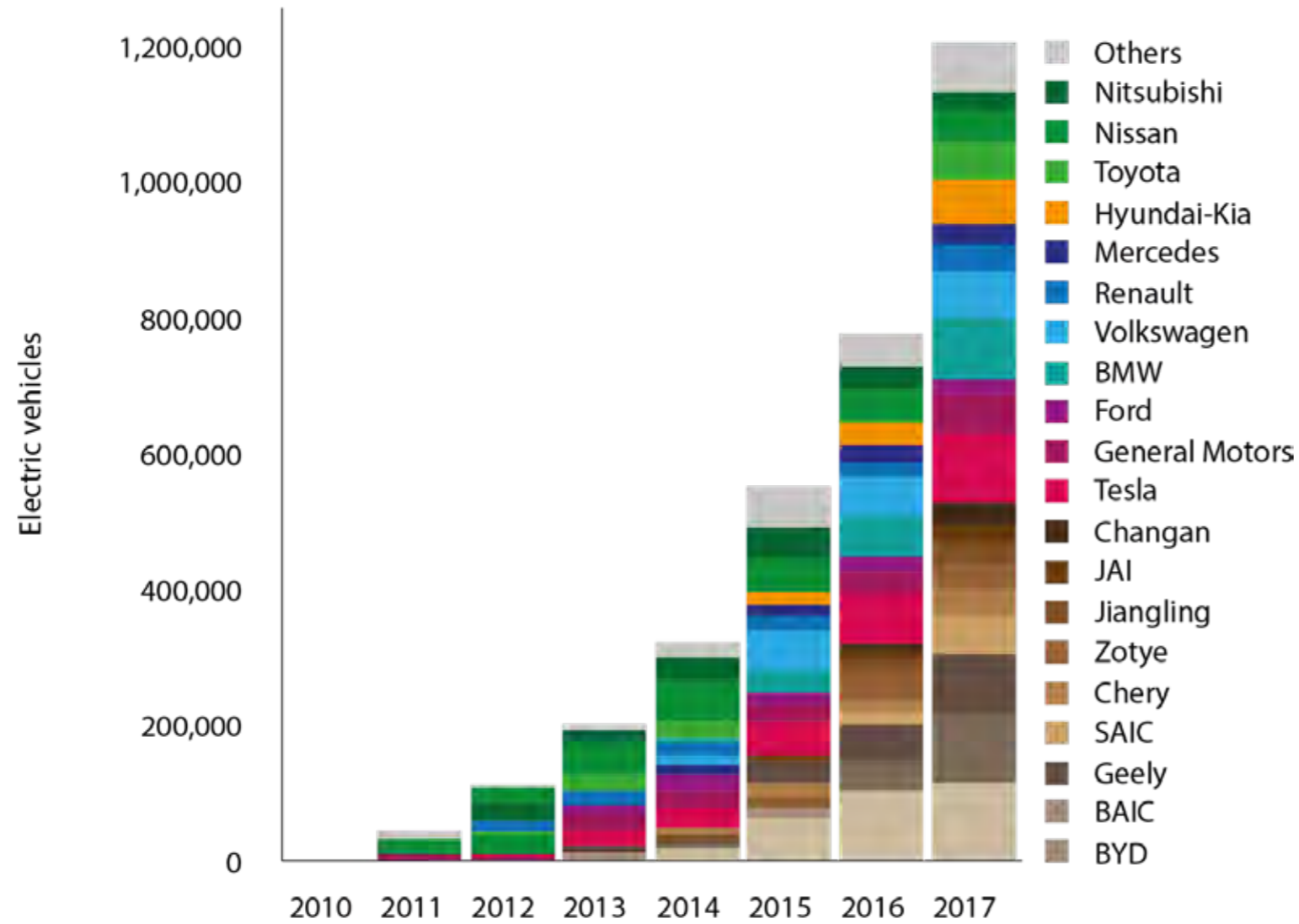
**Figure 1. Share of new EV registrations of country in world new EV registrations**



Source: Bruegel based on national statistics.

**Figure 2a. EV production by vehicle manufacturer**

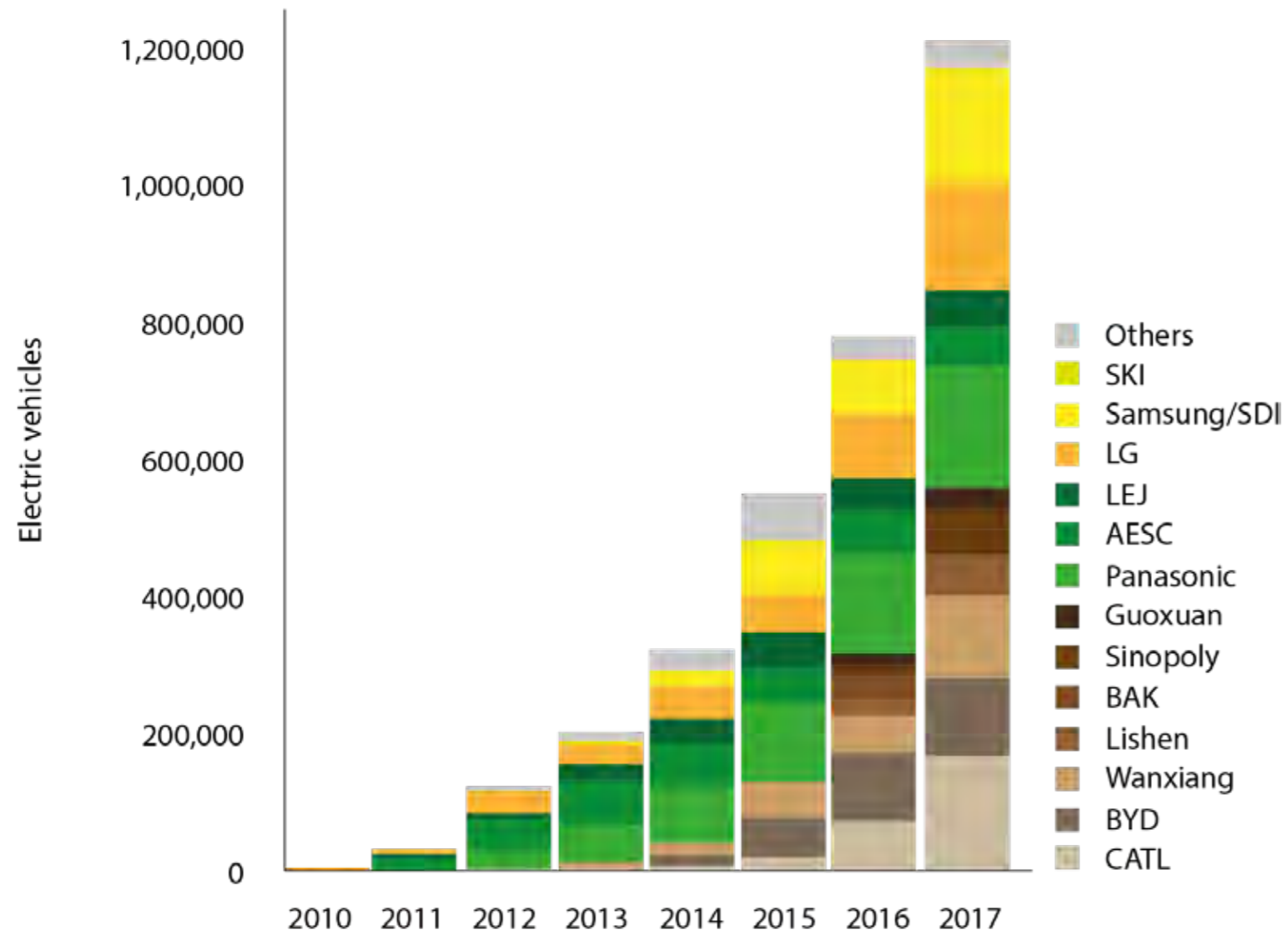
Electric vehicle production by vehicle manufacturer



Source: International Council on Clean Transport (2018).

**Figure 2b. EV production by battery manufacturer**

Electric vehicle production by battery cell supplier



Source: International Council on Clean Transport (2018).

early movers, nowadays the largest EV manufacturers are new Chinese firms (Figure 2a). From the early movers, only US's Tesla is currently a leading manufacturer in the global EV market. EU firms entered late, and are only recently starting their catching up, especially the Germans.

In global EV battery manufacturing (Figure 2b), which is a crucial part of the EV value chain, China's leadership is even more evident. The first mover, Japan, was rapidly surpassed by China between 2014 and 2017, as Chinese companies proliferated and grew rapidly along with Korean firms. There are no EU or US firms among the world's major battery producers.

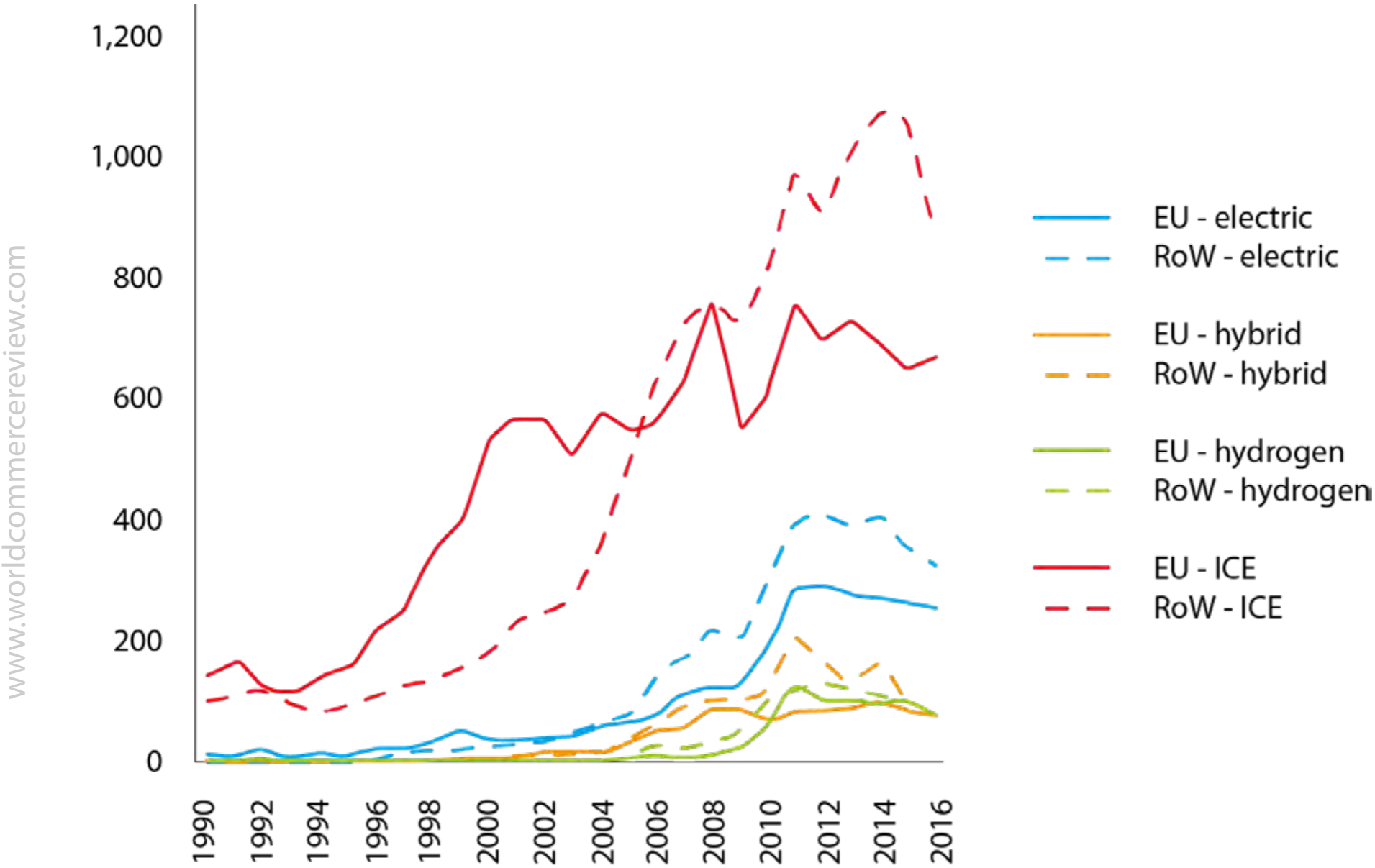
This impressive rise of China in EV manufacturing has been driven by the country's strong industrial policy in the field (eg. generous fiscal subsidies for EV manufacturers, based on the EV's driving range per charge, to foster innovation; requirements for international carmakers to manufacture EVs in China in order to access the market; strong financial incentives for EV purchasers; extensive charging infrastructure deployment).

### **EU and the technology development in EVs**

The EU was not a first mover neither in EV technology development, as patent data show. The Internal Combustion Engine (ICE) technology has traditionally been the major power train technology for cars. The EU dominated the ICE technology until 2008. EV technology patenting activity, while mostly flat until 2005, kick-started globally in 2005. In the EU it began to grow only in 2009 (Figure 3).

The dominance of ICE technology in EU automotive patents before 2009 has since been changed to a more balanced position across all power-train technologies – electric, hybrid, hydrogen and ICE. For instance, the number of EU EV patents grew from 124 in 2008 to more than 250 per year for each year between 2011-2016.

**Figure 3. EU vs. rest of the world in major power-train technology patents**



Source: Bruegel based on EPO Patstat, April 2018 edition.

## How European automotive firms tackle the EV challenge

Which EU automotive firms are driving the EV trends? Although they were not the first movers on EVs, European automotive firms have now all become as buoyant on the EV market as their global counterparts. All have announced new EV models and ambitious annual EV sales targets to be achieved in the near future.

But as most of the investment in EVs are still very recent and/or attached to announced plans, hard evidence of actual committed investment by EU firms in EV manufacturing is not widely available.

In order to assess the commitment of EU firms to EV technology, we turn to patent statistics to assess how active EU automotive firms have been in developing EV technology compared to their international competitors and compared to their activities in improving the incumbent ICE technology.

We focus on the automotive and parts firms who are the largest R&D spending firms in the world, as recorded by the EC-JRC Scoreboard. This handful of large firms account for the overwhelming majority of patenting activities in this sector. Patenting by South Korea's automotive sector is dominated by Hyundai; in the US it is General Motors and Ford. The EU and Japan, although they have big players such as Volkswagen and Toyota, show a more distributed structure of patenting activity with several major players involved. In all cases, all of the major players are established incumbents, with very few new entrants, Tesla and Chinese companies being the exception.

There are major differences between the patenting activities of different companies (Figure 4). Chinese companies exhibit an overall still very low level of patenting. Among the EU assembly companies, Renault, BMW and Volkswagen have the highest shares of electric power-train technology patents, while also having large shares of ICE patents.



Overall, these EU assembly companies exhibit relatively balanced patenting activity. This contrasts with EU automotive parts companies, which exhibit a much greater degree of specialisation when it comes to power-train technologies. Some companies, such as Mahle and Rheinmetall, are active only in ICE technology patenting.

Other car parts companies have higher shares of non-ICE patenting, though with low absolute numbers. The balanced patenting activity is also true for the Japanese and US incumbent automotive assemblers.

### **Conclusions and policy recommendations**

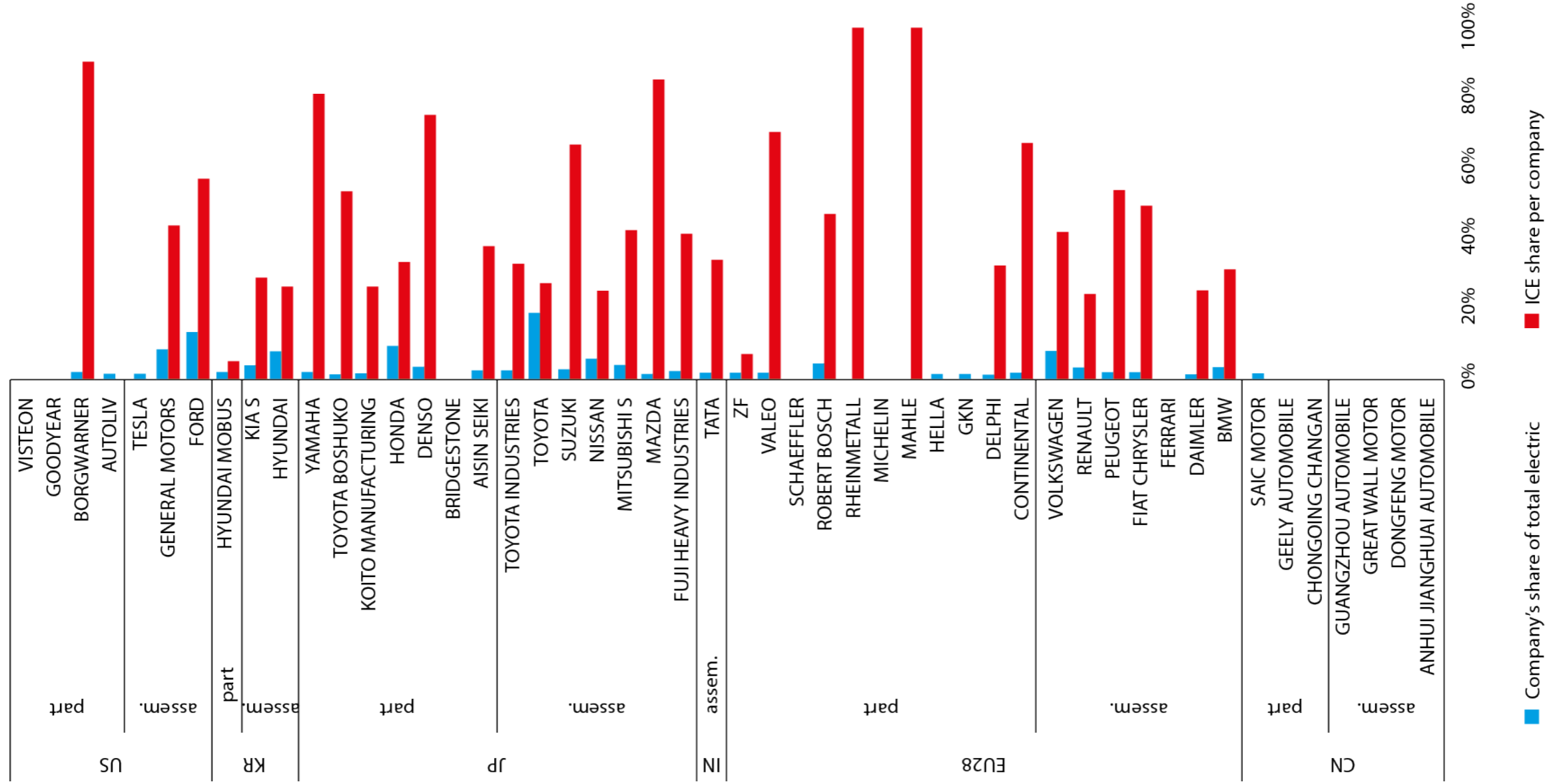
The transition to zero-emission transport and the development clean power-train technologies as alternatives to the ICE, among which the EV technology is the most powerful, needs to be supported by a more ambitious and broader policy agenda both at the EU and at member-state level. It is not too late for Europe to lead the global EV race, but it has to step up if it wants to remain at the frontier of automotive technology.

It is for the EU automotive industry to face and ideally drive the global EV revolution and to take up pivotal positions in the EV value chain. As EU companies were not among the EV first-movers, they will have to invest more ambitiously in new EV technologies, while more quickly reducing their exposure to the incumbent ICE technology.

Too many important companies, especially car-parts manufacturers, are still predominantly or even exclusively focused on ICE technologies. The EU particularly lacks strong players that can capture the value from batteries for EVs.

European firms have the capacity to continue their global leadership of the automotive sector as the next generation of automotive technologies is phased in. European car and car parts manufacturers can rely on a large internal market, a long experience and a strong brand-name in automotive manufacturing.

Figure 4. Patenting structure of the top 50 R&D spending automotive companies (2012-14)



Source: Bruegel on JRC Scoreboard 2016.

They also have the technological expertise from a portfolio of R&D projects and patents that is diversified across various power-train technologies. But in order to realise the potential from this capacity, and to face global and particularly Chinese competition, European firms will have to be more ambitious.

To warrant more ambitious investment in EVs by EU automotive companies, the proper framework conditions should be in place. Both the EU and EU member states are increasingly discussing and putting in place policies to support the deployment of EVs. However, best-practice examples of EV policies from Norway and China illustrate that piecemeal interventions will not work. What is needed is a broad policy framework, combining a multitude of demand- and supply-side instruments in an ambitious long-term clean transport policy mix.

First and foremost, there needs to be EU demand for EVs. Subsidies, taxation and public procurement favouring clean rather than dirty technologies should be used to stimulate EU demand for clean technologies in general, including EVs. Without an EU internal market for EVs, EU companies might be developing their ambitious investments in other world regions, most notably China.

On the supply side, the policy menu includes public R&D support for the next generation of clean technologies, including support for investment in the latest and next-generation clean technologies, and support for the conversion of dirty technologies into clean.

Policymakers can also favour clean technologies that include EVs by establishing efficiency standards. Last but not least, a full range of policies can be implemented to bolster infrastructure deployment: a non-exhaustive list includes urban planning, public transport, charging stations and accessibility improvements.

The gap in policy ambition between Europe and China is huge. The Chinese EV policy mix includes strong commitments to an electric future and coercive measures for carmakers. Europe cannot follow China in the adoption of centrally-planned industrial policy measures.

However, Europe can and should do more to stimulate the transformation of its automotive industry through a more ambitious combination of supply and demand-stimulating policy measures. At the EU level, this includes particularly:

### **1) Targeting EU R&D funds to trigger frontier clean technologies**

The EU can improve its transport research and innovation funding. In particular, it should carefully allocate this money, targeting areas in which it can truly have leverage on private investment.

Transport-related research and innovation funding should notably focus on next-generation early-phase technologies and should focus across the value chain, including for next-generation batteries, such as solid-state batteries.

### **2) Rethinking transport taxation**

Taxation is a key policy tool to switch demand to cleaner transport, fostering road transport decarbonisation. European countries still have very different transport taxation regimes.

The EU should promote a new discussion among EU countries on the future of transport taxation, as is being done in the field of digital taxation. A harmonisation of mobility taxation throughout Europe would lead to less fragmentation and more certainty for business, thus increasing the incentives to invest in production of clean (electric) vehicles in Europe.

### **3) Bans on dirty cars: cleaning-up the air**

Since 2017, a series of countries and cities across Europe have introduced bans on diesel and petrol cars. These plans are mainly driven by a political commitment to reduce air pollution, and are based on the expectation that the shift already under way towards clean vehicles will continue to gather pace over the coming years.

These plans are also meant to provide a strong signal to the EU automotive industry, encouraging it to innovate and become a global player in clean vehicles. The EU should ensure that these plans should be more coordinated and ambitious.

### **4) EU support for member states' transition towards clean transport**

To encourage its member states and cities to clean-up their transport systems, the EU should support the transition costs associated with this transformation.

An 'EU Clean Transport Fund' could be established to provide dedicated financial support to countries and cities committed to a transformation to decarbonise transport. For instance, this fund could allow cities to bid for EU money to support measures such as the deployment of alternative fuels infrastructure or to support the retraining of automotive workers to enable them to switch from dirty to clean technology production technologies. ■

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*This article was originally published on [Bruegel](#)*





# Global economy threatened by 'sustainable' investments

Governments are pressuring portfolio managers to invest their clients' funds in sustainables. Martin Hutchinson critically examines the arguments made in favour of investing in sustainables

**R**ecent decades have seen the substantial growth of the so-called 'sustainable' investments movement, which would have portfolio managers invest their clients' funds in assets that are perceived to promote social benefits, especially benefits to the environment. In fact, such investments undermine the global economy and contribute to the political corruption that undermines civil order as well.

### **The aims and claims of sustainable investments**

Calls for sustainable investments are often related to Environmental, Social and Governance (ESG) criteria, which were defined in a 2005 report by the firm Freshfields Bruckhaus Deringer on behalf of the United Nations<sup>1</sup>. Today, sustainable investments made in accordance with these criteria total about \$12 trillion, up from \$639 billion in 1995. Of that total, nearly \$2 trillion are invested primarily with environmental goals in mind<sup>2</sup>.

One might think environmental criteria had to do mainly with, for example, avoiding investing in projects that would pump dangerous pollutants in rivers. That sounds sensible. However, the primary environmental focus today is on whether a company's operations contribute adversely to the perceived problem of global warming. Climate alarmists who define environmental criteria allege that increased amounts of atmospheric CO<sub>2</sub> produced by using fossil fuels to generate energy is creating runaway warming that will seriously harm humans. But on closer examination, the argument for making investments based on this criterion collapses.

### **Fiduciary duties**

To begin with, the environmental element of sustainable investment guidelines runs counter to the goals of fiduciaries and other investors whose primary duty or goal is to maximize returns on an investment portfolio.

Professional investors managing institutional portfolios for others, especially large retirement funds, have a legal and moral obligation to look first and foremost to their fiduciary duties to their clients. They are 'playing with



other peoples' money, not engaging in an exercise to promote their personal values. When it comes to sustainable investments, professional investors' duties often come into conflict with the environmental element of the ESG principles.

### **Institutional biases**

To fulfill their fiduciary duties properly, portfolio managers are obliged to do their research and to understand that materials supporting sustainable investments are often biased. Many reports are produced by organizations with a vested financial interest in the topic, including large banks, utilities, renewable energy producers, and insurers. In other cases, political ideology taints sustainable investment reports.

*It's better to protect prosperity and portfolios by engaging in responsible investment practices that properly balance the real risks and rewards of investing than to depend on the fantasies of 'green' extremists*

A primary source of much of the climate alarmist bias surrounding sustainable investments is the reports of the UN Intergovernmental Panel on Climate Change<sup>3</sup>. That organization systematically excludes and even refuses to acknowledge a mountain of materials that question the climate change orthodoxy.

For example, the Nongovernmental International Panel on Climate Change has produced four volume of its *Climate Change Reconsidered* series<sup>4</sup>. All four volumes, each nearly 1,000 pages, include well-documented, in-depth articles by hundreds of reputable and highly credentialed scientists, scholars, and economists from around the world who offer a more realistic and sceptical assessment of climate issues.

A deep dive into the science behind climate alarmism shows it to be unsound on many levels. Predictive models fail to predict accurately or to line up with measurable data. Data is often 'adjusted' to line up with failed models<sup>5</sup>.

Portfolio managers fail in their fiduciary duties by taking popular nostrums and climate alarmists' assertions on faith as gospel.

### **Pressures to invest**

Portfolio managers rightly look for investment opportunities that maximize returns at risk levels acceptable to clients. But their liberty to make such investments is often limited by outside pressures, especially from governments.

Requirements that managers report the degree to which their investments support the climate alarmist anti-fossil fuel agenda or even to demonstrate that their investments promote that agenda is a major source of pressure.

In France, 2005/2008 legislation targeting pension funds and investment companies requires the *“introduction of a sustainable investment strategy and mandatory inclusion of at least one fond solidaire.”*<sup>6</sup>

In the Netherlands, the 2008/2013 Pension Fund Act declared a *“pension fund must publicly disclose details of its sustainable investment strategy”* and a 1995 act offered tax reductions for green investments<sup>7</sup>.

The Swiss regions of Geneva (in 2014) and Vaud (in 2015) changed their laws so that they *“now oblige their respective pension funds to comply with sustainable development and responsible investment objectives.”*<sup>8</sup>

In September 2018, California passed legislation mandating that the state’s two largest pension funds, California Public Employees’ Retirement System and the California State Teachers’ Retirement System, take climate change into account and report on meeting the anti-CO<sub>2</sub> goals of the Paris Climate Agreement<sup>9</sup>. (In June 2017, the Trump administration announced the United States will pull out of that agreement.)

In May 2018, the European Commission presented three proposals aimed at establishing disclosure requirements on how institutional investors integrate ESG factors in their risk processes and creating a new category of benchmarks that will supposedly help investors compare the carbon footprint of their investment<sup>10</sup>. No portfolio manager is likely to respond, *“I don’t care about these benchmarks based on bad science. I’m protecting my clients’ funds.”*

If sustainable investments were good investments, governments would not need to force portfolio managers to make them.

## **Relying on government subsidies**

Many sustainable investments are made attractive by government subsidies and favours rather than on their own merits. However, governments do a poor job of picking technologies that are economically viable.

In the US, Solyndra<sup>11</sup>, which sought to manufacture its uniquely designed photovoltaic solar panels, received a \$535 million government loan guarantee in 2009. When the company went bankrupt in 2011, taxpayers had to cover that giant loss. Any sustainable investments that would have been made in Solyndra would have been lost.

Wind turbines provide another example of a highly subsidized technology that has failed to meet expectations and has left investors with large losses. Some offshore wind farms have suffered rapid salt-induced erosion of their turbines, forcing them to shut down years before their expected end date. In total, the United States is estimated to have 14,000 abandoned wind turbines<sup>12</sup>.

In Germany, 5,700 of the country's 29,000 wind turbines with an inherited capacity of 45 MW are expected to be abandoned in 2020, when their subsidies run out and they become uneconomical. It is thus likely that after 2020, Germany's wind power output will decline. Under German law, the entire turbine, including the massive concrete base, must be removed when the turbine ceases operating. Removing turbines is a mammoth task, because each German wind turbine weighs 3,000 tons, including its reinforced concrete base<sup>13</sup>.

## **Promoting cronyism and corruption**

Those portfolio managers who are tempted to virtue signal or are being eco-shamed into making sustainable investments must appreciate that they are an integral part of a corrupt, crony system—one that they are effectively endorsing by continuing to take part in it. They are handing over their clients' funds to be used by businesses and

special-interest groups that profit from government power and influence, rather than by producing goods and services to sell to willing customers. Such arrangements can rightly be described as 'legal corruption.'

This is certainly contrary to the letter and spirit of the Environmental, Social and Governance criteria. The ESG criteria are supposed to allow socially conscious investors to earn profits while making the world a better place.

But unless one accepts the most extreme fears of climate alarmists—namely that without draconian government measures to restrict CO<sub>2</sub> emissions, humanity's future and millions of lives will be endangered—it is unreasonable to say those participating in government-supported sustainable investments are improving the planet in a reasonable way.

### **Global economic effects of sustainable investments**

If there is any consideration portfolio managers should take account of beyond immediate returns on investment on their clients' funds, it's that there be a healthy, growing, dynamic economy in which to invest. Investors in sustainable assets promoted or mandated by government are complicit in the serious economic damage they have and will continue to cause, and they are undermining the markets upon which a sound economy depend.

A 2016 Manhattan Institute report noted, *"Between 2005, when the EU adopted its Emissions Trading Scheme, and 2014, residential electricity rates in the EU increased by 63 percent, on average. In Germany, those rates increased by 78 percent; in Spain, by 111 percent; and in the UK, by 133 percent. Over the same period, residential rates in the US rose by 32 percent. In 2016, households in Germany paid about 40 cents per kilowatt-hour for electricity, compared to the American average of about 12.5 cents."*<sup>14</sup>

A September 2013 article in *Der Spiegel*, acknowledged the destructive effects of the war on fossil fuels in an article exploring *How Electricity Became a Luxury Good*<sup>15</sup>. It reported in 2013 German consumers would be forced to pay six times the price for electricity from solar, wind and biogas plants as would be the market price for that energy.

No wonder in 2013, car manufacturer BMW decided to build a new \$100 million plant to manufacture carbon fibers for its vehicles in Moses Lake, Washington. A major reason it chose not to build this factory in Germany is that German electricity costs six times more than the hydro-electric power available in Washington State<sup>16</sup>.

Australia, one of the world's major coal producers which had generated 80 percent of its electricity from that resource, has similarly pursued economically destructive anti-fossil fuel policies<sup>17</sup>. The state of South Australia committed to transitioning to a system relying almost entirely on renewable energy faster than other states.

As a result, a September 2016 blackout in that state left 1.7 million people, approximately 7 percent of Australia's total population, in the dark. It was 12 days before power would be fully restored. A similar blackout hit the region in February 2017. Australian electricity prices soared and in 2018, the ruling Liberal Party replaced its leader, the country's prime minister renewable energy proponent, Malcolm Turnbull, with Scott Morrison who pledged lower energy prices.

In any case, expensive renewable resources meant to protect the environment are anything but clean<sup>18</sup>. A recent study by Environmental Progress, for example, warns toxic waste from used solar panels poses a global environmental threat, creating 300 times more toxic waste per unit of energy than do nuclear power plants.

Further, it would almost be physically impossible to replace all fossil-fuel generated energy with renewables. In 2016, several American environmental groups offered a plan to replace all fossil fuel energy with renewables by

2050. But the 46,480 solar PV plants envisioned would take up almost the total land area of Texas, California, Arizona and Nevada<sup>19</sup>.

### **Taking the investment high road**

Global commerce today is directly threatened by the unsubstantiated assumptions of climate alarmists: that the atmosphere is warming dangerously; that human use of fossil fuels rather than natural or sunspot cycles or other causes are responsible; that sustainable resources can generate enough energy to replace fossil fuels; that the clear damage to global commerce and economies caused by draconian climate alarmist policies will be offset by future benefits. Portfolio managers are put in a difficult situation because this orthodoxy does often go unquestioned.

But their fiduciary duties would at least require them to obtain explicit, informed consent from clients about the risks of so-called 'sustainable' investments. Better still, socially conscious investment managers could take the moral high ground and attempt to educate their clients about the fallacies of sustainable investments. Why passively follow an investment strategy that is likely to harm a client's interests?

It's better to protect prosperity and portfolios by engaging in responsible investment practices that properly balance the real risks and rewards of investing than to depend on the fantasies of 'green' extremists. ■

### **ABOUT THE AUTHOR**

*Martin Hutchinson based this piece on his Heartland Institute study [Fallacies of So-Called 'Sustainable' Investments](#).*

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Hutchinson has appeared on television on BBC, Fox News, Fox Business, TFN, and RTV Slovenija, and he has lectured at the Cato Institute, Texas Workforce Conference, Institute of Economic Affairs, National Economists Club, and at Princeton University.

Hutchinson is the author of the book *Great Conservatives* (2004) and the coauthor, with Kevin Dowd, of *Alchemists of Loss* (2010).

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# Russia's foreign policy does not help its economic modernization

Russia's over-ambitious foreign ventures have exacerbated the negative effects of the numerous economic headwinds it faces, Marek Dabrowski writes



## Interrelation between economic and foreign policy

In the contemporary highly interdependent world, the foreign policy of a country has an important role to play. It is connected to a country's economy; a country's foreign-policy ambitions should correspond to its economic potential, or else it can be a costly and usually counterproductive overstretch for the country.

## Russia's place in the world

Russia is a good example of an imbalance between economic potential and foreign-policy ambitions.

Russia has the largest territory in the world and is one of the two largest holders of nuclear weapons (the US is another one). It is also one of the five permanent members of the United Nations Security Council with veto power, a legacy of the Soviet Union's contribution to victory in the Second World War.

However, demographic and economic parameters put Russia in more distant positions. Its population accounts for only 2% of the world total population – and this share is systematically decreasing, due to negative population growth in Russia against the rising global population. With a population of 142 million, Russia occupied ninth position in the [world rankings](#) in 2017 – behind China, India, the US, Indonesia, Pakistan, Brazil, Nigeria and Bangladesh, but ahead of Mexico.

According to the International Monetary Fund's *World Economic Outlook* database of October 2018, in 2017 Russia's share in the world total GDP calculated in purchasing power parity (PPP) terms amounted to 3.2%, with declining tendency over time (in 2008, it amounted to 3.9%). Its share in global trade was even lower, at 1.8%.

In 2017, Russia was the sixth-largest national economy in PPP terms after China (18.2% of the world GDP), the US (15.3%), India (7.4%), Japan (4.3%) and Germany (3.3%). For comparison, the share of EU28 was 16.5%. However,

when GDP in current US dollars was taken into account, Russia occupied 11<sup>th</sup> position behind the US, China, Japan, Germany, the UK, India, France, Brazil, Italy and Canada, and only slightly ahead of South Korea.

In 2017, Russia's GDP per capita in PPP terms amounted to 46.6% of that of the US and 54.9% of Germany. When calculated at the current exchange rate the relative GDP per capita of Russia was only 18.3% of the US and 24.5% of Germany.

*In the highly interdependent modern world, a country's economy and its foreign policy are strongly linked. A country's foreign-policy ambitions should correspond to its economic potential*

## **Increasing ambitions of Russian foreign policy**

Despite its limited economic potential, Russia wants to rebuild its Cold-War-era status of global superpower. Russia therefore engages in a number of costly foreign-affairs adventures: In August 2008 Russia intervened in Georgia and officially recognised two separatist Georgian regions – Abkhazia and Southern Ossetia – as independent states.

In March 2014, Russia annexed Crimea and then supported the separatist movement in Donbas. As a result, Ukrainian authorities lost control over approximately half of Donbas, where two unrecognised territorial entities – the Donetsk and Luhansk People’s Republics – were established.

Going beyond its direct neighbourhood, one should also mention Russia’s military engagement in Syria, Sudan and the Central African Republic (Ross, 2018), support for Venezuelan president Nicolas Maduro, increasing military confrontation with NATO, support lent to populist parties and movements in Europe, alleged interference in the US presidential election in 2016 – and so on. Russia has also tried to stop the accession of the western Balkan countries to NATO and EU, according to Stronski and Himes (2019).

These foreign-policy adventures not only have been costly in a financial sense (see Table 1 below) but also led to the substantial deterioration of Russia’s political and economic relations with the US and EU – two of the three largest economic superpowers, major financial and corporate governance centres, and sources of technology and knowledge-transfer so badly needed by Russia in order to continue its economic modernisation. It is worth remembering that the EU is the largest trade and investment partner of Russia.

## **Costs of assertive policies**

In particular, the Ukrainian conflict has involved heavy direct and indirect costs for Russia, such as higher military spending, human losses, the social costs of refugee flows, aid of various kinds to rebel-controlled territories, and



so on. Aslund (2018) estimated the cost of administering Crimea and providing support to occupied Donbas at \$4 billion, or 0.3% of Russia's GDP. In addition, the cost of construction of the Crimea Bridge over the Strait of Kerch, which opened in May 2018, amounted to around \$4 billion.

Table 1 shows that Russia's military spending is higher than that of other European countries, oscillating between 3.3% and 4.1% of GDP in the 2000s and early 2010s. Military spending has increased since the beginning of the Ukrainian conflict, reaching a record-high level of 5.5% of GDP in 2016. High military spending crowds out expenditure on other public services, in particular education and health care, negatively contributing to potential economic growth. This is an argument frequently raised in the Russian economic debate (see Kudrin and Sokolov, 2017; Kudrin and Knobel, 2018).

**Table 1. Russian government military, education and health expenditure, percent of GDP, 2000-17**

Expenditure item	2000	2004	2008	2009	2012	2014	2015	2016	2017
Military expenditure	3.6	3.5	3.3	4.1	3.8	4.1	4.9	5.5	4.3
Government expenditure on education	2.9	3.5	4.1	...	3.8	...	...	...	...
GG health expenditure	3.2	3.0	3.2	3.7	3.4	3.5	3.4	...	...

Source: World Bank World Development Indicators

## Sanctions and counter-sanctions

Annexation of Crimea and support of separatists in Donbas led to international sanctions against Russia, initiated by the US and the EU in 2014. Australia, Canada, Iceland, Japan, Norway, Switzerland, and most EU candidate countries followed suit, to various degrees. Sanctions<sup>1</sup> involve four groups of measures (Russell, 2016): political/diplomatic (Tier 1), against individuals and entities (Tier 2), economic sanctions (Tier 3) and those related to Crimea.

The Tier 1 sanctions excluded Russia from the G8, suspended negotiations on Russia's accession to the Organisation for Economic Cooperation and Development and the International Energy Agency, as well as the semi-annual EU-Russia summits, negotiations on a new EU-Russia treaty and EU-Russia visa liberalisation, the NATO-Russia cooperation, and the voting rights of the Russian delegation to the Parliamentary Assembly of the Council of Europe.

As a result, Russia became partly isolated on the international scene and its role in shaping global political and economic order diminished. Such an effect contradicts its declared ambitions.

The Tier 2 sanctions are targeted against named individuals and companies – for example, those engaged in business in Crimea. Measures include visa bans and asset freezes.

In the economic sphere (Tier 3), sanctions have concentrated on three areas:

- A ban on medium- and long-term financing of the largest state-owned banks and companies;
- A ban on trade in military and dual-use equipment, and in some oil exploration and production equipment and services;

- A ban on trade, including tourism, travel and communication services, with the annexed Crimea, prohibition on the use of Crimean ports and involvement in investment activity in this territory.

In April 2018, the US adopted the Countering America's Adversaries Through Sanctions Act, which partly codified the existing sanctions but also introduced new ones against selected Russian business-people and companies, in response to Russia's alleged interference in the US 2016 presidential election.

Another wave of US sanctions followed in August 2018, this time in response to the attempted assassination in the United Kingdom of a former Russian intelligence officer. In early 2019, the US Congress is discussing additional sanctions in response to the blockade of the Kerch Strait by Russia (Aslund, 2019).

In August 2014, Russia responded to the sanctions with a ban on imports of most food products from countries that adopted sanctions against Russia. Since 2014, Russia has also started to introduce a series of economic sanctions against Ukraine, the most significant being the revocation of the bilateral free trade agreement (FTA) on January 1<sup>st</sup> 2016 (in response to the entry into force of the EU-Ukraine FTA).

Between November 2015 and June 2016, Russia also adopted a ban on food imports from Turkey and several other economic sanctions against this country in response to the downing of a Russian fighter jet by the Turkish air force in the Syria-Turkey border area.

Assessing the impact on the Russian economy of these sanctions and counter-sanctions is not an easy task because of the difficulty of disentangling the effects of sanctions and counter-sanctions from other factors, such as the collapse of the oil price and other commodity prices in mid-2014 (see Korhonen *et al*, 2018), a poor business climate and declining working-age population.

Most available estimates found an annual negative impact ranging from 1-2% of GDP. Overall, sanctions and counter-sanctions aggravated the 2014-16 currency crisis and the 2015-16 recession (Dabrowski and Mathieu Collin, 2019) and since then they have slowed down the post-crisis recovery of the Russian economy.

### **Negative domestic consequences**

Financial and sectoral sanctions limit Russia's growth potential by discouraging investment, both domestic and foreign. The negative effects apply not only to directly sanctioned sectors such as the defence and oil industries.

Indirectly, the sanctions, counter-sanctions and deteriorating economic and political relationships with the US and EU negatively affect the entire framework of economic and research cooperation with the West, increase the role of military and security agencies, and limit civil and economic liberties.

On the economic front, sanctions and counter-sanctions have strengthened protectionism and economic nationalism. For example, the ban on food imports from the EU, US and other countries introduced by Russia in August 2014 was, in fact, implementation of much earlier proposals of an agriculture lobby for stronger protection against imports, justified on the grounds of the country's food security (Korhonen *et al*, 2018).

The same can be said about numerous government import-substitution programmes launched since 2015 (Connolly and Hanson, 2016). They have led to additional fiscal and quasi-fiscal burdens, trade distortion, state capture by influential special interest groups and political corruption – and often they have contradicted Russia's commitments at the World Trade Organization.

Among various restrictive measures, Russia has extended limitations on non-resident ownership in some sectors – for example, the media and industries that may be important for national defence and security – and access of

foreign firms to public procurement – for example of medical equipment. At the beginning of 2019, the Duma (the lower house of the Russian Parliament) is working on a law that aims to create a separate 'Russian internet'. All these protectionist trends contribute to the deterioration of the already-poor business and investment climate in Russia.

### **How foreign policy can help Russian economy?**

The Russian economy faces several headwinds, such as shrinking working-age population, difficulties in diversifying out of hydrocarbon dominance, poor business and investment climate, and declining or stagnating productivity (Dabrowski and Mathieu Collin, 2019). Overcoming those headwinds and returning to productivity growth and GDP-per-capita convergence with high-income countries will require, among other things, a reassessment of the goals and means of Russia's foreign and security policies.

First, foreign-policy ambitions should remain in line with Russia's modest economic potential. Second, foreign policy should rely on collaborative rather than confrontational measures. Third, the main foreign policy goal should be to support continuous modernisation and economic development of the country.

In turn, the latter depends to a large degree on global economic growth, stability of international commodity and financial markets, and smooth economic and technological cooperation with major partners – including the US and EU. Therefore, Russian foreign policy should be contributing to global stability and uninterrupted functioning of the liberal global economic order, rather than challenging them. ■

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# “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.



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A white business jet aircraft is parked on a tarmac. The aircraft is a twin-engine turboprop, viewed from a low angle. The background is a clear sky with some light clouds. The text is overlaid on the image.

# EBACE2019: showcasing innovation, investment in business aviation

Ed Bolen reviews EBACE2019, which offers an opportunity to view a wide array of aircraft and aviation products in a single location

**R**eaders of *World Commerce Review* know firsthand the value of business aviation in providing safe, efficient and secure transportation for companies of all sizes throughout Europe, and around the world. Since 2001, the European Business Aviation Convention & Exhibition ([EBACE](#)) has been a must-attend show for business aviation professionals and end-users, particularly those interested in seeing the latest in aircraft design and technology.

Thousands of business leaders, government officials, manufacturers, flight department personnel and all manner of people involved in nearly every aspect of the industry will meet for the 2019 edition of EBACE, taking place 21-23 May at the Palexpo convention hall and the Geneva International Airport (GVA) in Geneva, Switzerland.

Sponsored by the European Business Aviation Association (EBAA), the leading association for business aviation in Europe, and the National Business Aviation Association (NBAA), the leading voice for the industry in the United States, EBACE2019 will offer a convenient opportunity to view a wide array of aircraft and aviation products in a single location and host a wide variety of exciting announcements for new products and features.

Delegates attending EBACE2019 will be able to speak directly with representatives with hundreds of exhibitor companies including aircraft manufacturers and financiers, service providers, legal specialists and more throughout three exhibit halls. Attendees at all experience levels will find something exciting and new on the exhibit floor, static display and high-quality education sessions focused on issues of particular importance to European business aviation users and operators.

A short distance away at GVA, more than 50 of the most advanced business aircraft available will be on static display – ranging from mid-range and intercontinental jets, to piston-engine and turboprop aircraft and helicopters – providing attendees the valuable opportunity to examine a vast range of aircraft of all sizes, and for all missions.

This year's EBACE will host several recently and soon-to-be-certified business aircraft, including long-range intercontinental business jets such as Bombardier's Global 7500, the Gulfstream G500 and G600 and the super-midsize Cessna Citation Longitude. These exciting aircraft will be joined by the latest offerings from renowned European manufacturers such as Airbus, Dassault Falcon Jet and Pilatus, as well as global aircraft OEMs including Bell, Gulfstream and Embraer.

*As in years past, EBACE2019 will also provide an important venue to continue the vital dialogue between regulatory authorities and business leaders in the region about the benefits of business aviation*

As in years past, EBACE2019 will also provide an important venue to continue the vital dialogue between regulatory authorities and business leaders in the region about the benefits of business aviation. The event will also feature an impressive roster of speakers from across the European aviation spectrum who will offer their thoughts about the state of business aviation across the continent.

### **Sessions examine industry new technologies, trends**

While EBACE has always served as an impressive venue to showcase the latest offerings throughout the industry, this year's event will also cast an eye towards the future, with a series of informative and forward-looking education sessions addressing a variety of leading-edge technologies.

For example, the EBACE2019 Innovation Zone – centrally located on the Palexpo exhibit floor – will feature a detailed discussion about the move toward electrically powered aircraft that has gained momentum within the aerospace industry in recent years, and holds promise for many business aviation applications, particularly in Europe.

In addition to environmental benefits including reduced noise and pollution, the operational profile for electrified aircraft matches well to the short-distance intercontinental trips that are common across Europe. EBACE2019 will bring together industry experts to discuss current limitations and potential technological and regulatory changes that business aviation will need to consider in order to benefit from these new advancements.

Other Innovation Zone sessions will examine the cost, security and data sharing benefits of blockchain technology; current and future applications for artificial intelligence and machine-learning technologies within the industry; and the evolving mobility landscape, including the question of how emerging transportation modes, such as 'hyperloops' might augment business aviation operations, in providing efficient transport.

These discussions are among the more than a dozen scheduled education sessions throughout EBACE2019. Additional presentations will address the state of the industry across Europe, the impact from the ongoing 'Brexit' situation and the need to maintain access to airports used by business aviation throughout the continent, among many other topics of interest to business aviation operators in Europe and around the globe.

### **Promoting environmental responsibility**

Additionally, this year's event will showcase the industry's commitment to sensible environmental practices, by building upon last year's debut of the *Business Aviation Guide to the Use of Sustainable Alternative Jet Fuels* (SAJF) focused on raising awareness and adoption of available and emerging alternative jet fuel options.

The message is well suited to the location, given Geneva's Palexpo convention center recently achieved compliance with the ISO 20121:2012 standard outlining stringent environmental sustainability management system requirements for event hosting, including the venue's environmental sustainability requirements for vendors and exhibitors.

In fact, among many such measures in place at EBACE include optimized show equipment and transportation alternatives to reduce the number of vehicles required on-site, and extensive use of recycled and reusable materials for show carpet, exhibit displays and event signage. This focus on sustainability extends to GVA, which recently achieved the highest level (3+) in the Airport Carbon Accreditation campaign led by Airports Council International Europe. The third-busiest business aviation airport on the continent, GVA was also the 37th airport in the world to achieve carbon neutrality.

### **Highlighting industry's resiliency**

Europe's business aviation community has continually demonstrated its significance and resilience in the face of



multiple regional and global challenges. This year's EBACE will once again demonstrate this strength, as well as the growing relevance of business aviation in Europe.

Simply put, if you use aviation for business, you will want to attend [EBACE2019](#). We hope to see you in Geneva for this premier event, and an important opportunity to further the development of business aviation across Europe, and around the globe. ■

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