

WORLD COMMERCIAL REVIEW

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SOUND AT LAST? BOLTON
ET AL. ASSESS A DECADE OF
FINANCIAL REGULATION

TOBIAS ADRIAN CONSIDERS
THE IMPACT OF DIGITAL
CURRENCIES ON THE
FINANCIAL SYSTEM

REFORMING THE GLOBAL
RESERVE SYSTEM. JOSÉ
ANTONIO OCAMPO
DISCUSSES

THE GLOBAL TRADE PLATFORM

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elcome to the latest *WCR* Finance ePub. This publication has been prepared in response to readership demand for an overview of the financial sector in these turbulent and unique times.

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

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How to ensure effective sustainable financing of international development

The world is committed to the development of low-income countries. Christine Lagarde considers the obstacles that must be overcome

Our focus today is on sustainability. Sustainable debt for sustainable growth—and, may I add, on a sustainable planet and for a sustainable future.

The challenge of attaining the SDGs

We are all committed to see low-income countries make decisive and lasting advances in development. This commitment is embodied in the Sustainable Development Goals, or SDGs—the noble trifecta of economic prosperity, social inclusion, and environmental sustainability. Attaining the SDGs is both an economic and ethical imperative.

Yet we face a steep uphill climb. Our work at the IMF has shown that many countries need to significantly scale up spending to meet the SDGs by 2030. The additional spending needs in vital areas such as health, education, and priority infrastructure represent as much as 15 percentage points of GDP on average in low-income developing countries—which is equivalent to about half a trillion US dollars in 2030. This is clearly a considerable challenge.

How can this be financed in a way that is sustainable? This is the key question. The first step begins at home—raising more domestic revenue, making spending more efficient, reducing corruption, and improving the business environment.

We believe that countries can raise as much as 5 percentage points of GDP in additional tax revenue—ambitious, but doable. But this alone will not be enough. Developing countries will also need support from the international community—from bilateral donors, international institutions, and the private sector.

On the latter: it is high time for the private sector to embrace a greater sense of social responsibility, focusing more on long-term development and less on short-term profit. Fortunately, we are seeing far greater interest in ‘impact

investing' and financial instruments that embrace environmental, social, and governance issues. This certainly bodes well for the SDGs.

The financing conundrum

We also need to talk about debt financing, which has become again an issue of concern. Let me drill down a little on this topic. On one level, of course, there is nothing wrong with borrowing for development—if it is done sustainably. Here, let me share some good news and some not-so-good news.

Over the coming decade, mobilizing financing to support the SDGs will be one of the most important challenges faced by the global community. But financing needs to be more sustainable than before

First, the good news. In recent years, low-income countries have been able to access more financing. This partly reflects relatively easy global financing conditions. More importantly, we have also seen a diverse group of official creditors step up to make funding available, and sometimes on a very significant scale in support of potentially transformative infrastructure investment.

China's Belt and Road Initiative has attracted considerable attention in this regard. The Asian Infrastructure Investment Bank (AIIB) has also emerged as an important source of financing, and the Islamic Development Bank's capital was more than tripled recently.

Now for the not-so-good news. Unfortunately, not all borrowers have managed this increased financing well, and others have been hit by significant economic shocks. The result has been a rapid rise in the median debt burden to 47 percent of GDP in 2018 for low-income developing countries. The rise has been particularly concentrated in commodity producers.

Forty-three percent of low-income developing countries are currently assessed at either high risk of debt distress or are already in debt distress, compared with 21 percent in 2013. So how can we get past the conundrum that countries need to spend more while their macroeconomic stability is in jeopardy?

International initiatives

As I survey the landscape, I do see a lot of efforts in the global community to find solutions that contain debt vulnerabilities.

Just to give some examples:

- The German Presidency of the G-20 initiated the Compact with Africa. It stressed the need for better public financial and macroeconomic management, as well as legal and regulatory frameworks to encourage private investment and strengthen borrowing countries' ability to better manage debt.
- China just announced a new framework for evaluating debt sustainability in Belt and Road recipients—closely aligned with the framework employed by the World Bank and the IMF. We welcome this initiative by an important official creditor.
- And Caribbean countries have been exploring ways to adapt their debt instruments to build resilience against shocks—with the support of the Paris Club, the World Bank, and the IMF.

These are all excellent examples of multilateralism at work, of global solidarity. We need to continue to push these initiatives forward together.

The role of borrowing countries

Of course, borrowing countries themselves have a role to play, first and foremost by raising the payoff from public investment. Moving from the lowest to the highest public investment efficiency quartile could double the impact of investment on output, and thereby better underpin debt sustainability.

Strengthening debt management will also be crucial. This can be quite tricky. As debt instruments get more complicated, debt management capacity needs to become more sophisticated. Yet today, only 40 percent of countries meet basic standards for debt recording, while just a third meet standards for reporting and monitoring of guarantees.

Technical assistance will be critical here. Many of you have made contributions to the World Bank-IMF Debt Management Trust Fund, to support this kind of capacity building, and I am extremely grateful for your support.

Backed by this Trust Fund, we will scale up our assistance over the next five years, with the aim to double it. Better debt management also leads to greater transparency. This is fundamental to sustainable financing.

The role of creditors

Let me now talk about the role of creditors, who have a vital role to play in encouraging greater transparency. As we have seen in Mozambique, private lenders can effectively facilitate hidden debt. Even for official creditors, non-disclosure agreements or complicated financing modalities can work against transparency.

I therefore welcome the work being done by the Institute of International Finance (IIF) on *Principles for Debt Transparency* of private creditors. I also welcome the G-20's self-assessment relative to its operational guidelines for sustainable financing. I encourage all G-20 members to participate. It is vitally important to push ahead with further reforms. The new creditor and instrument landscape is making it much harder to help countries restructure their debt.

Recent cases, such as the Republic of Congo and The Gambia, showed that restructurings can be drawn out, in part because we cannot rely on established creditor coordination mechanisms. And there is no one-size-fits-all solution here. In each of these cases, there was a different set of creditors. There is no one creditor to single out; it is a deeper and broader problem. Yet there are potential solutions on the table.

The role of the Paris Club

Most importantly, the Paris Club can play an important role in coordinating debt resolution because it incorporates

best practices and has a wide membership—recently expanded to include Korea and Brazil. Wider membership of the Paris Club, including new official and plurilateral creditors, could help secure more rapid and coordinated debt resolutions.

Short of that, any debt restructuring efforts involving non-members would do well to closely follow the tested rules that Paris Club members have used for many years.

Conclusion

Let me conclude by mentioning the role of the IMF and the World Bank in all of this. Our two institutions have been collaborating closely on a detailed multi-pronged work program to address debt vulnerabilities. This includes strengthening debt analytics to help lenders and borrowers better understand risks. It also includes improving the quality, comprehensiveness, and transparency of debt data; and strengthening countries' capacity to manage debt.

Over the coming decade, mobilizing financing to support the SDGs will be one of the most important challenges faced by the global community. But financing needs to be more sustainable than before.

We look forward to working with the international community to develop and implement the ideas to resolve these issues, and welcome today's forum to help advance our efforts.

After all, it is about the flourishing of all people in a way that respects the limits of nature. What can be more important? We have identified and acknowledged the challenge, now we must act together to deliver. ■

Christine Lagarde is Managing Director of the International Monetary Fund

This article is based on a speech [delivered](#) at the Paris Forum, May 7, 2019



Avoiding the storm: climate change and the financial system

Climate change poses significant risks to the economy and to the financial system, Sarah Breeden asserts, and calls for action today

My message is simple. Climate change poses significant risks to the economy and to the financial system, and while these risks may seem abstract and far away, they are in fact very real, fast approaching, and in need of action today. In short, there are storm clouds on the horizon and the financial system needs to act now to plot a new course to safer waters. To do that we will need three things. Firstly, a destination. Secondly, an able crew. And finally, a nautical chart – or map - to get us there.

We have the destination. More than 190 countries have signed the [2015 Paris agreement](#) and set a goal to limit average global temperature rises to well below 2 degrees above pre-industrial levels. We even have a broad course to follow – that of a smooth and orderly transition.

We have also assembled a crew. Managing the transition to a low carbon economy is a global challenge that requires a global response. And so a coalition of the willing among central banks and supervisors have come together to form the [Network for Greening the Financial System](#) (NGFS).

In addition, and closer to home, we are working domestically with industry through the [Climate Financial Risk Forum](#) (CFRF) to build intellectual capacity and establish best practice in how to manage the financial risks from climate change.

What we are missing is the map. Getting us to our destination requires an understanding of what risks lurk in these deep waters and what future winds may buffet us, so we can make better decisions today. We need more data, greater disclosure, better analytical toolkits, advanced scenario analysis and new risk management techniques to help identify the hidden dangers on our journey. Of course there are opportunities potentially in front of us, too. Financing that orderly transition to a low carbon economy holds the promise of favourable tailwinds and smooth sailing.

But how do we begin to draw this map? Climate change is an unprecedented challenge and, I am sorry to say, there are no existing charts for us to follow.

We therefore need to start with the very basics - understanding how, and on what scale, climate change creates risks for the financial system.

How the financial risks from climate change affect the financial system

The financial risks from climate change manifest through two channels – physical risks and transition risks.

We can already hear distant thunder, but we must not wait for the storm to hit. We need to work together internationally and domestically, private sector and public sector, to achieve a smooth and orderly transition

Physical risks arise from damage to property, land and infrastructure from catastrophic weather-related events and broader climate trends such as heatwaves, hurricanes, droughts, floods and rising sea levels.

These are not just risks for the future. Inflation-adjusted insurance losses from these events have increased fivefold in [recent decades](#). And these physical risks affect banks and other financial institutions too. For example, according to [analysis by ClimateWise](#), the average annual loss on UK residential mortgages from flood risk is expected to more than double by 2050 in a 4 degree world. And smaller lenders with geographic concentrations would be more at risk. The risk to the safety and soundness of the firms we supervise is clear.

Transition risks arise from changes in climate policy, technology and market sentiment as we adjust to a lower-carbon economy. The need to transition is widespread, affecting not only energy companies but also transportation, infrastructure, agriculture, real estate to name just a few. The implied change in energy costs from the transition will have a significant effect on many businesses. And so banks that have provided loans to those companies and investors that own their securities may find themselves with unexpected losses.

The timing and form of transition is inherently uncertain. But here, too, [risks are already materialising](#). Tightening energy efficiency standards are affecting property markets. And credit risks associated with the low-carbon transition are already emerging in the automotive and energy sectors.

The distinctive nature of the risk

It is therefore clear to us at the Bank that climate change creates financial risks that are core to our mandates of safety and soundness and financial stability. But we have also been clear that the financial risks that climate change creates are distinctive and require a different approach if they are to be managed effectively.

First the risks are far-reaching in breadth and scope. They will affect all agents in the economy, in all sectors and across all geographies. Their impact will likely be correlated, and non-linear. They will therefore occur on a much greater scale than other risks.

Second, the risks are eminently foreseeable. I cannot tell you now exactly what will happen and when. But I can say with a high degree of certainty that some combination of physical and transition risk will materialise at some point in the future. Uncertainty about what will happen cannot lead to inaction and inertia. Rather we must develop different ways of managing the risk.

Third - and for me this is key - the size of those future risks will be determined by the actions we take today. The carbon released today is creating the physical and transition risks of tomorrow. Climate change therefore represents the tragedy of the horizon: by the time it is clear that climate change is creating risks that we want to reduce, it may already be too late to act.

That need to act most obviously includes government through climate policy. But since the financial risks that climate change creates are to be managed in all future states of the world, it is incumbent upon financial firms, and central banks and supervisors, to act too.

Sizing the risk

How well placed are we to measure these far-reaching, foreseeable financial risks that require action today? To return to our metaphor of the storm – do we know if we are facing a near gale or a hurricane?

Studies show that average global incomes could be significantly reduced, perhaps by as much as one-quarter by the end of the century, if limited or no action is taken to reduce carbon emissions. Global averages of course mask

significant differences across regions and sectors. And most estimates are in my view conservative – particularly since the models are partial, heavily dependent on assumptions, and do not capture well the non-linearities that are a key feature of the most recent climate analysis.

The good news is that these risks can in principle be avoided. Let me be clear, the scale of transition is significant. But it need not create substantial costs across the global economy as a whole.

There will of course be winners and losers. Studies have focused on the impact from the transition on the financial system through ‘stranded assets’ that turn out to be worth less than expected, probably zero in the case of unburnable carbon. The estimated losses are large – \$1 trillion-\$4 trillion when considering fossil fuels alone, or up to \$20 trillion when looking at a broader range of sectors.

Even at the bottom ends of these ranges, losses represent a material share of global financial assets. A climate Minsky moment, where asset prices adjust quickly with negative feedback loops to growth, seems possible. That underlines why the financial system needs an early and orderly transition. And why we need to change course now.

The Bank of England’s response

Now we have established that the financial risks from climate change are significant and relevant to our objectives, what is the Bank of England doing about it?

We are of course considering the implications of climate change for our own operations, taking account of the financial risks from climate change whilst ensuring the purpose of our core operations as a central bank is preserved.

In our work with the financial system more broadly we are taking a two-pronged approach, tackling the issue top-down and bottom-up.

Bottom-up: supervisory expectations, CFRF, disclosure

The action, or lack of action, of individual institutions will be critical in determining whether climate-related risks are well managed.

To that end, today, and following several months of consultation, we became the first regulator in the world to publish supervisory expectations that set out how the banks and insurance companies we regulate need to develop an enhanced approach to [managing the financial risks](#) from climate change.

Our expectations cover governance, risk management, scenario analysis, and disclosure. They are designed to ensure firms take a strategic approach, led by the Board, and with clear accountability. The approach should be holistic, forward-looking, embedded in business-as-usual risk management but grounded in the long-term financial interests of the firm.

We have deliberately not been prescriptive in our expectations, recognising that our understanding of this risk is immature but that it needs action now. Over the next year or so, as tools and expertise develop, we will however embed more granular requirements into our policy, to bring industry in line with our evolving expectations.

To support this development of best practice, we have established the UK Climate Financial Risk Forum (CFRF), co-chaired by the Prudential Regulation Authority and the Financial Conduct Authority. The forum brings together a wide range of industry participants (banks, insurers, the LSE and asset managers) as well as regulators. We have

established four workstreams – disclosure, risk management, scenario analysis and innovation – each of which will help us put greater detail on our map.

The Bank supports the disclosure of climate risks by firms in line with standards set out by the [Task Force on Climate-related Financial Disclosures](#) (TCFD).

Disclosure by firms is critical if the financial system is to be able to weigh risks and direct investment accordingly. It is essential that that disclosure is forward-looking, speaking to future risks and opportunities and not just current emissions. Speaking personally, I cannot see that we will be able to disinvest our way to a low carbon economy. And we need to get to a position where we have a better basis for consistent comparisons across different firms.

Top-down - scenario analysis, BES, stress testing

Let me be clear this is just the start of our voyage. To be able to judge whether we are sufficiently well prepared for the future storms - to see whether a change in course or greater financial resilience is required - we need to look forwards not backwards, and we need to consider the position of the system as a whole.

Measuring these future risks from climate change to the economy and to the financial system is a complex task. A myriad of possible climate pathways – with different physical and transition effects – need to be translated into economic outcomes and financial risks looking ahead over many decades.

To simplify that challenge, we need to focus not on what will happen but what might happen. To do that we can use scenario analysis – data driven narratives that help anchor our assessments of risk. We might think of that as investigating a small number of different courses that we could follow, in order to determine which delivers the safest passage.

Using scenario analysis to paint a picture of the risks of continuing along the current climate trajectory creates a clear strategic imperative to act. Considering a scenario where our climate goals are met highlights the changes that will be needed to support a transition to a low carbon economy.

Both expose the customers, sectors and geographies that are vulnerable to physical and transition risks and therefore highlight the areas where action is required.

Analysis of a disorderly transition - with sudden, unanticipated and discontinuous effects, perhaps prompted by the greater occurrence of extreme weather events – will demonstrate greater risk. That should incentivise financial firms to seek to pull forward the transition so that they are ahead of and in control of it - directing their capital to those that are resilient and avoiding those that are not.

By taking different decisions today, participants in the financial system are able to minimise their future financial risks. But while necessary, that may not be sufficient to deliver a financial system that is resilient to the financial risks from climate change.

Instead, we need also to consider this risk at the level of the system. In particular, do the actions of individual institutions in aggregate deliver the smooth climate pathway that their individual plans assume? And if they do not, what further action is required? In this way we can begin to stress the resiliency of financial system to the risks from climate change.

To that end, the Financial Policy Committee and the Prudential Regulation Committee here at the Bank of England will consider including climate related factors in a future Biennial Exploratory Scenario. The PRA will also ask UK insurers, as part of its market-wide insurance stress tests this year, to consider how their businesses would be

affected in different physical and transition risk scenarios. And the NGFS plans to set out voluntary guidelines for how central banks can use scenario analysis to assess system-wide financial risks from climate change.

Scenario analysis thus bridges the gap between our top-down and bottom-up understanding of risk. That supports different actions by financial firms, central banks and supervisors today, and ensures that everyone is steering a safer course to avoid that otherwise impending storm.

Opportunities

My natural focus as a central banker is on the risks. But let me spend a brief moment on the opportunities.

The investment needs to [finance this transition](#) are significant – an estimated \$90 trillion (almost five times US GDP) by 2030. This presents substantial opportunities for the financial sector to develop new products and services to mainstream green finance.

To support that goal, we might well need to develop new standards and classifications to identify which economic activities contribute to the transition to a low-carbon economy. With buoys pointing the way, we will be better able to identify the investment and lending decisions that will support a smooth and orderly transition.

Conclusion

Where does this leave us? I set out at the beginning our need for a map to get us to our destination. And I have set out how we at the Bank of England have begun to draw that map and where further cartography is in train.

What I did not mention is that the economy and the financial system appear to me to be like super-tankers rather than high-speed catamarans in the America's Cup. To change course, therefore, we need early action, a sustained

effort and a recognition that it is better to be roughly right now not precisely right when it is too late. We can already hear distant thunder, but we must not wait for the storm to hit. We need to work together internationally and domestically, private sector and public sector, to achieve a smooth and orderly transition.

The window for that orderly transition is finite and closing. And our work to seize that opportunity could not be more important. Indeed it is not an overstatement to say that the future of our planet depends on it.

All hands on deck. ■

Sarah Breeden is Executive Director, International Banks Supervision, at the Bank of England

This article is based on a speech [delivered](#) at the Official Monetary & Financial Institutions Forum, London 15 April 2019

Evolution or revolution: an afterword

After the Great Recession Olivier Blanchard and
Lawrence Summers believe that a major rethinking of
macroeconomic and fiscal policy is in order

The changes in macroeconomic thinking prompted by the Great Depression and the Great Inflation of the 1970s were much more dramatic than have yet occurred in response to the events of the last decade. This column argues that this gap is likely to close in the next few years as a combination of low neutral rates, the re-emergence of fiscal policy as a primary stabilisation tool, difficulties in hitting inflation targets, and the financial ramifications of a low-rate environment lead to important changes in our understanding of the macroeconomy and in policy judgements about how to achieve the best performance.

MIT Press released last week a volume containing the papers and discussions we organised at the Peterson Institute conference 18 months ago agnostically titled, *Evolution or Revolution? Rethinking Macroeconomic Policy after the Great Recession* (Blanchard and Summers 2019). While matters are far from clear, the events of the last year and a half lead us to regard secular stagnation as a significant threat to advanced countries.

From somewhat different perspectives (Blanchard 2019, Rachel and Summers 2019), we have increasingly come to believe that a major rethinking of macroeconomic policy, and in particular of fiscal policy, is in order.

We had written in our overview paper that:

“At a minimum ... policies may need to become more aggressive both ex-ante and ex-post with a rebalancing of the roles of monetary, fiscal, and financial policies. While low neutral rates decrease the scope for monetary policy, they increase the scope for fiscal policy. Think of such rebalancing as evolution. If, however, neutral rates become even lower or financial regulation turns out to be insufficient to prevent crises, more dramatic measures including larger fiscal deficits, revised monetary policy targets or sharper restrictions on the financial system may be needed. Think of this as revolution. Time will tell”

We are struck by several changes in economic conditions since the time when we wrote.

First, neutral real rates as judged by markets or financial observers have not increased and have likely declined even as the crisis has receded. The notion that low rates largely reflected the after-effects of the financial crisis and would slowly fade away has simply proven wrong.

Evolution or revolution? The choice of label may depend as much on the temperament of the labeller as on an objective reading of economic conditions

In the US, 10-year real interest rates have declined significantly in recent months and are about where they were 18 months ago, despite the passage of major tax cuts. In response to concerns about the possible weakening of the economy and the absence of inflation pressure, the Fed chair has signalled that the current tightening cycle may be over, with short rates below 2.5%. The markets regard the next central bank move as considerably more likely to be a rate cut than a rate increase.

In Europe, in response to economic weakness, the date at which interest rates will return to positive territory has been pushed back several years and discussion has shifted to restarting quantitative easing. In both Germany and Japan, indexed bonds suggest negative real rates as a feature of economic life for the next generation.

Second, fiscal policy has continued to be expansionary in Japan and has turned strongly expansionary in the US and mildly expansionary in Europe, without leading to anything like overheating. Despite this fiscal stimulus, inflation has barely reached the Fed's inflation target, and market expectations are for less than 2% inflation even looking out 30 years.

In the euro area and in Japan, inflation remains below target, with little indication that the target will be met any time soon. We see it as a strong indication that, despite aggressive macroeconomic policies, output is still below potential, at least in the euro area and in Japan.

To us, these facts lead to the inevitable conclusion that fiscal policy will have to play a much bigger role in the future than it has in the past. Surely, there is not enough space, even in the US, for monetary policy to respond adequately to a standard-sized recession.

Recall that the typical US recession has been associated with a 500-basis-point decrease in policy rates – a decrease twice as large as the value of the policy rate today. But the problem may be more recurrent and more fundamental. Aggregate demand may remain chronically low, implying sustained low neutral rates.

The zero lower bound may be binding for long periods of time, implying a lasting need for sustained fiscal policy help and a more dramatic redistribution of roles between monetary and fiscal policy. We should be clear here.

Higher public debt per se has welfare costs, although, as one of us has shown, the low rates are a signal that these welfare costs of higher debt may be limited. But, in the current environment, to the extent that higher deficits can help reduce or eliminate the output gap, the benefits may well exceed these costs.

The long zero lower bound episode in Japan is highly instructive. Since 1999, the policy rate has remained at or very close to the zero lower bound. The size of the balance sheet of the Bank of Japan has been multiplied by more than five. On the fiscal side, Japan has run an average budget deficit of 6% of GDP, and net debt has increased by nearly 90% of GDP.

Yet, the zero policy rate, aggressive QE, and dramatically expansionary fiscal policy have not even succeeded in maintaining output at potential. For a long time, economists looking at Japan pointed to mistakes in policy and excessive reliance on deficits; it is now clear that the Japanese macroeconomic response was, on net, the right one.

One may argue that these issues only arise when a country is at the zero lower bound, and that the US is now away from danger and the need for such extreme policies. This would be wrong.

First, even when rates are positive but close to zero, the risk that a slowdown in demand may take the economy back to the zero lower bound will lead households and firms to worry, leading to even lower demand and a higher likelihood of running into the bound.

Second, even if the zero lower bound could somehow be avoided – say, by prohibiting cash and paying negative interest on money balances – very low rates appear to be often associated with excessive risk taking, ranging from excessive leverage to an increase in the frequency of bubbles.

Third, there are good reasons to believe that the effect of interest rates on aggregate demand is weaker the lower the rate; indeed, the argument has been made that there is a ‘reversal rate’ below which the effect of the rate changes sign, and lower rates actually decrease lending.

Fourth, looking at the long run, low rates may allow zombie debtor firms to remain in existence too long, slowing down reallocation and possibly growth.

We do not consider the evidence for each of these factors to be overwhelming, but together they provide a case for keeping neutral rates reasonably high, and by implication being willing to run the appropriate expansionary fiscal policy to sustain demand.

This in turn raises the question of how to coordinate fiscal and monetary policy. That they could work in opposite directions was made clear in the US, when the Fed bought long bonds to decrease their yield and the Treasury used the opportunity to lengthen the maturity of government debt. Coordination in this context, however, raises delicate issues.

One of the main advances in monetary policy has been to give independence to the central bank, giving it an inflation target and letting it achieve it on its own. Can this remain the case if both fiscal and monetary policy must work together to achieve full employment? The flat slope of the Phillips curve makes it very appealing to go for time-inconsistent policies, to risk overheating at the cost of apparently limited inflation in the short run. Can the danger be avoided?

We now turn to even more exotic questions, triggered by Japanese developments. Net government debt has now reached 150%. So far this has happened with no increase in interest rates, but were investors to worry and require a larger spread, the higher the debt, the higher fiscal adjustment required to avoid a debt explosion. This raises the question of how to reduce that risk.

One way is to increase the maturity of the debt, so that the increase in interest rates affects interest payments only over time, giving more time for the government to adjust.

Another is to rely more on implicit, non-tradable debt (for example, giving a larger role to pay-as-you-go social security, which is clearly immune to sudden stops).

Yet another is to ask the private sector to take on more of the debt. In general, because of its power to tax, the government is best placed to take on debt, but one must wonder whether this remains true at Japanese levels of public debt. One can think of measures – perhaps even distortionary measures – giving incentives to households to save less and to firms to invest more. The distortions may be less costly than the risks of very high public debt.

Evolution or revolution? The choice of label may depend as much on the temperament of the labeller as on an objective reading of economic conditions. We noted in our chapter in the recently published volume (Blanchard

and Summers 2019) that both the Depression and the Great Inflation of the 1970s led to dramatic changes in macroeconomic thinking – much more dramatic than have yet occurred in response to the events of the last decade.

We think it is increasingly likely that this gap will close in the next few years as a combination of low neutral rates, the re-emergence of fiscal policy as a primary stabilisation tool, difficulties in hitting inflation targets, and the financial ramifications of a low-rate environment lead to important changes in our understanding of the macroeconomy and in policy judgements about how to achieve the best performance. ■

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Sound at last? Assessing a decade of financial regulation

Bolton et al argue that despite clear improvements in financial regulation and supervision since the global financial crisis, there is still work to do in several crucial areas and political constraints may bite

While the decade since the Global Crisis has seen clear improvements in financial regulation and supervision, there is still work to be done in several crucial areas, and political constraints may bite. This column introduces the first report in a new series on *The Future of Banking*, which tackles three important areas of post-crisis regulatory reform: the Basel III agreement on capital, liquidity and leverage requirements; resolution procedures to end 'too big to fail'; and the expanded role of central banks with a financial stability remit.

What has changed since the 2007-2009 crisis to ensure that the financial system is sound at last? Is regulatory reform going in the right direction? Has it run its course?

One major challenge for regulatory reform is to gather the necessary political support to move it forward. Regulators need to have enough powers to deal with major crises. However, the unpopularity of measures for dealing with crises has led several jurisdictions to curtail the power of regulators to respond, with the aim of 'ending bailouts forever'.

For example, Ben Bernanke, Timothy Geithner, and Henry Paulson (the latter two both former US Treasury secretaries) stated in September 2018 that *"... in its post-crisis reforms, Congress also took away some of the most powerful tools used by the FDIC [Federal Deposit Insurance Corporation], the Fed and the Treasury. Among these changes, the FDIC can no longer issue blanket guarantees of bank debt as it did in the crisis, the Fed's emergency lending powers have been constrained, and the Treasury would not be able to repeat its guarantee of the money market funds. These powers were critical in stopping the 2008 panic"* (Bernanke et al. 2018).

In the euro area, political constraints are delaying the completion of the Banking Union, including a common deposit insurance scheme and a backstop for the banking system. There is a danger that the unrealistic

commitment not to use public money, even in the face of a macroeconomic shock, will undermine current EU resolution procedures, as was the case with the recent treatment of certain banks in Italy.

In the first report in a new series on *The Future of Banking* from the IESE Business School and the CEPR, we argue that while there have been clear improvements in financial regulation and supervision over the decade since the global financial crisis, there is still work to do in several crucial areas and political constraints may bite (Bolton *et al.* 2019).

We do not know where the next crisis will hit. But if the past is any predictor of the future, we can be sure that entities that perform the functions of banks, but are outside the regulatory perimeter, will play an important role

The report, titled *Sound at Last? Assessing a Decade of Financial Regulation*, tackles three important areas of post-crisis regulatory reform: the Basel III agreement on capital, liquidity and leverage requirements; resolution procedures to end 'too big to fail'; and the expanded role of central banks with a financial stability remit.

A legacy of the crisis is stronger and better capitalised banks, as well as regulators and supervisors with increased clout who pay more attention to systemic risk. However, the crisis has also left us with high leverage in advanced economies, especially in terms of sovereign debt-to-GDP ratios. At the same time, interest rates are at very low levels. All of this, together with the digital disruption of the sector, poses formidable challenges for the banking industry.

A first broad message of the report is that *narrow banking* is not a magic bullet to overcome the fragility of the system. The narrow bank 'solution' always emerges after a systemic crisis, and the 2007-2009 crisis was no exception. Fragility is inherent to the core banking function of joint supply of credit and deposits. If narrow banking were to be implemented, fragility would resurface elsewhere in the financial system.

A second broad message is that prudential regulation should take a holistic approach, considering and setting requirements for capital, liquidity and disclosure together and taking into account their potential interactions, together with the competitive conditions of the industry.

More specifically, we find that there is room to fine-tune regulation:

- We do not know whether current levels of capital are enough, but we believe it is better to err on the high side (as long as increased capital requirements are not imposed when the economy is weak). The interaction

between leverage and risk-weighted capital must be explored so that no perverse incentives are introduced inadvertently.

- The introduction of liquidity regulation is an important innovation, but we question the need for two requirements. We believe that authorities should explore modifications to the liquidity coverage ratio that would make the net stable funding ratio unnecessary¹.
- Stress tests are very useful if well designed. A main lesson from the euro area is that effective stress tests can only be implemented when there is a backstop for the banking system. To remain effective, the tests must be severe, flexible, and not overly transparent. Current practice could be improved by taking into account second-round effects.
- Regulation inevitably leads to innovation aimed at escaping the new rigorous oversight. To ensure that an ever-changing financial system remains resilient, authorities need a framework to monitor, assess, designate, regulate and supervise entities outside the perimeter of regulation. As of today, there is still no framework for dealing with shadow banking and new digital competitors.

A second broad message is that the new resolution framework constitutes a major institutional advance in resolving systemically important institutions. However, a public backstop is needed even under the most refined resolution procedures. The too-big-to fail (TBTF) problem has been alleviated (with the caveat on the effect of new regulations on concentration and size of banks), but it has not gone away.

Indeed, new regulations and high compliance costs make entry difficult and have increased the tendency for concentration, potentially aggravating the TBTF problem². In addition:

- Resolution needs liquidity support but current procedures are lacking, particularly in the euro area.
- Better resolution provides good incentives for managers and allows for more competition in the market.
- There are complex trade-offs in the choice between a single point of entry (SPOE) model and a multiple point of entry model (MPOE) model. For the resolution system to be stable, the incentives of national authorities before and during a crisis must be contemplated (for example, national authorities may decide to ring-fence capital and liquidity ex ante, or refuse to abide by an agreement when it turns out to be unfavourable). The theoretically superior SPOE model may face formidable implementation challenges and turn into MPOE in practice (Bolton and Oehmke forthcoming).

A third broad message is that the central bank has to recover its traditional financial stability remit, and this more powerful central bank needs strengthened accountability and democratic legitimacy. We contribute to the debate over the functions of central banks and the regulatory financial architecture. More specifically:

- The central bank should be prepared to use its balance sheet as a financial stability tool, although what the steady-state size of the balance sheet should be is an open question.
- We look favourably on the idea that central bank liquidity insurance should be priced, but we are wary of potential adverse consequences on credit provision to the economy when collateral is lacking.
- With respect to the financial supervisory architecture, we favour an expanded role for central banks encompassing financial stability. Under an integration ('one roof') view of the central bank functions (as in the

UK), the central bank has both a price stability and a financial stability mandate, and consequently it should have a transparent lender-of-last-resort function as well as macroprudential authority with appropriate tools³.

Microprudential supervision should be well coordinated with, or even integrated into, the central bank and an independent authority should take care of conduct and consumer protection, yielding a 'twin peaks' regulatory architecture. At the other extreme, under a 'many roofs' regulatory financial architecture, the central bank cares only about price stability, and both macroprudential and microprudential supervision are run by separate independent institutions. Our view is closer to the former model than the latter.

- To insure the legitimacy of delegating increasingly broad powers to an independent institution, and to preserve central bank independence, the framework and the principles of communication for the case of monetary policy should be applied to the decisions of the single institution or of the collective in charge of financial stability.
- More intensive coordination between monetary and fiscal authorities is needed, particularly when the zero lower bound is reached. A regular exchange among authorities on policy options should then be encouraged, including public communication of policy choices and the trade-offs involved.

We do not know where the next crisis will hit. But if the past is any predictor of the future, we can be sure that entities that perform the functions of banks, but are outside the regulatory perimeter, will play an important role.

Furthermore, the next global crisis may have its origins in an emerging market, where regulation may well be different from the structure adopted in advanced countries.

A challenge for incumbent banks will be to adapt to the digital disruption and more competitive environment, while regulators will have to maintain a level playing field, protecting financial stability while allowing the benefits of innovation to permeate the system. ■

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Endnotes

- 1. See Vives (2014) and Cecchetti and Kayshyap (2018) for further analysis on this point.*
- 2. See Vives (2016) for a full analysis on the interaction of competition and regulation in banking.*
- 3. See Danthine (2015) on the Swiss experience.*

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Download the new report, *Sound at Last? Assessing a Decade of Financial Regulation*, [here](#). This article was originally published on VoxEU.org

Stablecoins, central bank digital currencies, and cross-border payments



Digital currencies are growing rapidly. Tobias Adrian considers the implications and what the future holds for the international monetary system

Just a year ago, the talk was all about cryptoassets: Bitcoins and its multiple evolutions. We have moved on, since then. Now, we must reckon with eMoney, a new form of digital currency with the potential to be much more disruptive. I will define eMoney, then discuss its implications in a closed-economy setting.

I will suggest that its adoption may be extremely rapid — but that it may raise significant risks. Policies to counter these risks — as in a sleight-of-hand magic trick, you will see — yield a synthetic version of central bank digital currency (CBDC) with various advantages relative to the full-service version just discussed, and studied in a recent [IMF publication](#).

Then, I will consider the open-economy extension of these ideas. While eMoney brings key advantages to cross-border payments, it may pose risks to the stability of the international payments system. It could also encourage dollarization.

As policymakers, we must turn our attention to the international monetary system, toward new solutions — including technological ones — and enhance global cooperation by upholding the role of the IMF as the caretaker of this fragile system, though one with great opportunity.

What is eMoney?

eMoney is a means of payment and a store of value fully backed by fiat currency. It is the digital equivalent of a pre-paid card. eMoney, in my definition, can be issued as tokens or accounts, settled in a centralized or decentralized fashion. eMoney thus also includes a version of 'stablecoins' that is fully backed or collateralized by fiat currency — what some call 'digital fiat currency'. eMoney can be traded through an app on your cellphone, between individuals and businesses alike with ease and immediate effect.

Think of WeChat Pay and AliPay in China, M-Pesa in Kenya, Bitt.com in the Caribbean, and USD-coin by Coinbase and Circle. Other major tech companies are also rumored to introduce their own form of eMoney very soon. eMoney, in its various forms, covers more than 25 currencies to date, and that number is growing rapidly. Adoption rates are impressive.

In Kenya, for instance, 90 percent of the population over 14 years of age uses M-Pesa. In China, transactions in eMoney reached \$18.7 trillion — more than all transactions handled worldwide by Visa and MasterCard combined. Furthermore, many operators now offer debit cards that can be used with stablecoins, turning them into an efficient means of payments for most merchants.

Would eMoney available across borders spell the end of weak currencies? It would certainly put a lot more pressure on countries with weak institutions and policy frameworks

Advantages of eMoney

Why is adoption of eMoney so rapid and widespread? First, because its value is stable relative to fiat currency. The exchange rate is 1 to 1 (or very nearly), not 6,000 to 1 one day and 3,000 to 1 the next, as for some crypto-coins.

In fact, eMoney works exactly like a strict currency board, with each unit of eMoney — token or account entry — fully backed by fiat currency. You pre-fund your eMoney holdings, and your funds are stored in a trust account.

But why use eMoney and not fiat currency, since the first is merely a digital representation of the second?

- First, for convenience. eMoney is better integrated into our digital lives, and often issued by companies that fundamentally understand user-centered design and integration with social media.
- Second, for transaction costs. Transfers in eMoney are near-costless and immediate, and are thus often more attractive than card payments or bank-to-bank transfers.
- Third, for trust. In some countries where eMoney is taking off, [users trust](#) telecom and social media companies more than banks.
- Fourth and finally, for network effects. Social media and other digital-economy giants contemplating the introduction of eMoney have enormous installed bases through which new payment services can rapidly spread, driven by strong network effects.

Risks to eMoney

eMoney is probably coming to a phone near you. And with it, a world of convenient, costless, and immediate

payments at the touch of your fingers... Sounds rosy, but there are problems related to customer protection, safety of the payments system, and ultimately financial stability.

The first risk is to the value of eMoney. If it is issued over and above the funds held in the trust account, there could be a run on eMoney, and a significant loss of wealth. We know how destabilizing large devaluations following failed currency boards are.

The second risk is to the security of the trust account. Despite the allusion to 'trust', funds could be invested in risky or illiquid assets or encumbered as collateral. Redemption of eMoney into fiat currency may not always be possible.

The third risk is to the interoperability of eMoney and thus to market contestability. We noted earlier the strong network effects in payments. If eMoney issued by different providers is not interoperable, only the largest providers will survive. The fat cats will eat the nimble and potentially more innovative mice. Even regulation mandating common technological standards will not resolve the issue.

It was easier to get cell phones from different providers to talk to each other. In the case of eMoney, interoperability requires a common settlement platform — a way to seamlessly, cheaply, and securely transfer funds between trust accounts. You will not be able to redeem the eMoney I send you for fiat currency unless a corresponding amount of fiat currency is transferred from my provider's trust account to yours.

Tackling risks to eMoney—a potential role for central banks?

While eMoney inexorably grows — potentially booms — in front of our eyes, major risks also rise. How do we tackle them?

One way is for central banks to get involved. Other approaches are also possible; less impactful, though perhaps safer. We will face difficult choices ahead as policymakers. But we will have to make them.

Central banks could offer eMoney providers access to their reserve accounts, under strict conditions, of course. Through effective supervision, central banks could check that eMoney issuance is fully backed; there goes risk number one.

Moreover, eMoney holdings would become extra safe and liquid for customers, especially if reserve accounts were protected from other creditors of eMoney providers in case of bankruptcy. That would take care of risk number two, minus the hassle of claiming one's funds.

Finally, central banks would ensure interoperability between eMoney issued by different providers by offering a common settlement platform between trust accounts; down with risk number three. Mind you, other risks would be introduced. Most notably, the risk of a potential and partial disintermediation of commercial banks if some depositors preferred holding eMoney. But let us leave that for discussion.

Synthetic CBDC

I would instead like to draw your attention to the fact that while we were focused on alleviating risks — on protecting consumers and financial stability, all laudable goals — we inadvertently created CBDC! A new version, that is, which we call 'synthetic CBDC'.

Yes, if eMoney providers can keep client funds as central bank reserves, and if these are protected from other creditors, then, by proxy, eMoney users can hold, and transact in, a central bank liability. Isn't that the very definition of CBDC?

Synthetic CBDC has notable advantages relative to the full-fledged version from the previous presentation, in which the central bank creates tokens or offers accounts to the public. Synthetic CBDC outsources several steps to the private sector: technology choices, customer management, customer screening and monitoring including for 'Know Your Customer' and AML/CFT (Anti-Money Laundering and Combating the Financing of Terrorism) purposes, regulatory compliance, and data management — all sources of substantial costs and risks.

The central bank merely remains responsible for settlement between trust accounts, and for regulation and close supervision including eMoney issuance. If done appropriately, it would never need to lend to eMoney providers, as their liabilities would be fully covered by reserves.

A synthetic CBDC is essentially a public-private partnership that encourages competition between eMoney providers and preserves comparative advantages. The private sector concentrates on innovation, interface design, and client management. And the public sector remains focused on underpinning trust.

Open-economy complications

Check-mark? Have we finished work and can now stroll along the inviting Mythenquai just outside? Not so fast. Things get a little more complicated as we consider cross-border payments.

Clearly, eMoney could bring enormous benefits to cross-border payments, which currently tend to be slow, opaque, and expensive. The token version of eMoney could also facilitate cash payments in cross-border financial trades once assets migrate to the blockchain (allowing seamless 'delivery versus payment'). But these gains must be weighed against risks. An example may help.

The case of a person in Zurich, transferring Swiss franc eMoney to a friend in, say, Italy, is simple. Marlis clicks a button, and Francesco gets the funds. But suppose Francesco wants to receive euro-based eMoney. To simplify matters, suppose both use the same platform — a fictitious 'Pay-n-Chat'. Then Pay-n-Chat Switzerland would draw down Marlis' Swiss franc account, and credit Pay-n-Chat Italy, which would issue euro-based eMoney to Francesco.

The only problem is that Francesco's eMoney is now backed by Swiss franc reserves held at the Swiss National Bank. Clearly, this is purely fictitious: I am not insinuating the SNB would actually do this.

As in the popular game of whack-a-mole, the risks we had formerly buried now rise again. Is Francesco's eMoney fully backed? Yes, Pay-n-Chat could continuously hedge its foreign exchange risk. But it has now become a lot harder to be transparent about it. And transparency is key for trust. And trust is key for adoption.

Redemption risk has also re-emerged. What happens when Francesco wants to redeem his eMoney in euros? Pay-n-Chat Italy may be able to draw down reserves it holds with the ECB — again, a fictitious example. Or Pay-n-Chat Switzerland could sell Swiss francs for euros and send those to Pay-n-Chat Italy. Cumbersome, expensive, potentially slow. Exactly the costs these companies are trying to avoid.

So, what might Pay-n-Chat do? Focus on just the main currency pairs for which there are large and relatively balanced capital flows to maximize the matching of eMoney with local currency reserves. But this could imply a fragmentation of the international payment system; much like paving highways while neglecting country roads — those leading to many smaller countries around this world.

Another risk that resurfaces is to market contestability. In our example, Pay-n-Chat Italy extended credit to Pay-n-Chat Switzerland; a mere accounting trick to balance the company's books. But had the transfer involved two

separate entities, it would have induced credit risk. Clearly, then, transfers will be cheaper if they remain within the same company. Size will matter. Just like in the correspondent banking world, this favours a concentrated market structure. Not only have we stepped back into several of the risks we had formerly identified — and thought we had solved — but entirely new risks also arise, even supposing we could fix those above.

Dollarization risk

One is the risk of facilitating dollarization. In most cases, the Fund is concerned about dollarization as countries lose monetary policy control, and as financial systems become more exposed to exchange rate shocks, while the central bank is constrained in providing liquidity. Dollarization is found to restrain financial development and long-run growth¹.

Dollarization faces headwinds in most countries. Transaction costs of purchasing foreign currency are typically high, storage is cumbersome and risky if banks do not offer foreign currency accounts, and transactions are limited; many countries do not offer clearing and settlement services in foreign currency.

The availability of foreign currency-based eMoney could lower some of the barriers to dollarization. The headwinds could become tailwinds. eMoney could make storage of foreign currency easier, safer, and cheaper. And, importantly, it could greatly facilitate transactions in foreign currency. In addition, it could drastically lower costs of remittances, which would increase foreign currency inflows.

Would eMoney available across borders spell the end of weak currencies? It would certainly put a lot more pressure on countries with weak institutions and policy frameworks. From a world of grey tones, where those muddling through persist, we might face greater contrast; one either makes it or is taken over by foreign eMoney.

IMF to the rescue

Let's take stock. Uncertainty as to the course of technology and its impact on the financial sector; risks to the international payment system, of fragmentation and instability; risks of dollarization; dangers of weak institutions and policy frameworks... Each calls the IMF into action.

The best defense against loss of monetary autonomy, of excessive dollarization instigated by foreign eMoney, is good policy. IMF surveillance can help. And requests for technical assistance in this area are already on the rise, in number and urgency. We must be ready to answer these calls.

Clearly the IMF can also help with its analytical capacity, to identify disruption, fathom future scenarios, and evaluate how policy choices can favour the more attractive ones. And the IMF's convening power may be needed more than ever, to bolster the international payments system. But this time, also with new technologies.

For instance, the risks and drawbacks to cross-border payments, which we discussed earlier, could be surmounted by greater coordination between countries. What if central banks, which may help eMoney providers develop on domestic markets, also favoured their expansion into cross-border payments? What if they settled transactions by exchanging reserves among each other? Of course, only after further analysis of the benefits and risks — including credit risk — of such bold operations.

Could an international institution — such as the IMF — facilitate these operations by running a common platform, mutualizing credit risks, or at least establishing guidance and regulation? Or could new eMoney be created, with 1-to-1 backing by a basket of fiat currencies, to settle transactions between central banks? Some have called this the eSDR or dSDR.

Clearly, this is still hypothetical. But given the speed at which we're traveling, we must at least map out the terrain that lies ahead before picking a path.

Wherever we go, the M for 'monetary' in IMF is bound to get a new polish as we focus on the new monetary challenges to the international monetary system. The years to come will be especially exciting for the global financial architecture! ■

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1. See for instance Sebastian Edwards and Igal Magendzo (2001), "Dollarization, Inflation and Growth," NBER Working Papers 8671, National Bureau of Economic Research, Inc.

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Regulating fintech: ignore, duck type, or code

Regulation of fintech is still in its early stages. Marlene Amstad considers the ongoing policy debate

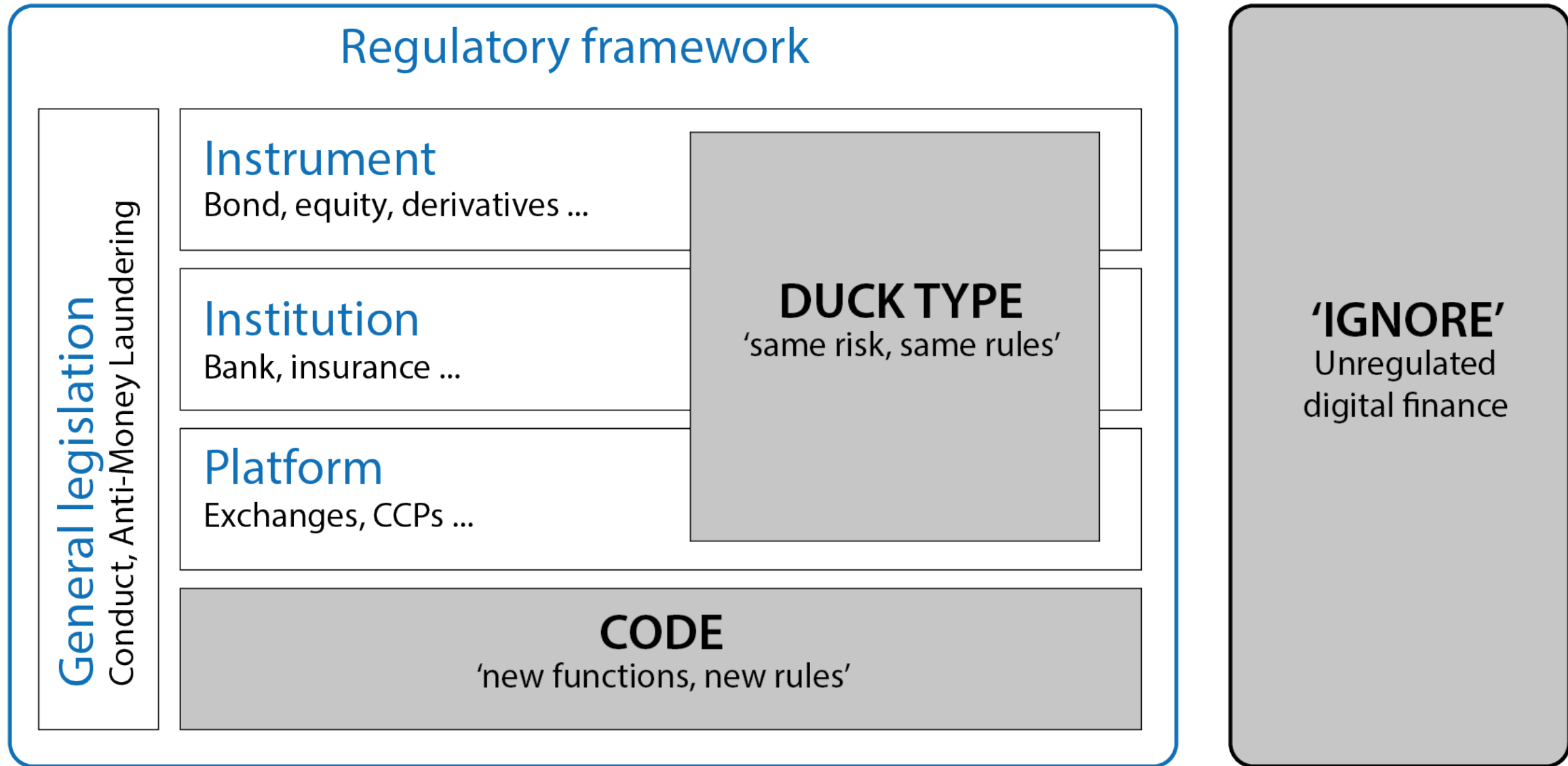
Two events have shaped the financial system over the past ten years: the Global Crisis and the rise of fintech. But while the lessons learned after the crisis have been widely discussed and the regulatory response broadly agreed upon, the question of whether and how to regulate fintech is a topic of an ongoing policy debate. This column discusses the three basic options that regulators have: ignore it, 'duck type' rules into existing regulations, or specifically tailor new regulations.

Two events have shaped the financial system over the past ten years: the global financial crisis and the rise of the crypto-finance ecosystem, broadly labelled 'fintech'. Both of these events have raised questions about the appropriate regulatory response. The lessons learned after the crisis have been widely discussed and the regulatory response broadly agreed upon – even though it is not yet fully implemented – in the Basel III framework by the Financial Stability Board (FSB). However, the answer as to whether and how to regulate fintech is still in its early stages and is a topic of an ongoing policy debate.

In the current traditional regulatory framework, a few aspects – such as conduct and money laundering – apply to the full financial universe. However, in most aspects, the regulatory framework differs by instrument, institution, and platform (see Figure 1). Where does fintech fit into this landscape? The answer is not trivial as fintech encapsulates a broad spectrum of activities.

A one-size-fits-all regulatory approach seems to risk stifling innovation and discouraging new market entrants. Accordingly, Claessens *et al.* (2018) focus on fintech credit and Kaal (2018) focuses on ICOs, both finding that the current regulatory responses differ widely across types of fintech activities and jurisdictions. In this piece, I argue that despite these disparate differences regulators essentially have three options in this regard: ignore, duck type, or code (Amstad 2019).

Figure 1. Regulating digital finance



Ignore — 'keep it unregulated'

The first option is to leave fintech largely unregulated. A precondition for good regulation is clarity about the need for, and goals of, regulation. The finance literature commonly gives three forms of market failure as a basis for the justification of regulation: information asymmetry, moral hazard, and monopoly power. From these elements, objectives such as investor protection, financial stability, and market integrity take shape. These likely can also provide appropriate guidance as to whether or not to regulate fintech.

An open dialogue among regulators, the fintech industry and academia may help to identify early on new functionalities that may require conceptually distinct regulation of technology-enabled finance

In the early days of fintech, regulators in most jurisdictions chose 'wait and see'. Some fintech companies felt hampered in their activities as they could not benefit from the legal certainty of regulation – a criticism that contrasts with the sometimes anti-governmental approach of at least some fintech activities. However, implementing new regulations or even licensing may be misinterpreted as endorsement by supervisory authorities, or even as an implicit guarantee.

The aggregate market capitalisation of cryptoassets skyrocketed from \$30 billion to peak at over \$800 billion in early January 2018, before falling back to around \$200 billion (Rauchs *et al.* 2018). With increased fintech-era volumes, levels of fraud, inappropriate market practices, and Ponzi schemes increased. Hesitant to over-regulate but increasingly seeing the need for a regulatory response to ensure investor protection and market integrity, several jurisdictions resorted to issuing warnings to the market. In detailing the case of initial coin offerings (ICOs), Zetzsche *et al.* (2018) document the issuance of warnings as the least interventionistic of all regulatory options.

In terms of financial stability, the Committee on the Global Financial System and the Financial Stability Board, among others, concluded that at this stage, the size of fintech-era credit in many jurisdictions was still small enough to limit any systemic impact (CGFS and FSB 2017). At the same time, a range of benefits and risks were identified in cases where fintech might grow further. If regulation seems appropriate, the fundamental question arises as to whether fintech's risks and rewards can be integrated into the existing framework, or whether a new regulatory paradigm is required.

Duck type — 'same risk, same rules'

The second option is to 'duck type'¹ fintech rules into the existing regulation. Some fintech models are essentially digital or crypto representations of an instrument, an institution, or a platform. A straightforward approach to regulating these fintech models is to focus on their economic function or, more specifically, their underlying risk.

This strategy refers to the famous Howey test², and is often simplified as the 'duck test' that says, *"if it looks like a duck, swims like a duck, and quacks like a duck, then it probably is a duck."*

Duck typing regulation applies two widely used regulatory principles: it is 'principles-based' as it regulates the same risk with the same rule, and it is 'technology-neutral' as it focuses on the economic function. An example is the ICO guidelines by Swiss Financial Market Supervisory Authority: *"In assessing ICOs, FINMA will focus on the economic function and purpose of the tokens (ie. the blockchain-based units) issued by the ICO organizer"* (FINMA 2018).

Accordingly, ICOs are classified into payment, utility, and asset tokens. Compliance with respective existing regulations and in all cases with anti-money-laundering legislation is required. Duck-typing regulates the function rather than the instrument, institution, or platform. However, fintech innovations may also lead to new functionality. Regulators need to identify these new functions and, if need be, code them into new regulations that specifically address fintech issues.

Code – 'new functionality, new rules'

The third option is to code fintech using regulations that are specifically tailored to new functionality made possible through technological innovation. Duck typing regulation works as long as fintech operates in the same way as traditional finance. Despite technological change, the underlying core risks in financial markets, such as market, credit, liquidity, and operational risks, have remained largely the same.

However, with ongoing financial innovation, new combinations of risks might emerge. Alternatively, the core risks might show up in forms only made possible through using new technology. Both scenarios might need additional specific regulations.

Similarly, new risks stemming from interconnected financial markets were brought to the forefront during the global financial crisis. While underlying risks would stay the same, it became clear that safeguarding individual financial institutions is insufficient and a separate additional macroprudential layer is necessary.

Indeed, current research suggests that fintech might lead to new functionality based, among other elements, on: (a) the specific features of blockchain technology, (b) the new combination of business models, and (c) new digital operational challenges. In the following we provide examples for each characteristic.

(a) Blockchain technology. Cong and He (2018) demonstrated that blockchains have profound economic implications on consensus generation, industrial organisation, smart contract design, and anti-trust policy. Specifically, in the traditional system – largely due to contract incompleteness – sellers cannot offer prices contingent on the success of delivering the goods.

In contrast, blockchains, via decentralized consensus, enable agents to contract based on service outcomes and to automate contingent transfers. They conclude that this new functionality can deliver higher social welfare and consumer surplus through enhanced entry and competition, yet it may also lead to greater collusion. Consequently, they suggest an oft-neglected regulatory solution to separate usage and consensus generation on blockchains, so that sellers cannot use the consensus-generating information for the purpose of sustaining collusion.

Another example for functionality made possible through blockchain is the ‘fork’, as an either accidental or intentional change in protocol. Biais *et al.* (2017) illustrated that forks might be an integral part of blockchain applications, leading to orphaned blocks and persistent divergence between chains³.

Again, it is not straightforward to see a direct analogy to a fork in the non-digital world and therefore how to mirror it using current regulations, at least taking into consideration whether dedicated regulations are needed.

New functionality might also arise from decentralisation, which, for example, allows for greater ease in benefitting from regulatory arbitrage. Makarov and Schoar (2018) found that price movements in cryptocurrencies are largely driven not by transactions costs or differential governance risk, but rather by avoiding regulation.

(b) New combination (of business models and jurisdictions). Fintech is characterised by a strong and increasing cross-segment expansion instead of limiting itself to the value chain of a classic bank or insurance company. Rauchs *et al.* (2018) found that 57% of cryptoasset service providers were operating across at least two market segments to provide integrated services for their customers.

This led some to declare fintech a new asset class. Findings by Hu *et al.* (2018) support this view, showing that cryptocurrencies are highly correlated among each other – likely driven by Bitcoin serving as vehicle currency in the cryptocurrency space – but are largely orthogonal to traditional assets. It is still too early to tell whether cryptocurrencies' distinct behaviour is a testament to the rise of a new asset class justifying its own regulation.

(c) New digital operational risks can appear across the digital financial services and market value chain. Digital technology also enables the generation and analysis of vast amounts of customer and transaction data (ie. 'big data'), which introduces its own set of benefits and risks that should be managed (G20 2018).

An additional need for dedicated regulation may arise from the fact that digital blockchain records must be *enforced* in the physical world. *"While blockchains can keep track of transfer of ownership, proper enforcement of possession rights is still needed, except in the case of (fiat) cryptocurrencies"* (Abadi and Brunnermeier 2019).

The enforcement of rights and duties in fintech may differ from those found in traditional assets. Cohnen *et al.* (2018) found, for example, that ICO codes and ICO disclosures often do not match, opening a potential need for ensuring legal certainty by regulating the link between the legal framework and the code.

Conclusion

As with previous regulation, regulating fintech needs to be justified by either investor protection, market integrity, or safeguarding financial stability. Ignore or wait-and-see approaches – at least in the beginning — can therefore be prudent approaches to avoid stifling innovation.

In cases where regulation seems appropriate, however, similar activities should be treated in similar ways in an attempt to limit incentives for regulatory arbitrage. At the same time, regulators would be well-advised to remain alert to the limits of duck typing. An open dialogue among regulators, the fintech industry and academia may help to identify early on new functionalities that may require conceptually distinct regulation of technology-enabled finance. ■

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Endnotes

- 1. I borrow the term 'duck typing' from computer programming.*
- 2. It goes back to a case in the Supreme Court in 1946, which created a test that looks at an investment's substance, rather than its form, as the determining factor for whether it is a security*

3. They also show how forks can be generated by information delays and software upgrades.

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*Authors' note: Marlene Amstad serves as Vice Chair of the Board at Swiss Financial Market Supervisory Authority (FINMA). The views expressed in this column are those of the author and do not necessarily represent those of FINMA. This article was originally posted on [VoxEU.org](https://voxeu.org) and is taken from the VoxEU eBook, *The Economics of Fintech and Digital Currencies*, available to download [here](#)*

Managing machines: the governance of AI

Technology is shaping a new economy powered by big data and advanced analytics. Financial firms have to understand the implications for governance in order to identify and manage the associated risks. James Proudman gives three principles firms can use when they're thinking about how to do this

Introduction

Consider the well-known story of one Big Tech company's attempt to use artificial intelligence to improve the efficiency of its staff recruitment. The machine learning system reviewed job applicants' CVs with the aim of automating the search for top talent. The company's experimental hiring tool used artificial intelligence to give job candidates scores ranging from one to five stars.

Within a year, the company realised its new system was not rating candidates for software developer jobs and other technical posts in a gender-neutral way. That is because the computer models were trained to vet applicants by observing patterns in CVs submitted to the company over a 10-year period. Most came from men, a reflection of male dominance across the technology industry.

In effect, the company's system taught itself that male candidates were preferable. It penalised CVs that included the word 'women's' as in 'women's chess club captain'. And it downgraded graduates of two all-women's colleges.

The story is a clear example of how artificial intelligence can produce bad outcomes for all concerned. It also offers a case study for exploring the root causes that lead to bad outcomes - and so in turn offers insights for boards on how to govern the introduction of artificial intelligence.

The art of managing technology is an increasingly important strategic issue facing boards, financial services companies included. And since it is a mantra amongst banking regulators that governance failings are the root cause of almost all prudential failures, this is also a topic of increased concern to prudential regulators.

I will provide a quick overview of the scale of introduction of artificial intelligence in UK financial services; then make three observations about it, and suggest three principles for governance derived from them.

Artificial intelligence

Technological innovation is inevitable and welcome. As the Governor noted during this year's UK Fintech Week¹, we are shifting towards a new economy, which is powered by big data, advanced analytics, smartphone technology and more distributed peer-to-peer connections. This new economy will go hand in hand with fundamental changes to the structure and nature of the financial system supporting it.

Indeed some of the largest international investment banks are now declaring that they are technology companies with banking licences.

... the introduction of AI/ML does not eliminate the role of human incentives in delivering good or bad outcomes, but transforms them

Some of the most important recent developments in technology are associated with the introduction of automation – by which I mean the replacement of humans by machines for conducting repetitive tasks. Within the broad concept of automation, two areas pose unique challenges for governance.

These are artificial intelligence (AI) – by which I mean the use of a machine to perform tasks normally requiring human intelligence – and by machine learning (ML) – by which I mean the subset of AI where a machine teaches itself to perform tasks without being explicitly programmed. The focus of my remarks is therefore on AI and ML, but the principles I discuss could be applied to automation more broadly.

It is certainly not the role of the regulator to stand in the way of progress. Indeed, AI/ML in financial services could herald an era of leaner, faster and more tailored operations, reducing costs and ultimately improving outcomes for customers. It could also help to make financial services more bespoke, accessible and inclusive.

In capital markets, there is some evidence from market participants to suggest that automation is leading to increased effectiveness. According to the IMF, two thirds of cash equities trading by volume is now associated with automated trading, about half of FX spot trading². And the Governor recently explained how AI provides the opportunity to reduce bias³. On balance, it is probable that increased automation will enhance net resilience of institutions, and support the PRA's statutory objectives.

For example, AI and ML are helping firms in anti-money laundering (AML) and fraud detection. Until recently, most firms were using a rules-based approach to AML monitoring. But this is changing and firms are introducing ML software that produces more accurate results, more efficiently, by bringing together customer data with publicly available information on customers from the internet to detect anomalous flows of funds.

About two thirds of banks and insurers are either already using AI in this process or actively experimenting with it, according to a 2018 IIF survey⁴. These firms are discovering more cases while reducing the number of false alerts. This is crucial in an area where rates of so-called 'false-positives' of 85 per cent or higher are common across the industry.

ML may also improve the quality of credit risk assessments, particularly for high-volume retail lending, for which an increasing volume and variety of data are available and can be used for training machine learning models.

But it is a prudential regulator's job to be gloomy and to focus on the risks. We need to understand how the application of AI and ML within financial services is evolving, and how that affects the risks to firms' safety and soundness. And in turn, we need to understand how those risks can best be mitigated through banks' internal governance, and through systems and controls.

Firms' rates of adoption of AI and ML

So what do we know about how – and how fast – the application of AI and ML is evolving within UK financial services? In 2018, an *FT* survey of banks around the world provided evidence of a cautious approach being taken by firms⁵.

And according to a McKinsey survey of financial and non-financial firms, most barriers to the more rapid adoption of AI were internal to the firms themselves: poor data accessibility; lack of suitable technology infrastructure; and a lack of trust in the insights of AI, for example⁶. Despite the plethora of anecdotal evidence on the adoption of AI/ML, there is little structured evidence about UK financial services.

To gather more evidence, the Bank of England and the FCA sent a survey in March to more than 200 firms, including the most significant banks, building societies, insurance companies and financial market infrastructure firms in the UK. This is the first systematic survey of AI/ML adoption in financial services.

The survey is focused on building our understanding of key themes.

- First, the extent to which firms have adopted, or are intending to adopt, AI/ML within their businesses and what they regard as the most promising use cases.
- Second, the extent to which firms have clearly articulated strategies towards the adoption of AI/ML.
- Third, the extent of barriers - regulatory or otherwise - to adoption and what techniques and tools can enable safe use of this technology.
- Fourth, an assessment of firms' perceptions of the risks, to both their own safety and soundness as well as to their conduct towards customers and clients, arising from AI/ML.
- And fifth, the extent to which the appreciation of these risks has given rise to changes in risk management, governance and compliance frameworks.

The full results of the survey will be published by the Bank and FCA in Q3 2019, and are likely to prove insightful. Responses were returned to the Bank in late April, so some early indicative results are emerging.

Overall, the mood around AI implementation amongst firms regulated by the Bank of England is strategic but cautious. Four fifths of the firms surveyed returned a response; many reported that they are currently in the process of building the infrastructure necessary for larger scale AI deployment, and 80 per cent reported using ML applications in some form. The median firm reported deploying six distinct such applications currently, and expected three further applications to go live over the next year, with ten more over the following three years.

Consistent with the McKinsey survey, barriers to AI deployment currently seem to be mostly internal to firms, rather than stemming from regulation. Some of the main reasons include:

- (i) legacy systems and unsuitable IT infrastructure;
- (ii) lack of access to sufficient data; and
- (iii) challenges integrating ML into existing business processes.

Large established firms seem to be most advanced in deployment. There is some reliance on external providers at various levels, ranging from providing infrastructure, the programming environment, up to specific solutions.

Approaches to testing and explaining AI are being developed and, perhaps unsurprisingly, there is some heterogeneity in techniques and tools. Firms said that ML applications are embedded in their existing risk frameworks. But many say that new approaches to model validation (which include AI explainability techniques) are needed in the future.

Of the firms regulated by the Bank of England that responded to the survey, 57 per cent reported that they are using AI applications in risk management and compliance areas, including anti-fraud and anti-money laundering applications. In customer engagement, 39 per cent of firms are using AI applications, 25 per cent in sales and trading, 23 per cent in investment banking, and 20 per cent in non-life insurance.

By and large, firms reported that, properly used, AI and ML would lower risks - most notably, for example, in anti-money laundering, KYC and retail credit risk assessment. But some firms acknowledged that, incorrectly used, AI and ML techniques could give rise to new, complex risk types - and that could imply new challenges for boards and management.

Challenges of AI and ML for boards

Let me suggest that there are three challenges for boards and management. The first challenge is posed by data. As any statistician knows, the output of a model is only as good as the quality of data fed into it – the so-called ‘rubbish in, rubbish out’ problem.

Of course, there are various techniques for dealing with this problem, but fundamentally, if there are problems with the data used – be they incomplete, inaccurate or mislabelled – there will almost certainly be problems with the outcomes of the model. AI/ML is underpinned by the huge expansion in the availability and sources of data: as the amount of data used grows, so the scale of managing this problem will increase.

Further, there are complex ethical, legal, conduct and reputational issues associated with the use of personal data. For example, are data being used unfairly to exclude individuals or groups, or to promote unjustifiably privileged access for others? Recent examples amongst retailers suggest that overly-personalised marketing can seem plain ‘creepy’.

These questions require complex answers that are beyond my philosophical pay-grade. From a regulatory perspective, they are perhaps more directly a primary concern to the FCA given its statutory objectives of consumer protection, but are also potentially relevant to safety and soundness, not least through their impact on reputation and, in turn, confidence.

The data challenge is not limited simply to its selection and processing – but also to its analysis, and how inferences are drawn. AI/ML is driven by what seems to be objective historical data – but that itself may reflect longstanding and pervasive bias, as the example I used in the introduction showed.

So there is a need to understand carefully the assumptions built into underlying algorithms, and how they will behave in different circumstances, including by amplifying potential and/or unintended human prejudice. This implies the need for a strong focus on understanding and explaining the outcomes generated by AI/ML. In my introductory example, the hidden flaws were only revealed over time by the outcomes.

The focus of governance, therefore, should not only be on the role of testing in the design stage, before AI/ML is approved for use, but also on testing during the deployment stage, as well as the oversight needed to evaluate outcomes and address issues when they go wrong. This includes in certain cases the ability for a human or other override – the so-called ‘human in the loop’, for example – and to provide feedback to minimise gradually the risk of adverse unintended consequences.

The second challenge posed to boards by AI/ML concerns the role of people – in particular, the role played by incentives. This may seem somewhat paradoxical, because the role of AI is often thought of as automating tasks formerly done by people.

Machines do not have human characteristics. But they do what they are told by humans. Humans design and control machines, and the algorithms that let those machines learn, whether that is automating the recruitment process or providing financial advice. As with any member of staff, coders, programmers and managers can be subject to the myriad of human biases, and the outputs of machines may likely reflect those biases.

It follows that the regulatory reforms over recent years were developed to overcome the very 'human' problems embodied in people-centric workplaces – be they cultural failings and lack of diversity of thought; poorly aligned incentives, responsibilities and remuneration; or short-termism and other biases – remain equally relevant to an AI/ML-centric workplace.

In fact, it may even become harder and take longer to identify root causes of problems, and hence attribute accountability to individuals. For example, how would you know which issues are a function of poor design – the manufacturer's fault if you have bought an 'off the shelf' technology product – or poor implementation – which could demonstrate incompetence or a lack of clear understanding from the firm's management.

In the context of decisions made by machines which themselves learn and change over time, how do you define what it means for the humans in the firm to act with 'reasonable steps' and 'due skill, care and diligence'?

In a more automated, fast-moving world of AI/ML, boards – not just regulators – will need to consider and be on top of these issues. Firms will need to consider how to allocate individual responsibilities, including under the Senior Managers Regime. Machines lack morals. If I tell you to shoplift, then I am committing an unethical act - and so are you, if you follow my instruction. 'I was only following orders' is not a legitimate defence. There is, if you like, a double-lock on unethical instructions within a wholly human environment - on the part of the instructor and the instructed.

This is one reason why firms and regulators are so determined to promote 'good' cultures, including, for example, 'speak up' cultures, and robust whistle-blowing. But there is no such double-lock for AI/ML. You cannot tell a machine to 'do the right thing' without somehow first telling it what 'right' is - nor can a machine be a whistle-blower of its own learning algorithm.

In a world of machines, the burden of correct corporate and ethical behaviour is shifted further in the direction of the board, but also potentially further towards more junior, technical staff. In the round this could mean less weight being placed on the judgements of front-office middle management.

There have been some initial steps to promote the ethical use of big data and AI/ML in financial services. Notably, for example, in Singapore⁷, and – more broadly – within the EU⁸. In the UK, the Centre for Data Ethics and Innovation is looking at maximising the benefits of AI⁹, and many consider them leaders in this field.

Principles-based expectations have focused on areas such as fairness, ethics, accountability and transparency. Nevertheless, promoting the right outcomes, even if framed as principle-based expectations, will require appropriate, up-to-date systems and controls across the three lines of defence to ensure an appropriate control environment throughout the firm. Further thought is needed.

The third challenge posed by greater use of AI/ML to boards is around change. As the rate of introduction of AI/ML in financial services looks set to increase, so too does the extent of execution risk that boards will need to oversee and mitigate. It appears to supervisors, and consistent with the early results from the Bank of England/FCA survey, that some firms are approaching the introduction of AI/ML piecemeal, project by project; others appear to be following a more integrated, strategic approach.

Either way, the transition to greater AI/ML-centric ways of working is a significant undertaking with major risks and costs arising from changes in processes, systems, technology, data handling/management, third-party outsourcing and skills. The transition also creates demand for new skill sets on boards and in senior management, and changes in control functions and risk structures.

Transition may also create complex interdependencies between the parts of firms that are often thought of, and treated as, largely separate. As the use of technology changes, the impact on staff roles, skills and evaluation may be equally profound. Many of these interdependencies can only be brought together at, or near, the top of the organisation.

Conclusion

I noted at the beginning that I would conclude by trying to extract three principles for governance from the observations I had made.

First, the observation that the introduction of AI/ML poses significant challenges around the proper use of data, suggests that boards should attach priority to the governance of data – what data should be used; how should it be modelled and tested; and whether the outcomes derived from the data are correct.

Second, the observation that the introduction of AI/ML does not eliminate the role of human incentives in delivering good or bad outcomes, but transforms them, implies that boards should continue to focus on the oversight of human incentives and accountabilities within AI/ML-centric systems.

And third, the acceleration in the rate of introduction of AI/ML will create increased execution risks during the transition that need to be overseen. Boards should reflect on the range of skill sets and controls that are required to mitigate these risks both at senior level and throughout the organisation. ■

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Open banking: threat or opportunity?

Redefining banking in a financial services market where your biggest competitor may be Amazon or Google, not a traditional bank, is a real threat to the incumbents. Tiffany Carpenter considers the options

Open banking may not have made much of an impression on consumers yet. But it's a topic that the industry cannot afford to ignore. Tier one UK banks are already bound to grant licensed startups access to transaction-level data, and smaller banks are likely to have to follow suit in the near future. The potential impact on the banking landscape is profound.

Today, the standard business model for retail banks is to build strong relationships with their customers by offering free current accounts and other incentives. These services are a net cost to the business, but they help the banks win trust and provide a channel for marketing more profitable products, such as mortgages, loans and wealth management services.

Open banking threatens to sweep this business model away like an avalanche. Agile fintech companies are already [developing apps](#) that aggregate all the financial services that a customer receives from any provider, creating a single point of control.

This will certainly improve the banking experience for most consumers. But it will also add a new layer between banks and their customers. All communication with the customer will happen via the app – and the app provider will control that communication channel, not the banks.

According to market analysts, this poses a real threat. If a bank can't upsell high-value services to its customers, it may be left with a thin share of the market. Banks could be drowning in current accounts while app providers skim the cream of profitable loans and investment services off the top. [Bain & Company](#) point out that similar disruptions in industries, such as music and travel, have seen incumbents' profits fall by 10% to 20%, often within fewer than five years.

Threat or opportunity?

While the stakes are high, the odds are still in the banks' favour – at least for now. For decades, they have collected data on millions of customers and billions of transactions, across the whole spectrum of financial services. This data is a priceless source of insight that banks can use to create customer experiences that their data-poor fintech competitors simply can't match.

For example, instead of just helping customers make payments or check their balance, a new generation of banking apps could provide users with much more relevant, personalised advice. By comparing individual spending patterns with the behaviour of a wider population of users, they could pinpoint topics that users really care about – reducing utility bills, for example, or paying off a mortgage – and suggest helpful strategies for meeting their financial goals.

An outstanding user experience can easily seduce customers. And if you can't provide one, your competitors certainly will

Serious competition

Banks aren't just worried about competition from fintech startups. There's also a risk that other data-rich companies could make a beeline for the financial services market. Amazon, Apple, Google and other tech giants already have enormous quantities of information about consumer spending habits, as well as some of the world's most talented data scientists, UI and UX developers.

If they want to build the world's best banking app, they seem to have all the right tools already. What's to stop them from seeing financial services as their next market to dominate?

Again, the answer is that banks still have the advantage, at least in the short term. There is more to a user's personal finances than just online shopping habits. And banks have a much more complete picture of how people borrow, spend and invest their money across mortgages, loans, credit cards, savings accounts, stocks and funds.

More importantly, customers trust their bank to manage both their information and their money. As a heavily regulated industry, banks simply cannot afford to play fast and loose with their customers. Meanwhile, barely a week goes by without another scandal about an internet company selling, losing or misusing customer data.

So while you probably trust online retailers to deliver your shopping, you might still have a few qualms about letting them manage your pension.

That said, customers' trust and loyalty are finite commodities. If banks don't act on their advantage now, they will lose it little by little. An outstanding user experience can easily seduce customers. And if you can't provide one, your competitors certainly will.

On your marks

In short, the race to build the killer banking app is on – and banks, fintechs and other players are all in the running. Whoever gets there first will win it all, leaving the others scrambling to redefine their role in a banking industry that bears little relation to today's world.

The difference between winning and losing, as we've already hinted, will be in the data. If banks can mobilise the treasure trove of data they already possess and [harness artificial intelligence](#) and machine learning to bring insights closer to the point of customer interaction, then they will be in a powerful position to lead the next stage in the evolution of financial services.

And that's not just wishful thinking. Take a look at our case study with [ICA Banken](#). SAS solutions are helping ICA Banken analyse customer behaviour online and combine it with historical banking data to create a fully personalised and customised user experience. While customers browse the ICA Banken site, intelligent algorithms automatically assess their needs and display helpful information and relevant offers in real time, resulting in a tenfold increase in conversion rates for the bank's campaigns. ■

Tiffany Carpenter is Head of Customer Intelligence at SAS UK & Ireland

Embracing fintech

Fintech could transform the structure of the financial sector. Dave Ramsden sets out three ways the Bank of England is using the latest innovations in finance and technology

In the past ten years, growth in the digital economy, new technologies and an increased ability to capture and analyse large amounts of data have spurred a new wave of innovation by financial institutions. And that wave of innovation will intensify in the coming years. Fintech is enabling new players and business models to enter the market. This is increasing competition, helping meet unfulfilled customer needs, reducing inefficiencies and changing the way institutions provide – and consumers and businesses use – financial services. It could transform the structure of the financial sector, with implications for customers, firms and regulators¹.

Given our range of responsibilities, it is essential that the Bank of England keeps on top of this wave and understands and adapts to its implications. As you heard from the Bank's Governor, Mark Carney, yesterday, the Bank's strategy is to enable innovation and empower competition, while ensuring monetary and financial stability².

In practice the Bank is embracing fintech, and working to do as much as we can to ensure that it develops in ways that maximise the opportunities and minimise the risks for society, and that as such are entirely consistent with the defining theme of this year's summit – *"the value and purpose that fintech has to society."*

The Fintech Hub one year on

The vehicle we use to do all this is our Fintech Hub, which we launched one year ago³. This team, which grew out of our award-winning Fintech Accelerator, sits at the heart of the Bank and leads our fintech strategy by bringing together expertise from all of Bank's business areas. They have engaged extensively with the fintech sector to understand developments and apply these to support the next wave of innovation in finance.

Examples of their work this year include: collaborating with HMT and the FCA to set out the UK's approach to cryptoassets and distributed ledger technology in financial services⁴; examining challenges in cross-border payments with colleagues from the Bank of Canada and Monetary Authority of Singapore⁵; exploring how

financial services might evolve over the next decade as part of the Bank's Future of Finance project⁶; and analysing everything from the potential role of Big Techs in financial services to the implications of Open Banking and PSD2.

But instead of looking back, I want to stay faithful to the spirit of today's session and look forward to the contributions the Bank can make to the future of finance. Fintech is one of the Bank's seven strategic priorities for 2019. In particular I'll discuss three key areas of Fintech Hub focus in 2019: payments; unbundling; and artificial intelligence⁷.

Given our range of responsibilities, it is essential that the Bank of England keeps on top of this wave and understands and adapts to its implications

Payments

The first area I'll focus on is payments. While the Bank is not nearly as old as the Guildhall, this year we are celebrating 325 years as the UK's central bank; that includes 325 years of providing foundational payments services.

Payments have become increasingly digital in recent years, and there are now hundreds of alternative payment methods⁸ available; recent years have seen a significant diversification of payment companies with new entrants to the market, such as e-money institutions and technology companies – which is why the subject is of interest to the Fintech Hub. This diversification is bringing about an 'unbundling' of financial activity – that is to say, breaking the financial services activity and value chain into its component pieces.

The shift towards digital payments can enable competition and ultimately benefit consumers, and the Bank, given its role at the heart of the financial system, is in a unique position to support that. As the Governor said yesterday, this includes updating our own hard and soft infrastructure to provide a platform for private innovation to serve the digital economy. I'll give three examples of what this means in practice.

First, the Bank is renewing its Real Time Gross Settlement service (RTGS), the UK's core payments infrastructure – Victoria Cleland, our Executive Director for Banking, Payments and Innovation, spoke about this at a roundtable discussion here yesterday. Our goal is to deliver a materially stronger, more resilient, flexible and innovative sterling settlement system, with the ability to support a diverse range of payment technologies such as those built on distributed ledger technology⁹.

Second, as well as renewing RTGS, we, alongside Pay.UK, are moving UK payment systems onto the ISO 20022 messaging standard¹⁰. That should bring many benefits, including better interoperability between payment systems, lower entry costs and the possibility of innovative data services to users. We are also working closely with

our international peers to promote the harmonisation of ISO20022 globally, which could increase efficiencies and facilitate easier and so cheaper cross-border payments.

And third, as the Governor highlighted yesterday, we are opening up direct RTGS access to a broader range of firms. Five non-bank payment service providers now hold accounts in RTGS, and have seen benefits including faster transaction times and lower reduced individual transaction costs, and around twenty further firms are exploring the possibility of joining.

Unbundling

The evolution of payment systems is just one example of unbundling, the second area that I'm going to focus on today. Emerging business models can unbundle traditional financial services activities into individual core functions such as settling payments, performing maturity transformation and allocating capital.

We are already seeing the benefits of unbundling – established and challenger banks alike are deploying sophisticated mobile apps that allow consumers to manage their finances, initiate payments and help with budgeting. Insurance startups are responding to the growth of the gig economy by offering highly personalised/tailed insurance products that combine traditional home and/or motor insurance with business coverage for temporary use.

But while fintech could help increase competition in financial services, some of these new solutions might also lead to the migration of activity outside the perimeter of prudential regulation. So it is important that we analyse the implications of any such migrations for financial stability as well as the impact on, and strategic response of, the banks and insurers that we supervise through the PRA. This will be an important area of work for the Fintech Hub, working with supervisory colleagues in the PRA, in the coming months.

AI

The third area I'll touch on, artificial intelligence, is an example of how a general-purpose technology is reshaping our world, with the potential to revolutionise the nature of both work and commerce. This will affect all aspects of the Bank's mission, from the future behaviour of the labour market, through its effects on employment, productivity and wages, to the future nature of finance, through its effects on customer service, trading and risk management.

Finance is amongst the first sectors to deploy AI at scale. Deloitte estimates that financial services executives expect cognitive-related technologies to become mainstream in the next 2-5 years¹¹. And the Global Association of Risk Professionals expect up to 80% of financial services firms to use it¹². The technology has the potential to increase efficiency across the financial sector, including leaner, faster and more responsive operations.

The Fintech Hub together with the FCA have just conducted the first survey of regulated firms' applications of AI. The survey aims to establish a consistent picture of the state of deployment and readiness within financial services. This includes understanding how advanced firms are in their deployment of AI and what specific business lines they are applying it to. Deepening our understanding will help us work out where policy can support the safe and productive deployment of AI in finance.

Conclusion

I have given a partial picture of the Bank's work on fintech. Even so, I hope the examples have illustrated the breadth and depth of our commitment to enabling innovation, empowering competition and embracing fintech in a safe and effective way, as well as the role of the Bank's Fintech Hub in driving that. ■

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Endnotes

1. As set out by Mark Carney in his 2018 Mansion House Speech, “New Economy, New Finance, New Bank”, available at <https://www.bankofengland.co.uk/speech/2018/mark-carney-speech-at-the-lord-mayors-bankers-and-merchants-dinner-mansion-house>
2. “A Platform for Innovation”, available at <https://www.bankofengland.co.uk/speech/2019/mark-carney-speech-at-innovate-finance-global-summit-2019>
3. I set out our ambitions for the Fintech Hub in my speech “Open to Fintech”, available at <https://www.bankofengland.co.uk/speech/2018/dave-ramsden-speech-hmts-international-fintech-conference>
4. See <https://www.gov.uk/government/publications/cryptoassets-taskforce>
5. See <https://www.bankofengland.co.uk/news/2018/november/boe-boc-mas-joint-report-digital-transformation-in-cross-border-payments>
6. This project, led by Huw van Steenis, is looking at how financial services might evolve over the next decade, and what this means for individuals, businesses and financial service providers. For more information see the project webpage at <https://www.bankofengland.co.uk/research/future-finance>
7. For more detail on the work of the Fintech Hub, see the article “Embracing the promise of fintech” in the Bank’s Q1 Quarterly Bulletin, available at <https://www.bankofengland.co.uk/quarterly-bulletin/2019/2019-q1/embracing-the-promise-of-fintech>
8. See WorldPay’s Global Guide to Alternative Payments, available at <http://offers.worldpayglobal.com/rs/worldpay/images/worldpay-alternative-payments-2nd-edition-report.pdf>
9. See <https://www.bankofengland.co.uk/news/2018/march/rtgs-renewal-proof-of-concept> and <https://www.bankofengland.co.uk/paper/2017/a-blueprint-for-a-new-rtgs-service-for-the-uk>
10. I set this out in more detail in my speech “Setting Standards”, available at <https://www.bankofengland.co.uk/speech/2018/dave-ramsden-remarks-at-iso-20022-conference>
11. See <https://www2.deloitte.com/content/dam/Deloitte/cn/Documents/technology/deloitte-cn-tech-ai-and-you-en-170801.pdf>

12. See <https://www.sas.com/content/dam/SAS/documents/marketing-whitepapers-ebooks/third-party-whitepapers/en/artificial-intelligence-banking-risk-management-110277.pdf>

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The rise of services and the transmission of monetary policy

The shift of production and consumption away from goods and towards services helps explain why inflation in advanced economies is responding more slowly to monetary policy than it did a few decades ago, says Benoît Cœuré

One of the biggest mysteries currently facing central banks around the world is why inflation has failed to pick up more forcefully after years of extraordinary monetary stimulus. This is one of the most fiercely debated topics in macroeconomics, with few definitive answers. Many explanations have been put forward, including discussions on the appropriate measure of economic slack, the role of inflation expectations and the effects of globalisation and digitalisation¹.

One aspect that has received much less attention in the public discussion, however, relates to the impact of the structural transformation of our economies on inflation dynamics and monetary policy transmission.

There are many dimensions to this transformation to which central banks should remain alert, including the impact of ageing and, looking forward, climate change². In my remarks I will focus on another dimension. Across advanced economies, secular forces have shifted economic activity, employment and consumption expenditure away from manufactured goods and towards services.

I will argue that these secular forces are likely to have played, and continue to play, a non-negligible role in explaining the sluggish response of inflation to economic activity and monetary policy in recent years.

I will start by presenting some stylised facts that illustrate the extent of past changes in consumption and production patterns in the euro area, the United States and Japan. I will then explain how these changes, and the shift towards services, are likely to have affected monetary policy transmission on both sides of the Atlantic.

In short, prices in the services sector change much less frequently than in other sectors and are less sensitive to exchange rates. This means that it takes longer for inflation to respond to changes in monetary policy and economic activity than it did a few decades ago.

I will also suggest that the rise of the services sector in our economies has only affected the pace of the response of inflation to shocks, but not the overall effectiveness of monetary policy. In other words, the effects of monetary policy take longer to pass through the economy but they have not become less powerful.

Finally, I will argue that policies that can help raise productivity and competition in the services sector may contribute to reduce the lags with which monetary policy is transmitted to consumer prices.

The rise and expansion of 'modern' services that can be delivered at distance means that competition and aggregate productivity may increase over time, thereby contributing to reducing price rigidity

Figure 1. Share of services in gross value added (percentages)

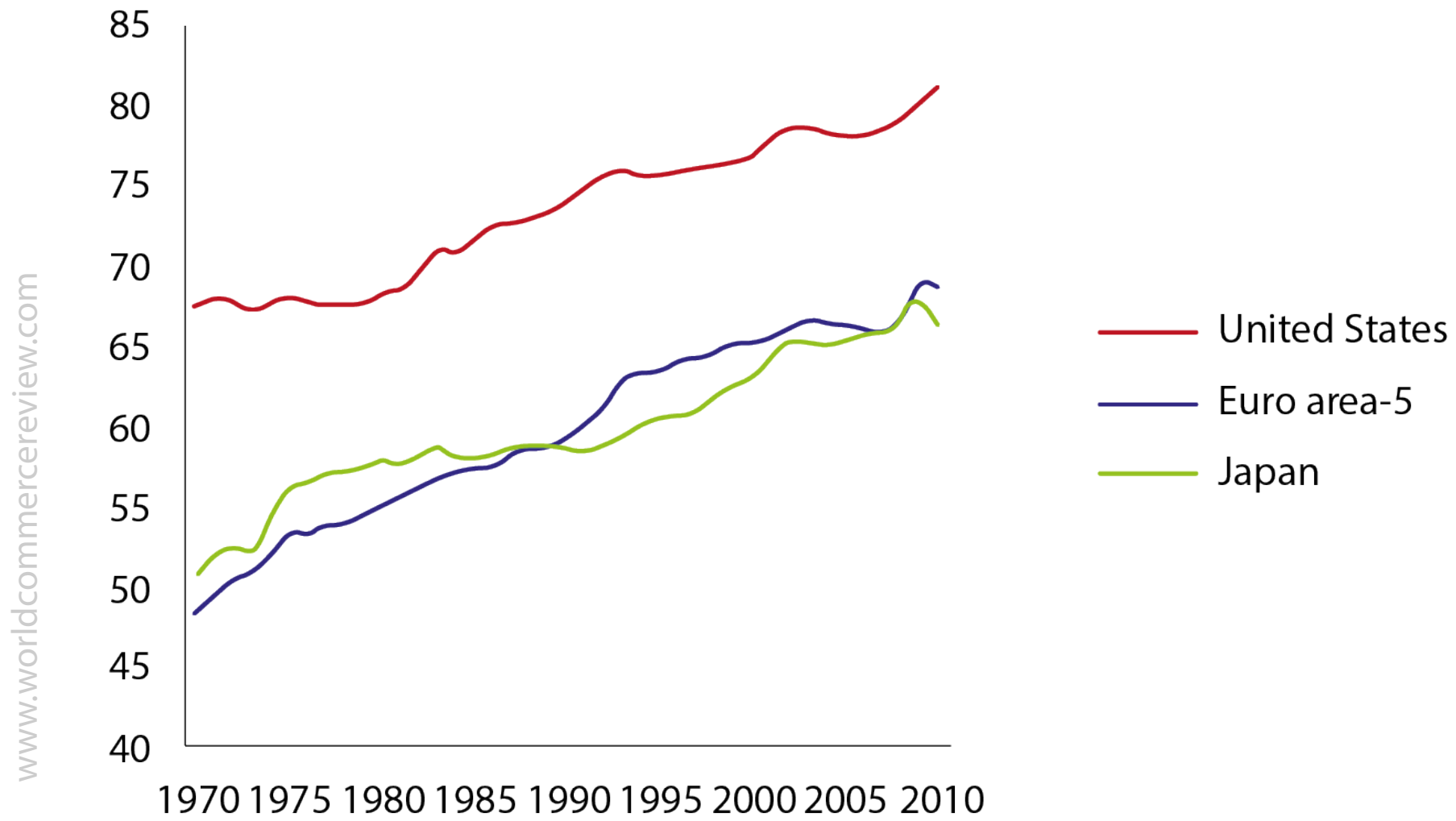


Figure 2. Shares of services in total employment (percentages)

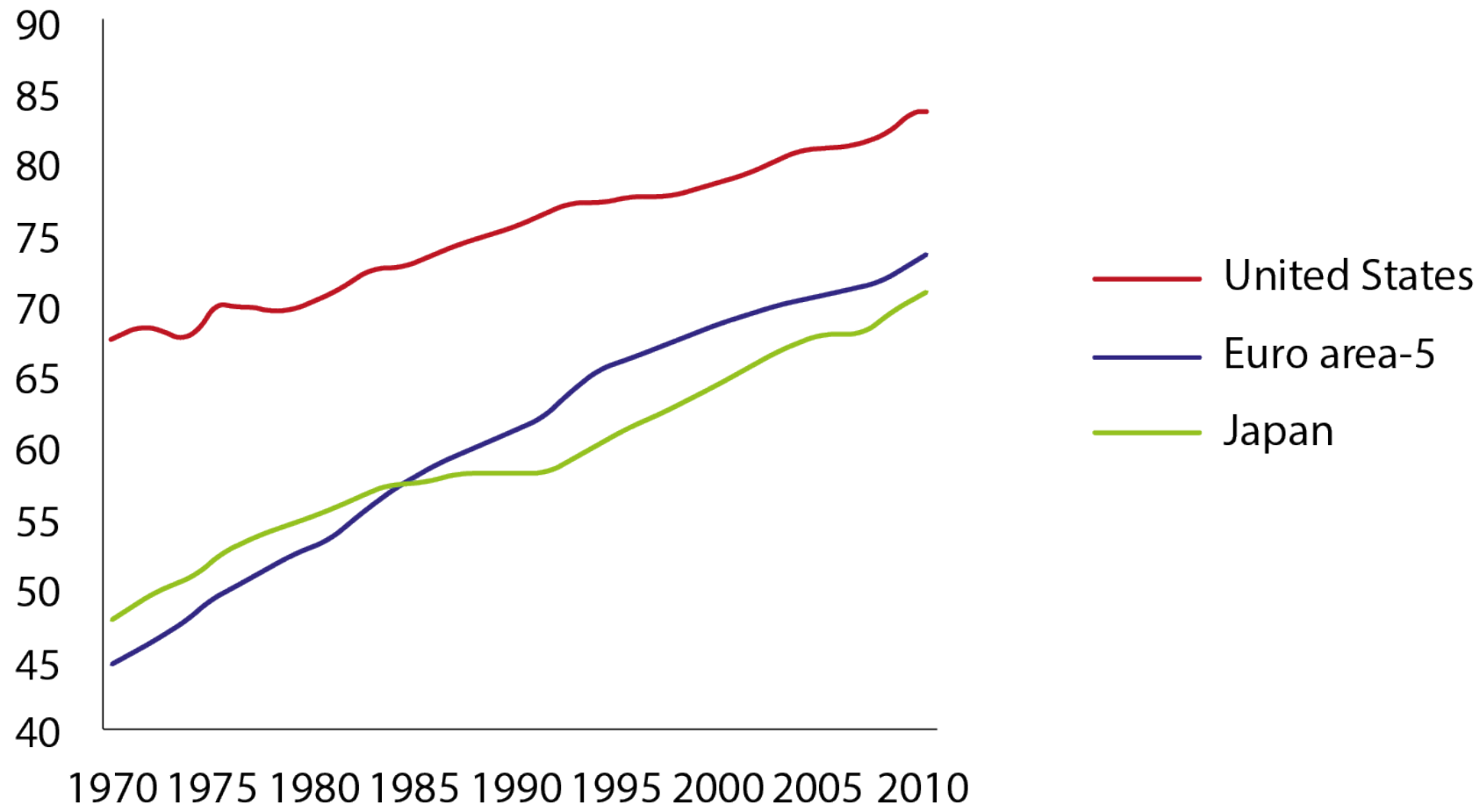


Figure 3. Shares of services in household final consumption expenditures (percentages)

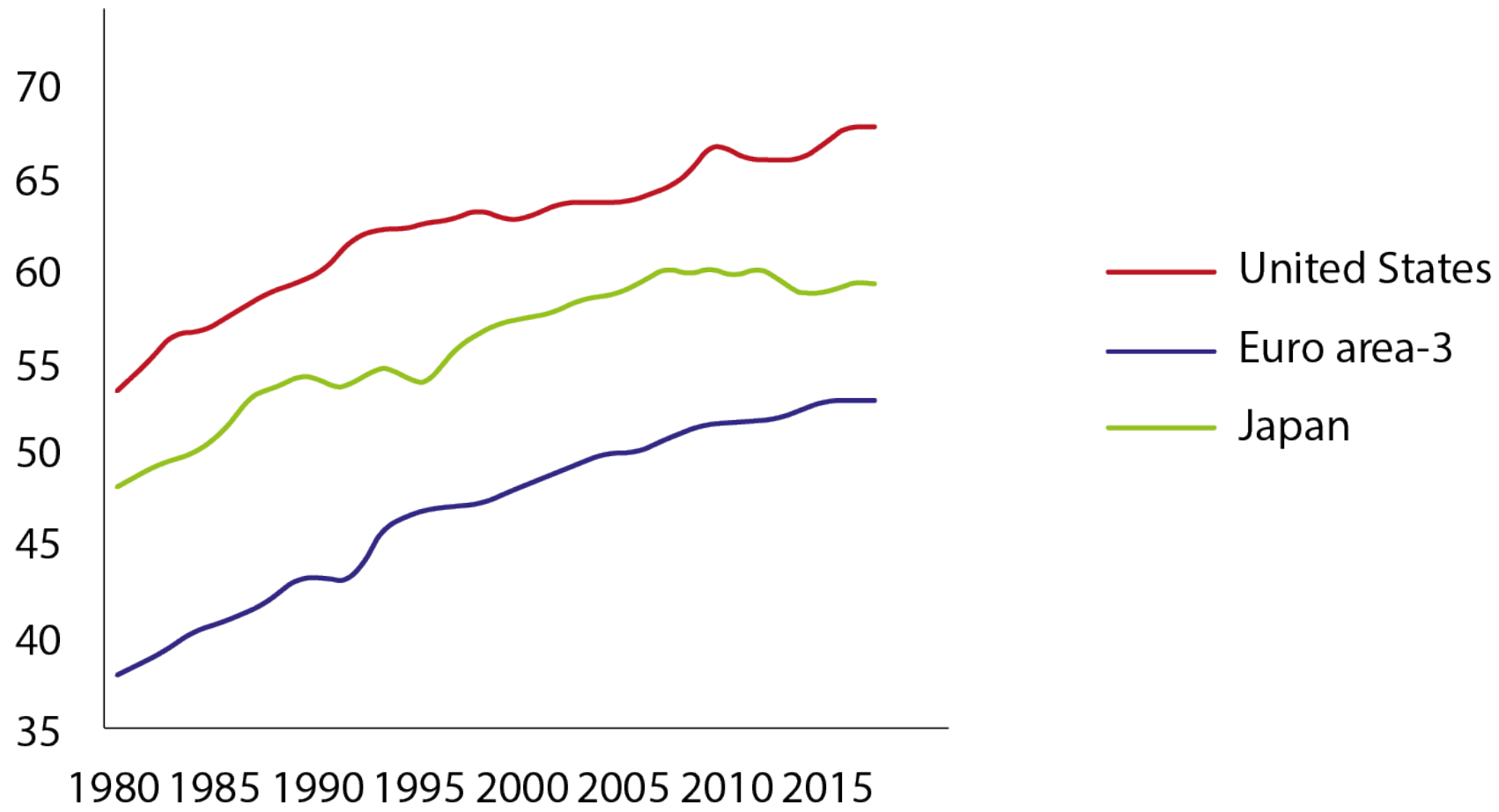


Figure 4. Gross value added deflator of services over manufacturing (Indices 1970=1)

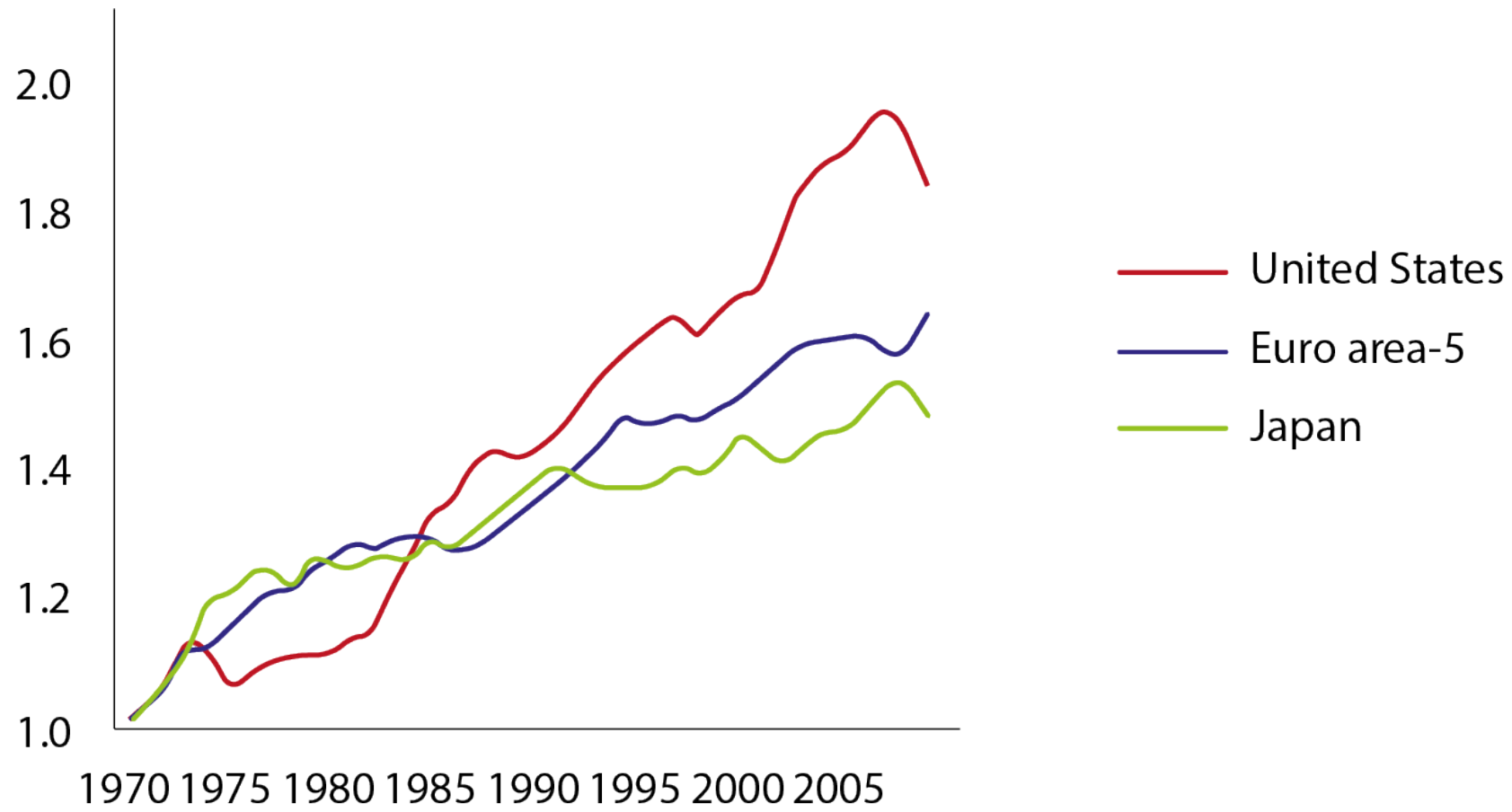


Figure 5. Share of manufacturing in total employment (percentages)

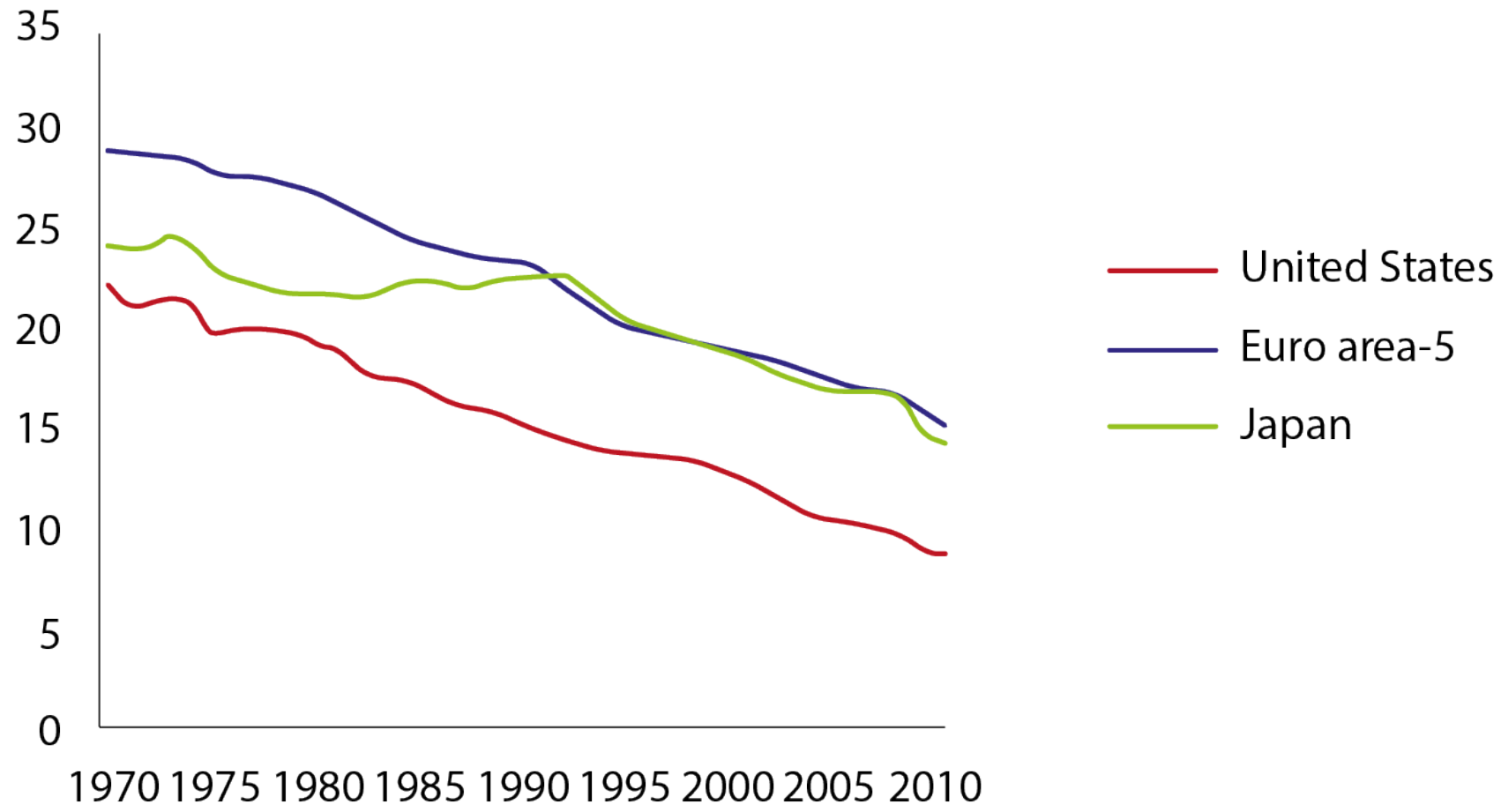


Figure 6. Share of services in core inflation (percentages)

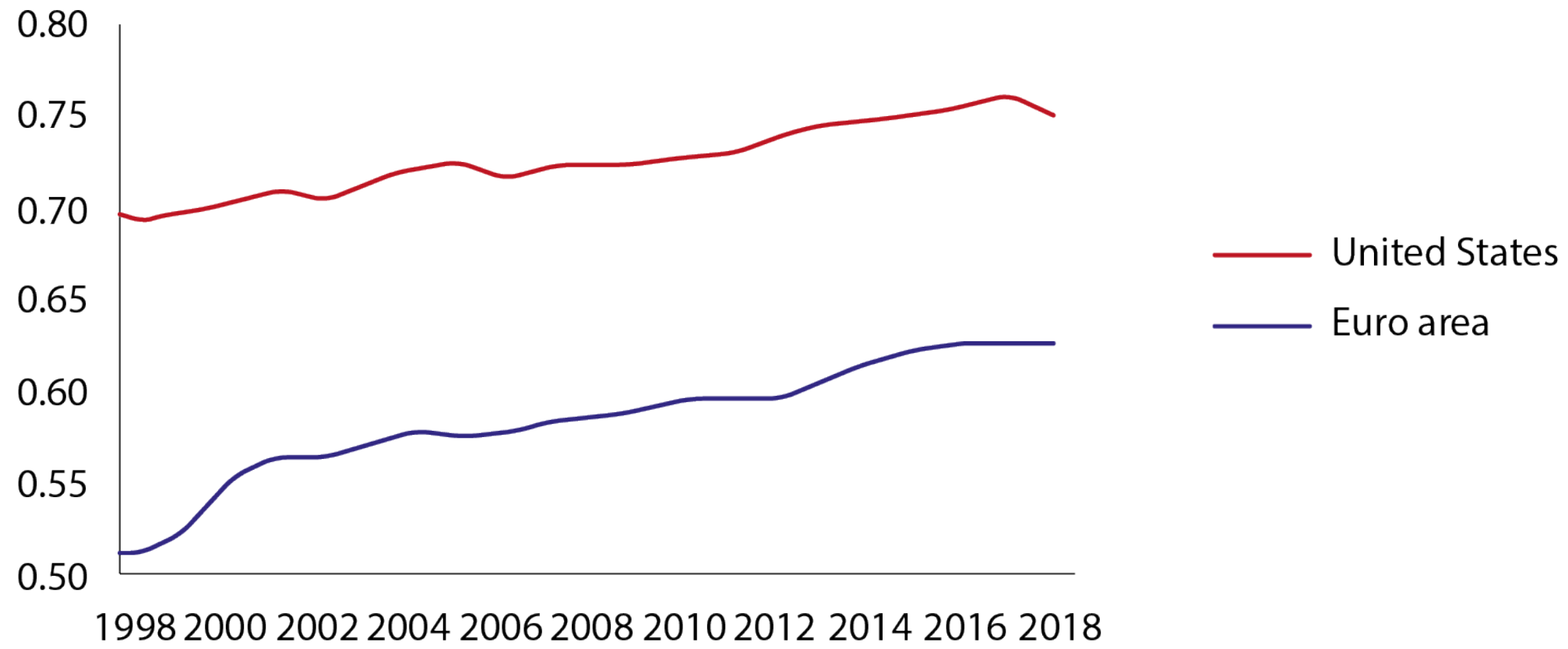


Figure 7. Euro area HICP excluding energy and food (annual percentage change)

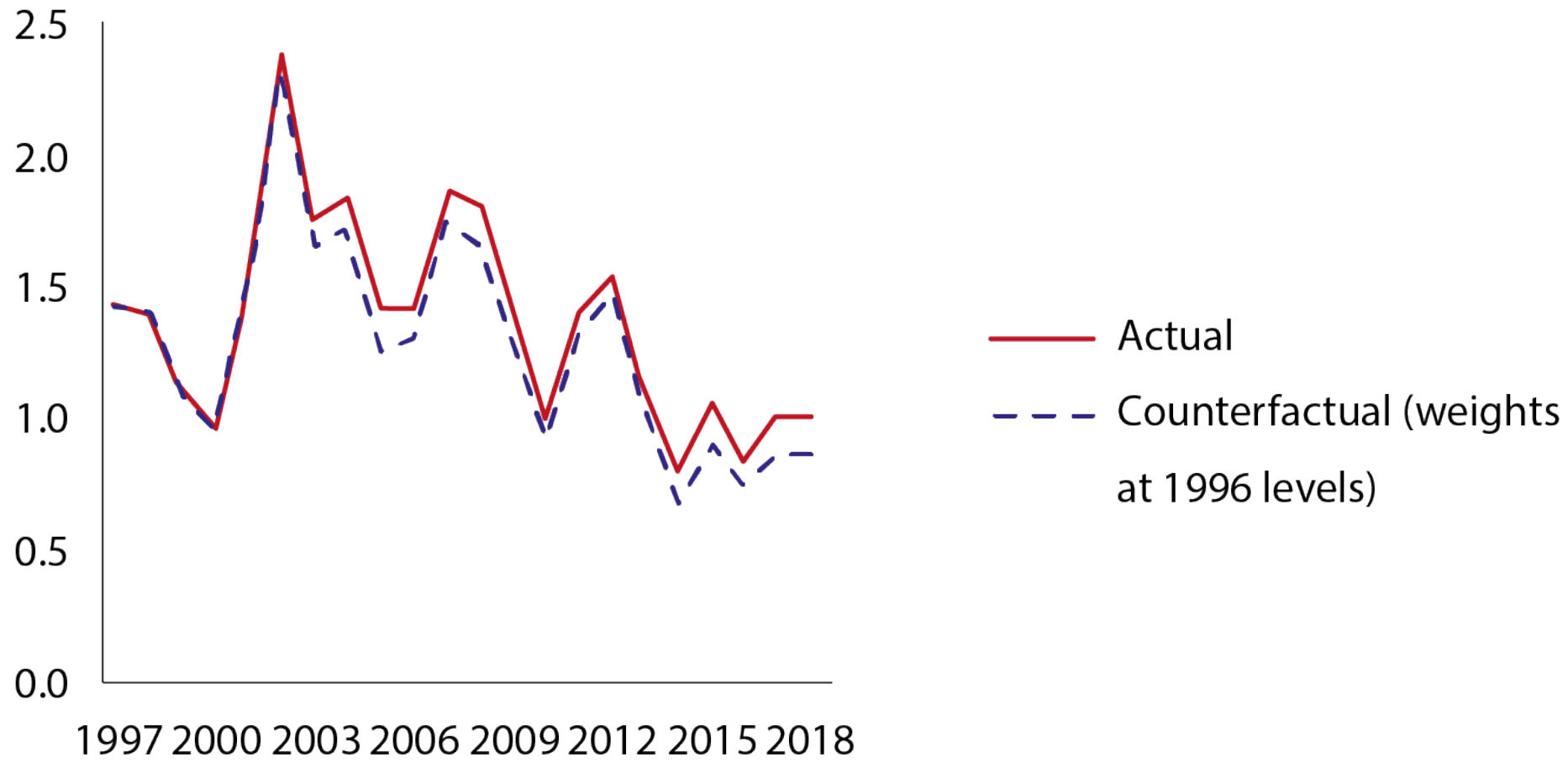


Figure 8a. Inflation response to an easing of monetary policy (y-axis: percent, x-axis: quarters)

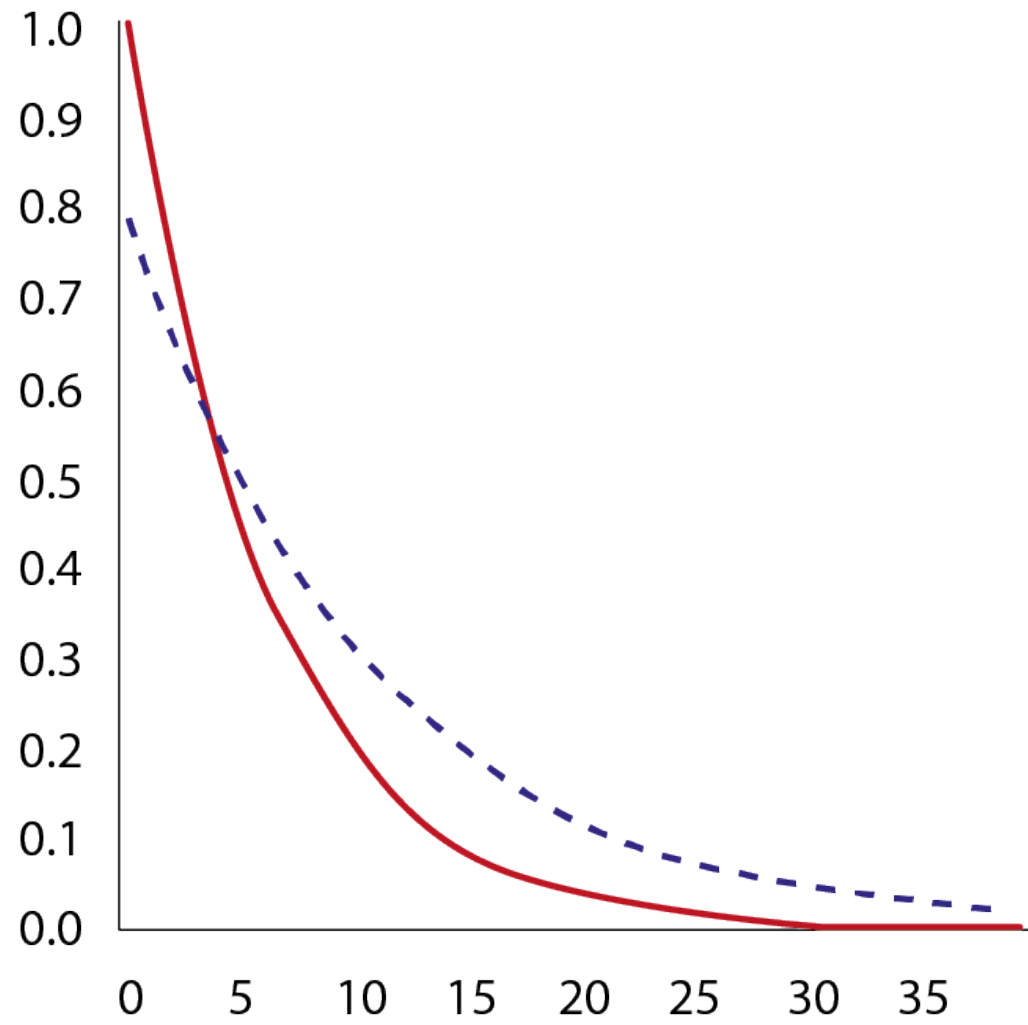
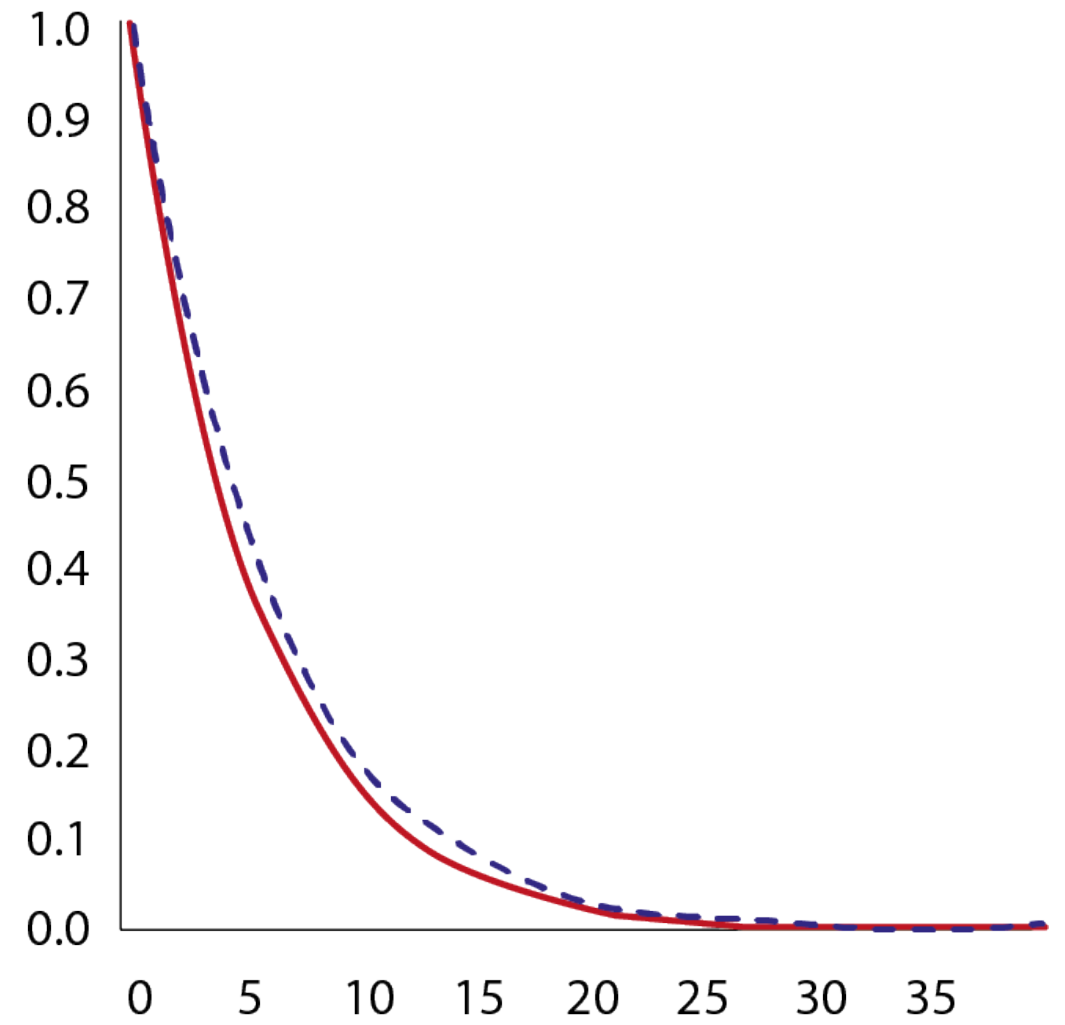


Figure 8b. Output response to an easing of monetary policy (y-axis: percent, x-axis: quarters)



— 1970 - - - 2000

Figure 9. Difference between euro area services and NEIG inflation (percentage per annum)

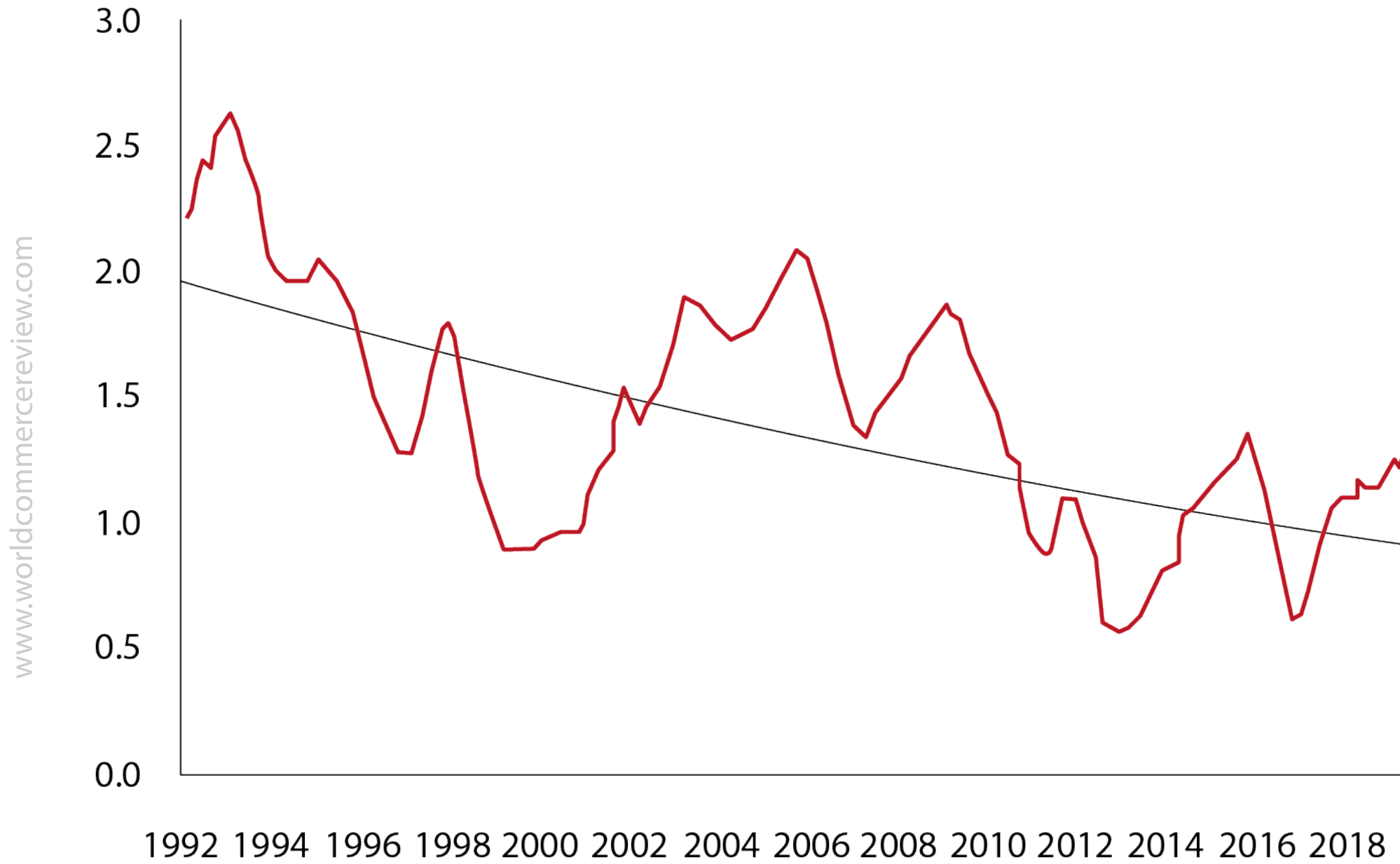


Figure 10. Services input in the production of final services and goods (percentages)

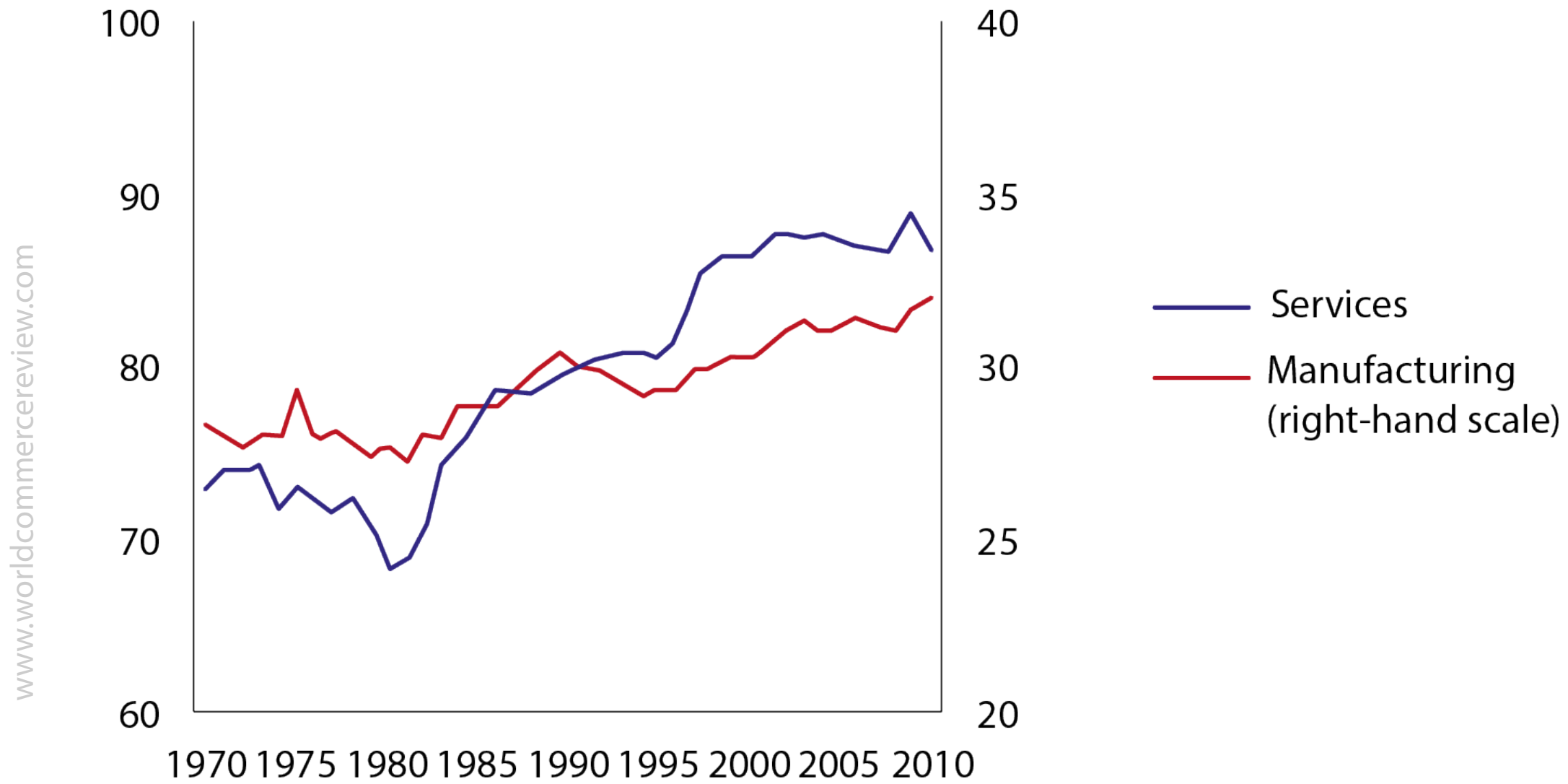
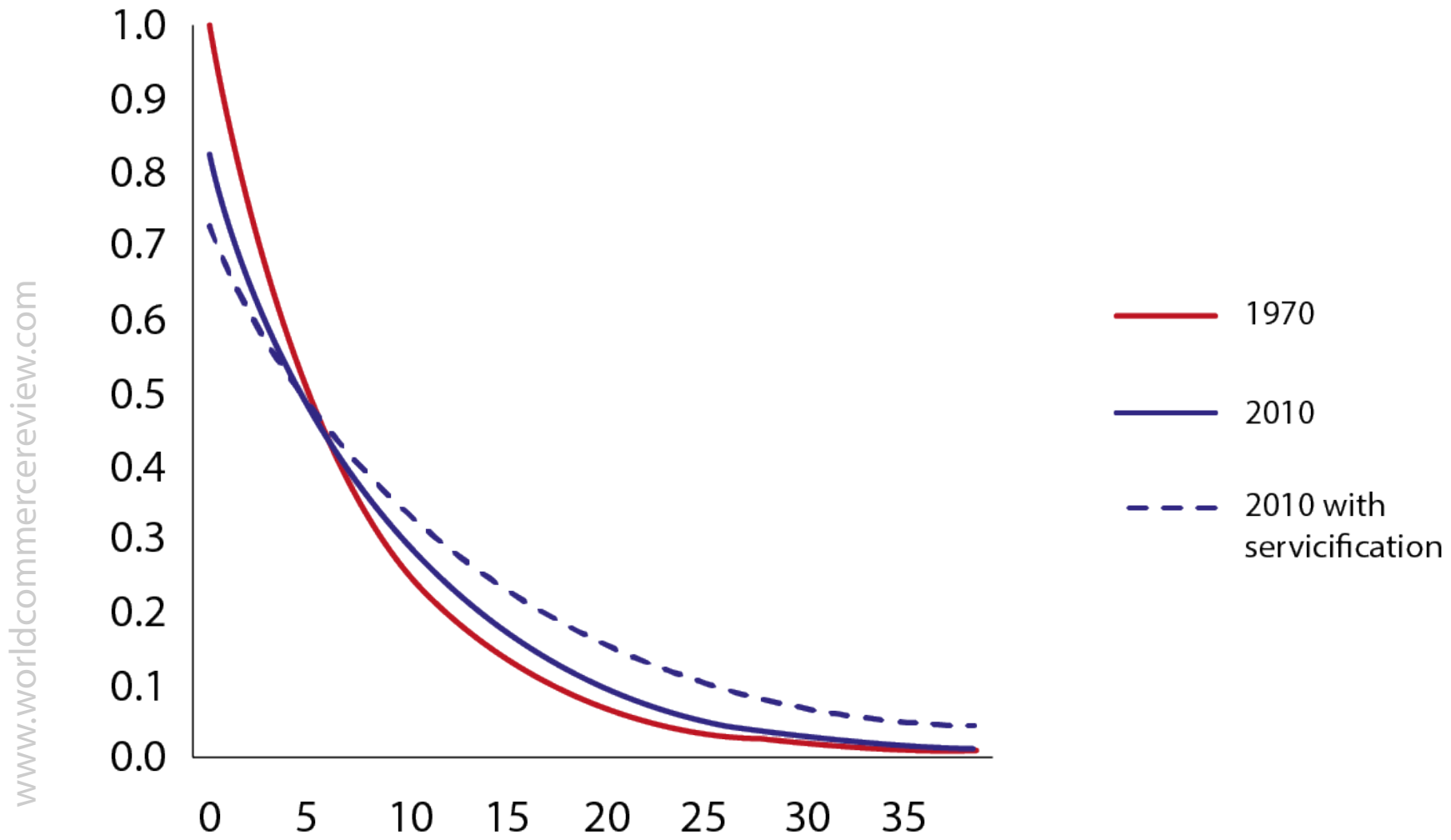


Figure 11. Response of US inflation to an easing of monetary policy (y-axis: percent, x-axis: quarters)



The rise of the service economy

One of the most striking trends in advanced economies over the past few decades has been the growing importance of the services sector in aggregate economic activity. Three stylised facts document this rise³.

First, from 1970 to 2010, the share of services in total gross value added increased by more than 20 percentage points in the euro area and by about 14 and 16 percentage points in the United States and Japan respectively. You can see this in Figure 1.

Second, and unsurprisingly given that many services are labour intensive, there has been an even greater increase in the percentage of the workforce employed in the services sector. You can see this in Figure 2. In 2010, the services sector accounted for three-quarters of the jobs in the euro area, while in 1970 this figure was about 45%. The situation in the United States is even more stark. In 2010, the services sector accounted for nearly 85% of jobs.

And, third, over the past 40 years we have seen a significant increase in the consumption of services by households⁴. You can see this in Figure 3. Services in the euro area today account for more than 50% of final consumption, compared with less than 40% in 1980. In the United States, households today spend nearly 70% of their consumption expenditure on services, and in Japan, this figure is 60%.

These developments have been studied widely in the literature⁵. William Baumol's famous "*cost disease*" channel, for example, predicted that lower productivity growth would raise the relative price of services compared with manufacturing, which in turn would affect the sectoral allocation of consumption and labour⁶. You can see this clearly in Figure 4.

Across advanced economies, the output price of services relative to manufacturing goods has risen steadily as productivity gains in the manufacturing sector have outpaced productivity gains in the services sector. As a result, households in advanced economies are allocating less and less of their expenditure to goods, which are getting cheaper, and are instead spending more on services, whose relative prices increase with income over time⁷.

Work by David Autor and others, on the other hand, has documented how technological progress and globalisation have caused profound sectoral shifts in employment in the United States⁸. Their research focused mainly on the flipside of the developments in the services sector – that is, on the stark decline in manufacturing employment.

Since the 1970s, the manufacturing sector's share of total jobs in the United States and the euro area has practically halved. You can see this in Figure 5. Today, only around 15% of workers in the euro area are employed in the manufacturing sector⁹. In the United States, the figure is less than 10%. The research by David Autor and others has sensitised policymakers to the challenges that global trade and automation may bring in terms of inequality and social cohesion¹⁰.

Services, inflation and the transmission of monetary policy

A question that has received much less attention in central banking circles, however, is whether and how the rise of the services sector has affected the transmission of monetary policy, and whether it has contributed to the stubbornly weak inflationary pressures that we are observing today.

There are at least two broad and complementary channels through which this may happen. The first channel relates to a *composition effect* – that is, to the changing weight of services in the consumption basket. As final consumption expenditures shift, so do the weights used to calculate inflation.

You can see this in Figure 6. The weight of services in euro area core inflation has increased by around 10 percentage points since the launch of the single currency in 1999¹¹. In the United States, services today account for three-quarters of the core CPI basket.

If prices in the services sector differ in terms of level, volatility and persistence compared with other sectors, this can be expected to affect aggregate inflation dynamics.

The second channel relates to a *transmission effect* – that is, differences in how the economy reacts to monetary impulses from the central bank. If services and manufacturing differ with respect to their nominal and real rigidities, or feature different interest and exchange rate sensitivities, then monetary policy will be transmitted differently through the economy.

To put it simply, the investment-saving (IS) curve may have a different slope depending on the weight of services in the economy.

In what follows I will argue that both the composition and transmission effects could help us improve our understanding of recent inflation dynamics across advanced economies.

The composition effect

Idiosyncratic shocks in the services sector account for a larger share of aggregate fluctuations today than they did in the past. Today, an arbitrary increase in service price inflation raises euro area core inflation by nearly 25% more than it did in the mid-1990s. In Figure 7 you can see that, all else being equal, euro area core inflation would have been around 15 basis points lower in 2018 were it not for the increase in the weight of services in the euro area HICP.

So, consistent with Baumol's cost disease effect, the shift towards services, whose relative prices increase over time, has tended to lift the level of core inflation¹². This is also consistent with the limited support often found in the literature for global factors in driving domestic underlying inflation, and with evidence of a declining pass-through of exchange rate changes to final consumer prices since the 1970s and 80s¹³.

Put differently, those products that are most exposed to international competition, that are imported or that have a large import content have gradually become less significant drivers of aggregate inflation outcomes over time. For example, the import content of non-energy industrial goods is close to 20% in the euro area HICP, compared with just 8% for services. I will come back to this.

The transmission effect

Even more relevant for policymakers, however, is the effect of structural transformation on the *persistence* of inflation. This can be best illustrated when considering the impact of the second channel I mentioned before, namely the way monetary policy propagates through the economy.

To measure the effects of services deepening on the economy, Eurosystem staff have used a structural model of the euro area to compare how the changes in the structure of the euro area economy between 1970 and 2010 have affected the response of inflation and output to an easing of monetary policy¹⁴. In Figure 8 you can see the results. Three observations stand out.

First, today the (simulated) immediate reaction of inflation to an easing of monetary policy is roughly 20% smaller than it was in 1970¹⁵. You can see this by the blue dashed line being well below the red line for the first year or so. Second, over a longer horizon, monetary policy affects inflation outcomes more strongly than previously, meaning its effects are distributed more evenly over time.

Third, the real effects of monetary policy – that is, its effects on employment and growth – have changed much less over the past few decades and are, at the margin, even slightly stronger today. You can see this on the right-hand side.

Let me now try to make sense of these three observations.

Services and price rigidities

The key insight for understanding these three effects is the different behaviour of price-setters across economic sectors. In particular, there is a large and growing body of evidence that shows that prices in the services sector are considerably 'stickier' than in all other sectors in the economy – that is, they adjust less frequently¹⁶.

Take the micro evidence presented by the Eurosystem's Inflation Persistence Network. In the euro area, 5.6% of prices in the services sector change each month, compared with 9.2% for non-energy industrial goods and 28% for unprocessed food¹⁷.

Housing services, meanwhile, which account for a quarter of the services weight in the euro area HICP, are among the most rigid prices in the economy. Apartment rents in Germany, for example, remain unchanged for more than four years, on average¹⁸. Ranking industries by frequency of price changes produces remarkably consistent results across economies, both within and outside the euro area¹⁹.

Estimates of sectoral Phillips curves corroborate these findings. For France, for example, estimates show that the frequency of price changes across sectors ranges from a single quarter to almost two years. In virtually all service industries, the frequency of price changes is towards the upper end of this range²⁰.

There are at least two factors that may help explain why services prices may react more sluggishly to changes in firms' external conditions. One is that wages account for around 40% of input costs in services, compared with 20% in the manufacturing sector²¹.

Just think of education, health, childcare, restaurants and so forth. Wage rigidity implies that the costs of producing most services are relatively stable over time, resulting in less need for price adjustments.

Another factor relates to competition. Evidence shows that markups in the services sector are higher, on average, than in the manufacturing sector, partly reflecting reduced exposure to foreign competition²². Although the share of services in total global trade has increased somewhat since 1970, they still only account for around a fifth of total global exports today²³. Lower competition may allow services firms to adjust their prices less frequently.

The implication is that the rise of the services sector has measurably lowered the median frequency of price changes in the economy and, therefore, the response of inflation to changes in demand and monetary policy in the short term, as you can see on the left-hand side of my slide.

But in the medium term, as more and more firms readjust their prices as economic conditions improve, inflation will respond more forcefully. The model predicts that, after around two and a half years, the cumulative effects of monetary policy on inflation are higher today than in 1970. To sum up, services deepening implies that monetary policy takes more time to be transmitted to inflation, but its effectiveness has not diminished.

This is also true for the impact of monetary policy on growth and employment, as you can see on the right-hand side. In a nutshell, there are two opposing forces at work. On the one side, services are, on average, less interest-

rate sensitive – that is, the IS curve is flatter, which in principle makes a service-based economy less responsive to monetary policy.

But because prices are now more rigid on the whole, more of the adjustment in the economy needs to happen through changes in quantities rather than prices. Rigid prices are the reason why monetary policy has real effects in the first place. This latter effect may more than offset the reduced interest rate sensitivity, leading to the picture you can see on the right-hand side²⁴.

The rise of services as a production input

And yet, one may correctly argue that, even when taking into account the transmission effect, underlying inflation in the euro area today remains too low, given how much time has elapsed since we launched our monetary stimulus. Low inflation appears even more of a puzzle when considering the composition effect, which should cause inflation to rise over time, all else being equal.

Of course, a number of factors may currently be at play, many of which we do not yet understand properly, such as firms' state-contingent pricing decisions²⁵. Structural transformation is also still ongoing. Consider Spain. The services sector's share of total employment has increased by more than 8 percentage points, to 78% since the start of 2008 alone. The unwinding of imbalances is often the catalyst for large reallocations of economic activity across sectors, which may further delay the pass-through of policy changes.

But I would argue that part of the puzzle may also relate to structural changes within the services sector, which is itself subject to transformation. I would like to highlight two of these changes. First, all services are not made equal. Recent research shows that some services industries, mostly those that can be delivered at distance, such as telecommunications and finance, are among the most productive and thriving industries in the economy²⁶.

As a result, a portion of services have been found to feature a *falling* relative price as income rises, much like manufacturing industries²⁷. Indeed, in Figure 9 you can see that the difference between price inflation for services and non-energy goods has been steadily trending downwards over time, reducing overall inflationary pressures in the economy. In other words, the pace with which the relative price of services is increasing over time – Baumol’s cost disease channel – has gradually started to decelerate, at least in the euro area²⁸.

The second structural change relates to the input-output structure of our economies. Services not only account for a much larger share of consumption and employment, they also make up a growing share of intermediate inputs used in the production of both services and manufacturing – a development that some have coined ‘servicification’²⁹.

You can see this in Figure 10 for the case of the United States, where reliable long time series data are available. For the manufacturing sector, the proportion of total inputs accounted for by services increased from around 28% in 1970 to 32% in 2010. For the services sector, the increase is even more striking. Intermediate services increased their share of total inputs by 14 percentage points, to 87%, over the same period.

The implication is that sticker services prices spread much more widely through the economy via their effect on firms’ marginal costs³⁰. In Figure 11 you can see the impact on the transmission of monetary policy. Eurosystem staff have calibrated the same model I mentioned before, but this time for the US economy, also taking into account the change in the input-output structure.

Clearly, the ‘servicification’ of the US economy has contributed to further dampening the impact of monetary policy impulses on inflation in the short term, meaning it takes even longer to see the full effects of monetary easing. Data

on input-output structures for the euro area suggest that the effect is likely to be of a similar magnitude on this side of the Atlantic³¹.

Again, current inflation outcomes are likely driven by a host of factors. But, all else being equal, it is now easy to see that the increase in wages that we have observed over the past year or so can be expected to take longer to pass through to final consumer prices than it did in the past.

Conclusion

I will leave you with three key takeaways. The first is that the rise of services in production and consumption over the past few decades has contributed to lift core inflation across advanced economies – making current low inflation appear even more puzzling.

The second key takeaway is that services deepening has had a profound impact on the transmission of monetary policy, also in the euro area. It has lowered the median frequency of price changes in the economy, increasing the lag with which monetary policy is transmitted to consumer price inflation.

The third and final takeaway is that the service sector itself is subject to change. The rise and expansion of ‘modern’ services that can be delivered at distance means that competition and aggregate productivity may increase over time, thereby contributing to reducing price rigidity. Completing the single market for services in Europe, and reducing barriers to trade for services, would support this process and thereby also facilitate a faster transmission of monetary policy³². ■

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Endnotes

1. For an overview, see Ciccarelli, M and Osbat, C (2017), [“Low inflation in the euro area: Causes and consequences”](#), Occasional Paper Series, No 181, ECB; Draghi, M (2019), [“Monetary policy in the euro area”](#), speech at the conference “The ECB and Its Watchers XX”, Frankfurt am Main, 27 March; Powell, JH (2018), [“Monetary Policy and Risk Management at a Time of Low Inflation and Low Unemployment”](#), speech at the “Revolution or Evolution? Reexamining Economic Paradigms”, 60th Annual Meeting of the National Association for Business Economics, Boston, Massachusetts; and Cœuré, B (2017), [“Scars or scratches? Hysteresis in the euro area”](#), speech at the International Center for Monetary and Banking Studies, Geneva, 19 May.
2. See Cœuré, B (2018), [“Monetary policy and climate change”](#), speech at a conference organised by the Network on Greening the Financing System, the Deutsche Bundesbank and the Council on Economic Policies, Berlin, 8 November; and Nerlich, C and Schroth, J (2018), [“The economic impact of population ageing and pension reforms”](#), Economic Bulletin, Issue 2, ECB.
3. Data on gross value added and employment may differ from national accounts data due to differences in sectoral allocations. See Timmer, MP, de Vries, GJ, and de Vries, K (2015), [“Patterns of Structural Change in Developing Countries”](#), in J Weiss, and M Tribe (eds.), *Routledge Handbook of Industry and Development*, (pp. 65-83), Routledge.
4. Consumption data availability is more limited. The analysis therefore focuses on the three largest euro area countries and covers the period since 1980.
5. For an early reference, see Kuznets, S (1959), [“Quantitative Aspects of the Economic Growth of Nations: IV. Distribution of National Income by Factor Shares”](#), *Economic Development and Cultural Change*, Vol. 7, No 3, Part 2, pp. 1-100. See also Herrendorf, B., Rogerson, R. and Valentinyi, A (2013), [“Two Perspectives on Preferences and Structural Transformation”](#), *American Economic Review*, Vol. 103, No 7, pp. 2752-2789; Herrendorf, B, Rogerson, R and Valentinyi, A (2014), [“Growth and Structural Transformation”](#), in Aghion, P and Durlauf, SN (eds.), *Handbook of Economic Growth*, Vol. 2, pp. 855-941, Amsterdam: North-Holland. For the impact of the decline in manufacturing on GDP volatility, see: Carvalho, V and Gabaix, X (2013), [“The Great Diversification and Its Undoing”](#), *American Economic Review*, Vol. 103, No 5, pp. 1697-1727;

and Moro, A (2012), [“The structural transformation between manufacturing and services and the decline in the US GDP volatility”](#), *Review of Economic Dynamics*, Vol. 15, No 3, pp. 402-415.

6. See Baumol, W, and Bowen, W (1966), *Performing Arts, The Economic Dilemma: a study of problems common to theater, opera, music, and dance*, MIT Press.

7. Developments in per capita income are associated with changes in consumption patterns, a well-known regularity that dates back to Engel, if not further. See Engel, E (1857), “Die Produktions- und Konsumverhältnisse des Königreichs Sachsen”, in *Zeitschrift des Stat. Büros der Kgl. Sächs. Ministeriums des Inneren*.

8. See Autor, D, Dorn, D and Hanson, G (2013a), [“The China Syndrome: Local Labor Market Effects of Import Competition in the United States”](#), *American Economic Review*, Vol. 103, No 6, pp. 2121-2168; Autor, D and Dorn, D (2013b), [“The Growth of Low-Skill Service Jobs and the Polarization of the US Labor Market”](#), *American Economic Review*, Vol. 103, No 5, pp. 1553-1597; and Ngai, LR and Pissarides, C (2007), [“Structural Change in a Multisector Model of Growth”](#), *American Economic Review*, Vol. 97, No 1, pp. 429-443.

9. There are, of course, notable differences across euro area countries.

10. See Cœuré, B (2018), [“Taking back control of globalisation: Sovereignty through European integration”](#), contribution to the 2018 Schuman Report on Europe, 28 March; and IMF (2018), [“Manufacturing Jobs: Implications for Productivity and Inequality”](#), *World Economic Outlook*, Chapter 3, April.

11. Core inflation refers to the euro area HICP, excluding food and energy.

12. For the United States, see, for example, Wolman, A and Ding, F (2005), [“Inflation and Changing Expenditure Shares”](#), *Economic Quarterly*, Vol. 91, No 1, Federal Reserve Bank of Richmond, Winter 2005. Of course, such simple comparisons suffer from the endogenous relationship between the relative prices of services and their impact on changes in nominal consumption weights. Yet, a large share of the increase in the consumption of services also happened in real terms.

13. See, for example, ECB (2017), [“Domestic and global drivers of inflation in the euro area”](#), *Economic Bulletin*, Issue 4; Cœuré, B (2017), [“The transmission of the ECB’s monetary policy in standard and non-standard times”](#), speech at the workshop “Monetary policy in non-standard times”, Frankfurt am Main, 11 September; Mikolajun, I and Lodge, D

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14. See Galesi, A and Rachedi, O (2018), *Services Deepening and the Transmission of Monetary Policy*, Journal of the European Economic Association, pp. 1-33.

15. In reality, inflation responds to monetary impulses with a delay and features a so-called hump-shaped response, with the peak some four to eight quarters after the initial impulse. This effect is often achieved in models by introducing inflation indexation. The precise dynamic response of inflation is not relevant for the purpose of this exercise, however. See also Dixon, H and Kara, E (2006), *Understanding inflation persistence: a comparison of different models*, Working Paper Series, No 672, ECB.

16. See, for example, Bouakez, H, Cardia, E and Ruge-Murcia, F (2009), *The Transmission of Monetary Policy in a Multi-Sector Economy*, International Economic Review, Vol. 50, No 4, pp. 1243-1266; Bouakez, H, Cardia, E and Ruge-Murcia, F (2014), *Sectoral Price Rigidity and Aggregate Dynamics*, European Economic Review, Vol. 65(C), pp. 1-22; and Nakamura, E and Steinsson, J (2008), *Five Facts about Prices: A Reevaluation of Menu Cost Models*, Quarterly Journal of Economics, Vol. 123, No 4, pp. 1415-1464.

17. See Álvarez et al. (2006), *Sticky Prices in the Euro Area: A Summary of New Micro-evidence*, Journal of the European Economic Association, Vol. 4, No 2/3, pp. 575-584. To the extent that e-commerce is contributing to further increasing the frequency of price changes of goods sold online, the difference between services and goods is likely to grow further. See Gorodnichenko, Y and Talavera, O (2017), *Price Setting in Online Markets: Basic Facts, International Comparisons, and Cross-Border Integration*, American Economic Review, Vol. 107, No 1, pp. 249-82.

18. See Hoffmann, J and Kurz-Kim, J-R (2006), *Consumer price adjustment under the microscope: Germany in a period of low inflation*, Working Paper Series, No 652, ECB.

19. In the United States, prices are, in general, more flexible. 15% of prices in the services sector are changed each month, compared with 22% in non-energy industrial goods. See Álvarez et al. (2006), *op. cit.*

20. See Imbs, J, Jondeau, E and Pelgrin, F (2011), [“Sectoral Phillips Curves and the Aggregate Phillips Curve”](#), *Journal of Monetary Economics*, Vol. 58, No 4, pp. 328-344.
21. See Bobeica, E, Ciccarelli, M and Vansteenkiste, I (2019), [“The link between labor cost and price inflation in the euro area”](#), Working Paper Series, No 2235, ECB.
22. See Cavalleri et al. (2019), [“Concentration, market power and dynamism in the euro area”](#), Working Paper Series, No 2253, ECB.
23. See IMF (2018), *op. cit.*
24. See also Nakamura, E. and Steinsson, J. (2010), [“Monetary Non-Neutrality in a Multisector Menu Cost Model”](#), *Quarterly Journal of Economics*, Vol. 125, No 3, pp. 961-1013; Pastén, E, Schoenle, R and Weber, M (2018), [“The Propagation of Monetary Policy Shocks in a Heterogeneous Production Economy”](#), NBER Working Paper, No 25303; and Llaudes, R (2007), [“Monetary Policy Shocks in a Two-Sector Open Economy: An Empirical Study”](#), Working Paper Series, No 799, ECB.
25. See Bobeica et al. (2019), *op. cit.*
26. See IMF (2018), *op. cit.*; and Stiroh, K (2002), [“Information Technology and the U.S. Productivity Revival: What Do the Industry Data Say?”](#), *American Economic Review*, Vol. 92, No 5, pp. 1559-1576.
27. The trend increase in the relative price of aggregate services is thus mostly driven by large expenditure categories, such as housing, government and healthcare. See Duarte, M and Restuccia, D (2017), [“Relative Prices and Sectoral Productivity”](#), NBER Working Paper, No 23979; Eichengreen, B and Gupta, P (2013), [“The two waves of service-sector growth”](#), *Oxford Economic Papers*, Vol. 65, No 1, pp. 96-123; and Berlingieri, G (2013), [“Outsourcing and the Rise in Services”](#), CEP Discussion Papers, No 1199.
28. This can also be seen on slide 4. The relative price of services in the euro area increased by 33% from 1970 to 1989 and by 21% from 1990 to 2009.
29. See, for example, Baldwin, R, Forslid, R and Ito, T (2015), [“Unveiling the Evolving Sources of Value Added in Exports”](#), IDE-JETRO Joint Research Program Series, No 161. See also IMF (2018), *op. cit.* For a more general discussion, see

Acemoglu et al. (2012), [“The Network Origins of Aggregate Fluctuations”](#), *Econometrica*, Vol. 80, No 5, pp. 1977-2016.
30. See also Pastén, E, Schoenle, R and Weber, M (2018), *op. cit*, and Anderton et al. (2017), [“Sectoral Wage Rigidities and Labour and Product Market Institutions in the Euro Area”](#), *Open Economies Review*, Vol.28(5), pp.923–965. Changes in the input-output structure have also been found to have affected sectoral reallocation of labour, in particular through outsourcing. See Berlingieri, G (2014), [“Outsourcing and the Rise in Services”](#), CEP Discussion Paper, No 1199.
31. The World Input-Output Database suggests that, for the largest five euro area countries, the gross input share of services in the production of final services has increased by 5 percentage points, to 81%, from 1995 to 2011. For goods, it has increased by 2 percentage points, to 38%.
32. See also Masuch et al. (2018), [“Structural policies in the euro area”](#), Occasional Paper Series, No 210, ECB.

I would like to thank Omar Rachedi, Derry O’Brien and Chiara Osbat for their contributions to this speech. I remain solely responsible for the opinions contained herein. This article is based on a speech [delivered](#) at the 21st Geneva Conference on the World Economy, 16 May 2019.

Creating stability

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Peter Praet discusses the importance of institutions as a provider of stability and protection in an uncertain world

Uncertainty and economic developments

The economic literature – both theoretical and empirical – finds a link between heightened uncertainty and lower economic activity in the short run. There are usually fixed costs involved with investment, from creating new capital such as building a factory to hiring new staff, which cannot be recovered if the investment decision is reversed. So faced with an increase in uncertainty, businesses pare back investment plans. Similarly, if households fear unemployment or lower income from employment in the future they may reduce consumption today¹.

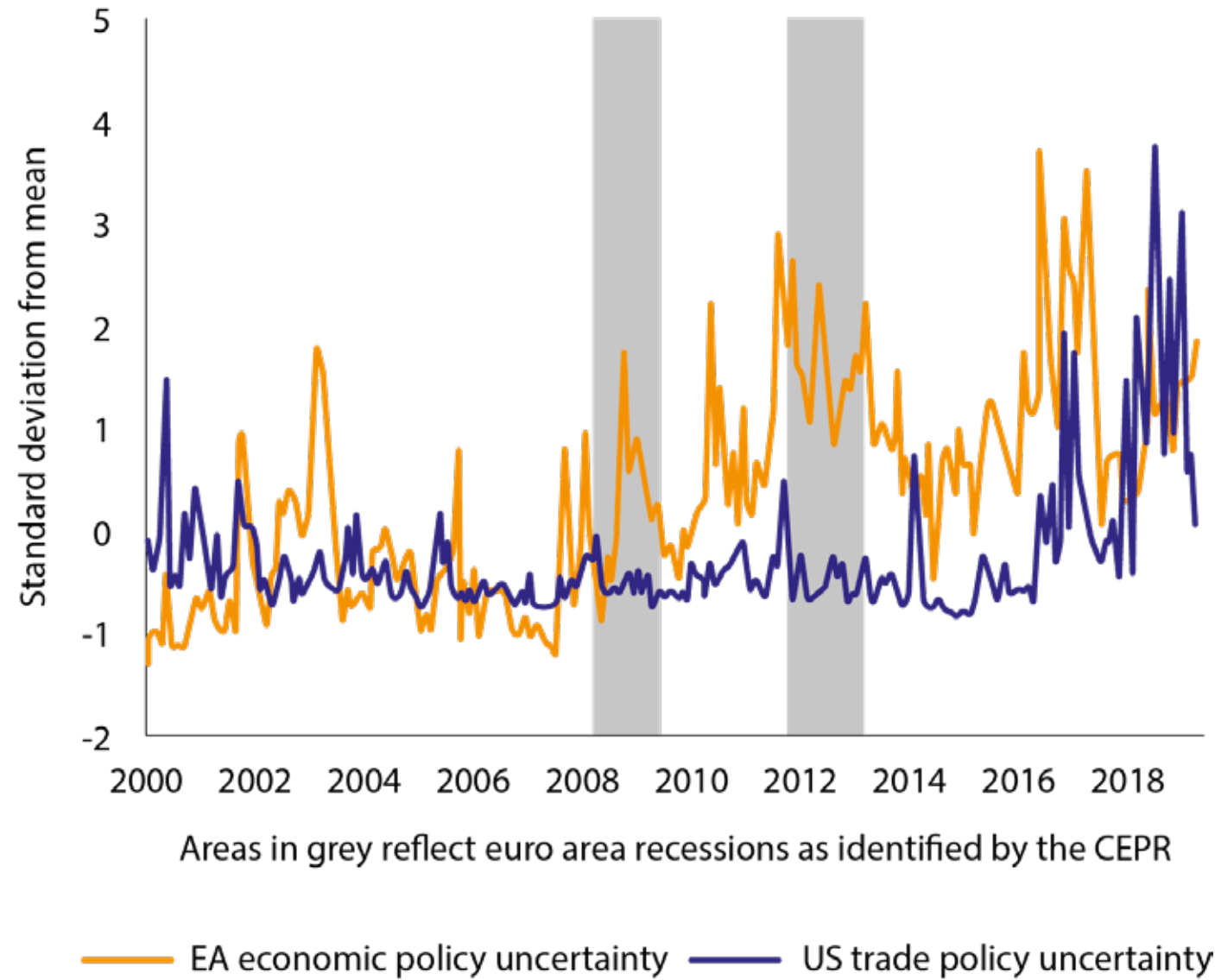
The literature uses a number of different measures of uncertainty. Such measures usually move with each other, and generally peak in recessions. The indicator for euro area economic policy uncertainty still appears relatively elevated².

This measure counts how frequently newspaper articles cite ‘uncertainty’, ‘economy’ or similar, and particular policy words, such as ‘deficit’ or ‘regulation’. A number of recent events have sparked this rise in uncertainty.

World trade policy uncertainty resulting from the negotiations initiated by the US with its trading partners as illustrated by the indicator for US trade policy uncertainty, the protracted process of withdrawal of the United Kingdom from the EU, and the policy uncertainty resulting from the rise of populism show how pervasive uncertainty is in today’s world.

These recent bouts of political and policy uncertainty have come on top of the existing and more enduring sources of ‘structural’ uncertainty about the economic outlook in advanced economies. What do we really know about the impact of new technologies and innovation on tomorrow’s economic landscape? Will secular stagnation be the new economic reality? Various authors have suggested that recent innovations have had only limited effect on productivity and growth in advanced economies.

Chart 1. Measures of euro area uncertainty



Sources: Baker, Bloom and Davis, and ECB calculations. CEPR for recession periods. Last observation refers to: April 2019.

Others have expressed concern that these innovations may polarise societies still further and may even have negative effects on employment. Technology optimists meanwhile predict the advent of a bright future, with the diffusion of innovation bringing about significant productivity increases and high levels of well-being.

It is important for us economists to be humble when forecasting the future. Debating concepts such as 'secular stagnation' may be fashionable now, but we should remember only a decade ago it was fashionable to debate the 'Great Moderation'.

In times of global political and policy uncertainty, when the foundations of the multilateralism are being challenged and global economic powers are showing muscles, it is indispensable for us to take European integration forward

Uncertainty about the future has always been with us. The incidence of natural disasters such as droughts, floods and earthquakes, the doubt of whether contractual promises will be honoured and the fear of your possessions being taken by force are all factors that can affect economic activity. Humankind, over the millennia, has put in place various mechanisms to help cope with uncertainty.

For example, putting in place narratives to filter and process the vast array of information available and arrange it in order to guide people's expectations about an uncertain future, thereby making it possible for societies to coordinate their efforts towards the common good. In this respect, building institutions has been key to providing economic stability, as they can best create an environment of trust in the future by implementing policies reducing the impact of uncertainty on economic developments.

The importance of economic narratives

Following financial crises, political uncertainty is often elevated. According to a recent study³, votes for extreme parties can increase by on average 30%, while government majorities shrink, parliaments end up with a larger number of parties and become more fractionalised. Thus the political landscape becomes more gridlocked at precisely the moment when decisiveness is typically required.

This can delay necessary policy responses, such as cleaning up the financial sector, which prolongs the post-crisis recovery. And such uncertainty, reflected in the media, can gradually build a narrative of doom and gloom around the economy or around the existing institutions – a seeping pessimism, which over time alters investors' and consumers' expectations, and thereby their behaviour.

Robert Schiller⁴ has elaborated on the epidemiology of narratives relevant to economic fluctuations, ranging from the Great Depression of the 1930s, to the Great Recession of 2007-2009 and today's climate of political uncertainty.

Popular narratives can drive economic developments. For example, when people hear stories of declining prices and then postpone their purchases: talking about deflation feeds deflation. But the relationship is more than just one way: actual events play some role in the development of popular narratives. Overall, popular narratives act as potent multiplier of economic shocks – the “*animal spirits*” of Keynes.

Today’s information and communication technologies have opened up a vast field of research into the role of narratives as determinants of economic developments. These technologies have also greatly accelerated the diffusion of narratives in our societies; it is surprising how easily fake news can flourish nowadays.

This is a serious matter. The outcome of the UK referendum can be partly attributed to the decades-long development and spread of negative popular narratives about European integration. More generally, the events I mentioned earlier are the culmination of a broader narrative against free trade that has gained traction in advanced economies. As narratives often are key determinants of economic and political outcomes, it is important to be wary of them.

The stabilising role of institutions

Institutions contribute to stability, especially in times of uncertainty, and help anchor expectations. In times of political gridlock, effective institutions are vital since they can deliver their mandates decisively and outside of the push-and-pull of the political process. This in turn foreshortens the crisis and the self-fulfilling cycle of weak economic performance and gloom-and-doom narratives.

For example, while bank failures are always possible, the existence of appropriate institutions can mitigate their impact. A sound supervisory framework makes failures less likely, while resolution plans contribute to seamless unwinding of failed institutions.

The move over recent decades to grant independence to central banks owes much to the problem of time consistency. When monetary policy was under the control of governments, there was always an incentive to 'cheat' and deliver higher than expected inflation to temporarily increase output. The existence of this incentive, and the inability of governments to credibly commit to the right policy, gave rise to de-anchored inflation expectations.

Independent central banks with a clear mandate to maintain price stability have been successful in anchoring inflation expectations. Having an explicit price stability objective provides its own stabilising narrative – people can trust the central bank to deliver an inflation rate in line with their mandate, and can therefore base their economic decisions on that expected inflation rate.

In recent years, the ECB has been an anchor of stability, creating an effective bulwark against deflationary narratives when they appeared in the euro area.

But institutions need to be strong in order to deliver in the face of shocks. To put this in perspective, consider how two periods of global economic integration have fared under different institutions. Global economic integration has fluctuated over time and is now higher than at any time in the past.

Another period of high integration, in the decades prior to World War I, ended abruptly as a financial crisis of global proportions, accompanied by a credit crunch, broke apart bilateral arrangements and paved the way for several rounds of retaliatory tariff increases.

Multilateralism has been a cornerstone of economic expansion since World War II. The current legal framework for world trade, embodied in the multilateral World Trade Organization, has proven much more robust to the recent

global financial crisis. It has played a key role in preventing the re-emergence of protectionism in the aftermath of the Great Recession.

Three stylised facts emerge from comparing the evolution of world trade in goods in the periods 1922-38 and 2001-16. First, the pre-crisis expansion was very similar in both eras. Second, world trade collapsed in 1930 and 2009, immediately after the two shocks, but the decline was sharper in 2009, even though the total decline in the 1930s was larger. Third, the subsequent recovery has been noticeably stronger in the most recent episode.

On both occasions, falling output was the main driver of the trade collapse, but protectionism after the Great Depression was largely due to the emergence of a new political constituency opposed to free trade which, in many cases, was able to develop convincing narratives for the continuation of protectionism even when the crisis was over.

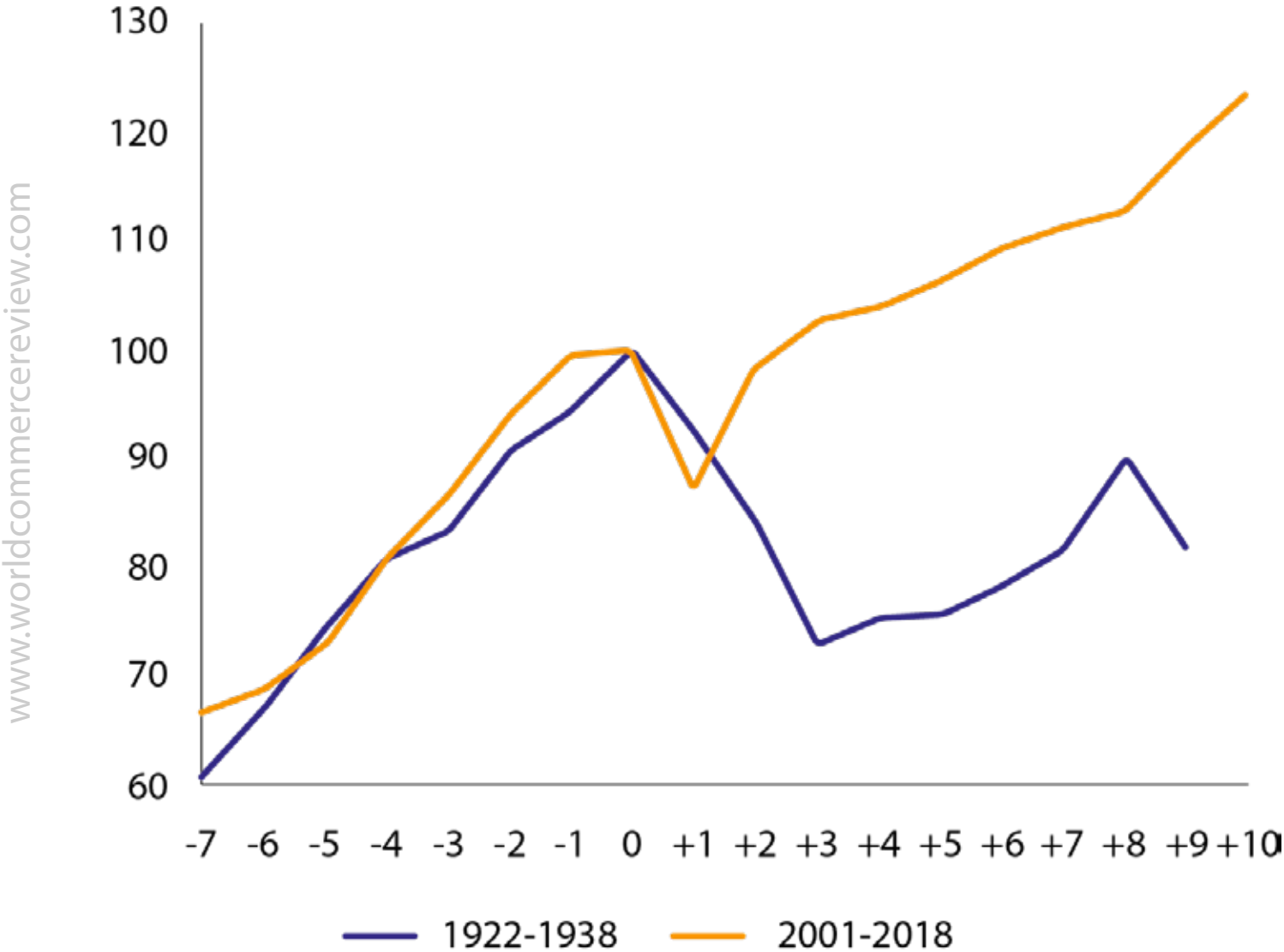
The current multilateral framework has so far shielded us against the adverse consequences of protectionist pressures for economic prosperity.

Institutions provide stability by their very nature of being hard to change. But that inertia can lead them to lack the agility to deal with new challenges. It is therefore essential for modern institutions to evaluate the impact of their policies and the effectiveness of their strategy on an ongoing basis.

There is also a chance for new institutions to be founded to improve on previous arrangements. The Federal Deposit Insurance Corporation was created in the United States in 1933 to reduce the effect of failed banks on depositors. Following the recent financial crisis, the international institutional architecture was strengthened with the inauguration of the G20 summits and the creation of the Financial Stability Board.

Chart 2. The evolution of world trade in goods during the Great Depression and the Great Recession

(Volumes: 1929 and 2008=100, respectively)



Sources: ECB staff calculations based on data in Federico and Tena-Junguito (2016)⁵ and CPB Trade Monitor data.

Notes: The year 0 on the horizontal axis is 1929 in the case of the Great Depression (blue line) and 2008 in the case of the Great Recession (yellow line). 1922-1938 trade flows are constructed using current country borders.

In the euro area, the establishment of the Single Supervisory Mechanism and the Single Resolution Mechanism has strengthened the financial system and made it more resilient to future shocks.

While the current multilateral framework has so far shielded us against protectionist headwinds, this has not been acknowledged by a significant share of the population. This can be attributed to the fact that the benefits of globalisation have not always been fairly shared, which risks triggering a setback in economic integration. This calls for further improvements in our institutions and our policy frameworks to manage and share the benefits of integration.

In particular, progress towards a better European Union is both necessary and welcome, and being constructively critical of our actions and policies is certainly part of this process. Yet it is important to acknowledge the progress made so far, to keep a sense of direction. Let me therefore take a few moments, then, to remind you of the successes of the post-war institutions in Europe.

The European Union as provider of stability and protection

The European Union and the Single Market have successfully delivered decades of peace and growing prosperity throughout Europe. There has been a steady process of strengthening trade and economic links, based on the foundations of democracy, a strong social model and the rule of law. These institutions are Europe's answer to the questions posed by globalisation, a democratic way to reap the benefits of economic integration while still protecting consumers and workers.

The Single Market is more than just a customs union or a dense network of free trade agreements between countries. It is in fact an innovative forward step in economic evolution. It provides the legal framework for trade

between member states, underpinned by the four fundamental freedoms – free movement of goods, services, labour and capital.

This framework is vital to give companies confidence to invest and integrate across national borders. For trade to flourish, businesses need to be certain that contracts will be honoured, competition rules will be fairly enforced, property rights respected and standards adhered to. In ensuring the rule of law, the Single Market reduces barriers to trade, labour mobility and competition and increases technological diffusion between countries.

This is not to say that the European Union is perfect. Strong institutions should always strive to improve, evaluate their strategies and make sure their policies bring more value to citizens. We should also be clear about what European institutions are and what they are not. There is a widespread narrative according to which Brussels imposes its decisions on member states.

Yet all regulations and directives adopted in Brussels are decided according to a political process involving the governments of all member states, which are all represented in the Council, and elected representatives of all European citizens. The Union has built over time a set of strong institutions for member states to decide together matters of common interest.

But it is important to recognise the tensions that exist between the individual priorities of nation states and the pooling of national sovereignty for mutual gain⁶. The regulations for the Single Market need to be strong enough to promote innovation, but not so tight that they stifle it. By the same token, countries have to be able to pursue their own social agendas where these do not clearly clash with the principles of the Single Market. The principle of subsidiarity is important.

Conclusion

The successful development of a strong rules-based international order in the aftermath of World War II and the existence of strong institutions at both national and international level should not lead to complacency. History has proven that accidents are possible, that protectionism can succeed periods of free trade. Brexit proves that there is a possibility for European integration to go into reverse. A more widespread reversal of European economic integration would durably jeopardise economic prosperity.

In times of global political and policy uncertainty, when the foundations of the multilateralism are being challenged and global economic powers are showing muscles, it is indispensable for us to take European integration forward. A stronger Union is important to retain influence on global economic developments and to provide security to citizens. It is therefore essential to debunk the narratives of the critics of the European Union, and to speak up loudly for the EU and its institutions. ■

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Endnotes

1. For a more detailed discussion of the economic impact of uncertainty, see "The impact of uncertainty on activity in the euro area", *Economic Bulletin, Issue 8/2016, ECB* and "Uncertainty about Uncertainty", speech by Kristin Forbes, External MPC member, Bank of England, 23 November 2016.
2. This measure is derived from a method proposed by Baker, S, Bloom, N, and Davis, S (2015), "Measuring economic policy uncertainty", *NBER Working Paper Series No 21633*.
3. Funke, M, Schularick, M, and Trebesch, C (2016), "Going to extremes: Politics after financial crises, 1870-2014," *European*

Economic Review, 88(C): 227-260.

4. Robert Schiller (2017) *Narrative Economics*, National Bureau of Economic Research Working Paper 23075

5. Federico, G and Tena-Junguito, A (2016), "A new series of world trade, 1800-1938", EHES Working Paper, No. 93.

6. On the notion of [sovereignty in a globalised world](#), Mario Draghi (2019)

This article is based on a speech [delivered](#) at the Steptoe Brussels Open Conference Series, Brussels, 15 May 2019, and build on the speech '[Creating stability in an uncertain world](#)' delivered at a SUERF Conference in London on 23 February 2017.

What reforms are still needed, and why?

In January 2018 CEPR published a Policy Insight recommending euro area reforms. Agnès Bénassy-Quéré et al identify priorities that should be at the centre of discussions on euro area architecture

In this column, the authors argue that the problems that prompted their paper are still there, new problems are on the horizon, and the current state of the policy conversation on euro area reform is disappointing. They also identify priorities that should be at the centre of discussions on reform.

In January 2018, we published a paper recommending euro area reforms to the French and German governments ([Bénassy-Quéré et al. 2018](#)). The motivation for the paper was the continued financial and political fragility in the euro area, notwithstanding the economic recovery and important reforms such as common banking supervision, the creation of the European Stability Mechanism and the broadening of the ECB's policy toolkit.

The financial system remains fragile because of the continued exposure of sovereigns to domestic banks, as well as banks to their national sovereigns, and limited room for manoeuvre by the ECB. Political fragility prevails because the key grievances of the crisis remain unaddressed.

Crisis countries feel that excessive austerity was imposed on them, and that the euro area does not provide a level playing field for their banks and corporations, whose access to credit is relatively expensive. Creditor countries feel that they live in a system that does not ultimately enforce the no-bailout clause of the European treaties, exposing them to large fiscal liabilities.

As a solution to these problems, we proposed a set of reforms that would both increase risk sharing and strengthen market discipline in the euro area. The key idea was that risk-sharing mechanisms, such as European deposit insurance (EDIS) and a European unemployment re-insurance, could actually strengthen discipline, provided that first losses would continue to be borne at national level, and provided insurance premia were aligned with risk.

The reason for this is that, in the presence of stronger safety nets, it becomes possible to solve severe fiscal crises through orderly debt restructuring, obviating the need for both self-defeating austerity and enormous crisis loans that might not be repaid.

We also argued for regulatory 'concentration charges' that would reduce the domestic sovereign exposures of banks, and for a reform of EU fiscal rules to ensure that they provided enough discipline in good times, while not

Leaders and ministers seem to lack the sense of urgency and the sense of purpose that would be needed in the current situation. They do not seem to appreciate the lingering fragility of the euro area, the proximity of the economic risks, and the danger of relying excessively on the ECB for addressing problems

magnifying economic downturns. And we argued for better enforcement mechanisms; imposing fines on nations is rarely credible. A better approach would be to require countries that spend more than the ceiling allowed under the rules to finance the extra expenditure by issuing subordinated bonds, raising the costs of such issuance, and protecting incumbent bondholders.

What is new?

Since we wrote our paper, four things have happened that are relevant to our initial worries, the proposed solutions, and economic reform in the EU more broadly.

First, we received broad support both for the general strategy proposed in our paper and for some of the proposals, along with some criticism (Pisani-Ferry 2018). For example, IMF authors published a paper advocating a very similar approach (Berger *et al.* 2018). There seems to be consensus among policy economists on how to reform the Stability and Growth Pact, namely, to focus on expenditure ceilings set to slowly reduce the debt ratios of overindebted countries¹.

Most importantly, the Meseberg declaration by German Chancellor Angela Merkel and French President Emanuel Macron of June 2018, and a subsequent EU summit, seemed to take some of our concerns and solutions on board².

Fixing the euro area's banking system was recognized as a high priority, leading to a reaffirmed commitment to a backstop from the (ESM) for bank crisis resolution, as well as explicit reference to a European Deposit Insurance Scheme. Referring to a prior letter by the Eurogroup's president, political leaders also signalled openness to more flexible forms of ESM lending to countries that do not experience a full-blown crisis as well as bond clauses to allow for orderly sovereign debt restructuring and the bail-in of private creditors, without automaticity.

Second, despite these promising signals, the implementation and follow-through of euro area reform have been largely disappointing. There was an agreement on implementing the ESM backstop to the common resolution mechanism, but it may be too small, especially when faced with liquidity issues, and is subject to national vetoes. EDIS and sovereign concentration charges are still largely considered taboos in the political debate.

The very principle that a common currency area may need a fiscal component, such as a common unemployment re-insurance, continues to be rejected by some euro area members. As of April 2019, a consensus may be emerging for a small budget within the EU's regular multi-year budget, possibly in an order of magnitude of around €20 to €30 billion, earmarked for specific support for member states in the area of innovation and in the form of loans.

While such a budget may constitute a first step, it would not fulfil any euro area macroeconomic stabilisation function, nor would it be a suitable tool to support national fiscal policies in case of an economic slowdown or recession.

On other key issues there has been virtually no progress. Despite the intellectual consensus there seems to be no appetite to change common fiscal rules to make them more transparent and less intrusive, but rather to give national governments more flexibility to use national fiscal policies.

Third, the economic outlook for the euro area has darkened. The slowdown of major euro area economies, including Germany, in the second half of 2018 has led the ECB to put the normalisation of interest rates on hold. Protectionism in the US is a significant concern, both because the trade war with China undermines investor confidence and may be contributing to the cooling of the Chinese and US economies, and because of concerns about a trade war between the US and Europe.

With interest rates already near zero and government bond holdings close to the limits that the ECB had set itself in order to avoid pushing private lenders to the sidelines, the ECB's room for stopping the next recession is limited. Any new instruments may be increasingly controversial. At the same time, the EU lacks fiscal stabilisation mechanisms. Unless the next recession disproportionately hits the stronger members – those that have fiscal room to respond – the euro area will be short of instruments to contain the crisis.

Fourth, the discussion on economic policies in the EU and the euro area has recently broadened, in part in reaction to economic nationalism in China and the US. Germany's Economy Minister Peter Altmaier published a National Industrial Strategy 2030 in February 2019, which was followed by a joint *Franco-German Manifesto for a European industrial policy fit for the 21st century*.

President Macron made a new push for European reforms in early March 2019, which abstained from returning to euro area issues but contained additional proposals in the area of EU trade and public procurement policies, and argued for a revision of European competition policies.

While the new focus of these policymakers on raising productivity growth and innovation maintaining EU economic sovereignty in the face of external challenges is welcome, some of the proposals that have been floated – in particular, promoting national and European champions and weakening EU competition policies – raise major concerns (Feld *et al.* 2016, Fratzscher and Duso 2019, Pisani-Ferry 2019, Zettelmeyer 2019).

To summarise, the problems that prompted our January 2018 paper are still there, new problems are on the horizon, and the current state of the policy conversation on euro area reform is disappointing. Leaders and ministers seem to lack the sense of urgency and the sense of purpose that would be needed in the current situation. They do not seem to appreciate the lingering fragility of the euro area, the proximity of the economic

risks, and the danger of relying excessively on the ECB for addressing problems that political leaders are unwilling to solve.

Priorities going forward

In light of the weakening economic cycle, the deficiencies of the euro area architecture may thus come to the fore sooner than we had expected a year ago. Four priorities on euro area reform should be at the centre of the discussion.

First, euro area leaders must finish the job started in 2012 of breaking the vicious circle between banks and national governments. This requires making EDIS a reality but also breaking another important taboo, namely the lack of meaningful regulation of bank exposures to sovereigns. This could be achieved by limiting how much domestic sovereign debt banks can hold (for example, through sovereign concentration charges).

Moreover, the creation of a safe asset for the euro area, without mutualising sovereign risk, should be explored further. This would contribute to severing the financial link between national governments and banks and reduce the costs of restructuring government debt in cases where debt is unsustainable. It could also prevent destabilising cross-border flights to safety.

Second, there should be a discussion both on the reforms of the fiscal framework for the euro area, but also about the appropriate fiscal policy amid the economic slowdown and the substantial downside risks facing Europe at the moment. The current fiscal rules have proven to be overly complex, hard to enforce, and procyclical. The EU should move towards simple public expenditure rules guided by a long-term debt reduction target.

Third, priority should be given to the creation of a proper macroeconomic stabilisation tool for the euro area. An important reason why some countries experienced crises that were far more severe than necessary over the past ten years was the lack of fiscal stabilisation. The Eurogroup had raised the possibility of introducing an unemployment insurance scheme that might fulfil such a stabilisation function – irrespective of whether or not it is labelled a ‘euro area budget’.

Such a scheme could play an important role in helping countries avoid a deep recession and crisis. It can be set up without creating a ‘transfer union, thus addressing concerns of Germany and other northern European countries. The objective now should be to better explain the economic benefits of such a stabilisation mechanism.

Fourth, the EU should focus on completing the Single Market, including through Banking Union and Capital Market Union, and an integrated research and investment strategy (in particular, to fight climate change). The reforms of the euro area emphasised in our previous work make a contribution towards this objective. A particularly important dimension is the integration of the banking market.

Beyond technicalities, euro area countries share a common interest in having banks that diversify risk rather than concentrating it along national lines. The tendency towards within-country concentration of the banking market is not a sound development.

The push by the French president and other EU politicians to strengthen other economic dimensions of the European Union in the areas of climate change, external security, competition, trade, and industrial policy is important and timely. However, these initiatives should not undermine European competition policy.

These priorities, which concern the euro area as a whole, are a vital complement to reform efforts aiming at enhancing productivity, growth and fiscal consolidation at national level. Without stronger efforts both at the euro area and the EU level, Europe will not prosper. ■

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Endnotes

1. Changes in tax revenue would not affect the expenditure ceiling unless they are the result of tax policy (eg. via a tax cut). A collapse in revenue in a downturn would hence be fully absorbed by an increase in the fiscal deficit. Conversely, during a boom, expenditures would remain constrained by the ceiling, leading to high fiscal surpluses. As a result, automatic stabilisers would be more effective than they are today (Beetsma et al. 2018, Feld et al. 2018, Darvas et al. 2018).

2. See <https://www.elysee.fr/emmanuel-macron/2018/06/19/meseberg-declaration-renewing-europes-promises-of-security-and-prosperity.en>, as well the EU Commission roadmap for EMU reform at https://ec.europa.eu/commission/sites/beta-political/files/euco-emu-booklet-june2018_en.pdf

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The background of the slide is a dark, monochromatic image of the International Monetary Fund (IMF) seal. The seal features a central globe surrounded by a laurel wreath, with the words 'INTERNATIONAL MONETARY FUND' and '1945' inscribed around the perimeter. The text is overlaid in white.

Reforming the global reserve system

The IMF will turn 75 next year. José Antonio Ocampo believes updating and reforming some aspects of its core functions should be considered

This column analyses the IMF's global reserve system, identifying three issues and suggesting two alternatives. Ultimately, greater use of the Fund's Special Drawing Rights would mitigate several problems in the current system. The 75th anniversary of the Bretton Woods agreement is a good time to rethink the role the institutions created at the time should play in today's world. In the case of the IMF, there are four central issues to consider:

- the global reserve system (the way international liquidity is provided);
- managing the macroeconomic linkages among different economies, including the exchange rate system;
- balance-of-payments crisis prevention and resolution, including in the first case rules for capital account management; and
- improving governance of the international monetary system, to develop a more inclusive system and appropriate links between the IMF and regional and interregional monetary arrangements (ie. the design of the Global Financial Safety Net).

Reforms efforts in all of these areas should take into account the asymmetries that characterise the global economy, and particularly the vulnerabilities that emerging and developing countries (hereafter just 'developing countries') face. In this column, I look at the first of these issues. The broader agenda has been discussed by Eichengreen (2008), Kenen (2001), Williamson (2007, 2010), among others, and in my recent book (Ocampo 2017), from which this column borrows.

As we know, the original Bretton Woods monetary system collapsed in the early 1970s when the US unilaterally abandoned the dual gold-US dollar (hereafter just 'dollar') standard, the major developed countries failed to adopt a new stable system of exchange rate parities, and IMF members were unable to agree on a new international monetary system in the Committee of Twenty negotiations that took place in 1972–74 (Williamson 1977).

The system that evolved, in an ad-hoc manner (as a 'non-system', to use the terminology of the 1970s), had a global reserve system essentially based on an inconvertible (fiduciary) dollar but open in principle to competition from other reserve currencies, and the freedom for each country to choose the exchange rate regime they chose, as long as they avoided 'manipulating' their exchange rates – a term that has never been clearly defined.

The most ambitious reform in this area would be to finance all IMF lending with SDRs, thus making global monetary creation similar to how central banks create domestic money

The basic deficiencies of this system have been identified in a sequential way in the global policy debate. The first, underscored by Keynes (1942-43), is the *asymmetric adjustment problem* – the strong pressure that deficit countries face to reduce their payment imbalances versus the weak pressure that surplus countries experience to do so. This generates a global recessionary effect during crises.

The second problem is associated with the use of a national currency as the major *international* currency. This is widely known as the *Triffin dilemma* (Triffin 1961, 1968). The essential problem, according to his original formulation, is that the provision of international liquidity requires that the country supplying the reserve currency run balance-of-payments deficits, a fact that could eventually erode the confidence in that currency.

Additional implications of the current dependence on the fiduciary dollar is that the stability of the system may be inconsistent with the monetary policy objectives of the major reserve-issuing country (Padoa-Schioppa 2011), and that the currency at the centre of the system has an unstable value.

The third flaw is the inequity bias generated by the need of developing countries to 'self-insure' against the volatility in external financing through the accumulation of foreign exchange reserves. This generates an inequity because reserves are invested in safe industrial countries' assets – ie. they are nothing else than lending to rich countries at low interest rates. Furthermore, it contributes to the generation of global imbalances.

There are two alternative ways to reform this system. The first and, in a sense, inertial solution is to let the system evolve into what it potentially could be, namely, a multicurrency arrangement. The basic advantage of this route is that it allows reserve holders to diversify the composition of their foreign exchange reserve assets, and thus to counteract the instability that characterises all individual currencies.

However, diversification has been limited in practice, as the 'network externalities' have continued to favour the use of the dollar as the major international currency, largely as a result of the fact that there is no alternative to the market for US Treasury securities in terms of liquidity and depth (Prasad 2014). Furthermore, aside from diversification, a multicurrency arrangement would not address any of the other deficiencies of the system.

This arrangement can be improved by introducing elements that enhance the capacity of exchange rates to contribute to correcting global imbalances and to provide a reasonable level of stability. The best suggestion in this regard would be a system of reference rates among major currencies, which was initially suggested by Ethier and Bloomfield (1975) and later on by Williamson (2007), among others.

This implies that currencies, and particularly major currencies, would be subject to some form of managed floating around multilaterally agreed parities or bands. Interventions in foreign exchange markets and other macroeconomic policies would reinforce depreciation if the currency is perceived to be overvalued and appreciation if it is undervalued. Such an intervention rule would provide an implicit definition of what 'manipulating' the exchange rate means – ie. encouraging exchange rate movements in the opposite direction to the agreed rate or band.

The second reform route would be to enhance the role of the only truly global reserve asset that the world has created, the Special Drawing Rights (SDRs), at least partially approaching the aspirations that were included in the reform of the IMF Articles of Agreement in 1969 of "*making the special drawing right the principle reserve asset in the international monetary system*" (Article VIII, Section 7, and Article XXII).

A more active use of this instrument should preferably make SDR allocations in a counter-cyclical way (Camdessus 2000, Ocampo 2017: Chapter 2). This was the criterion followed in the last and largest issue in history, that of 2009,

by the equivalent of 250 billion dollars. The amounts issued through time should, of course, be proportional to the global demand for reserves.

Most estimates indicate that average allocations for the equivalent of \$200-300 billion a year would be reasonable, but even this size of allocation would only marginally increase the share of SDRs in non-gold reserves. This indicates that SDRs would still largely complement other reserve assets. This is why this alternative would be complementary with a multicurrency standard.

A more active use of SDRs would mitigate several problems in the current system. First, the seignorage would accrue to all IMF members. Second, by issuing SDRs in a counter-cyclical way, it can contribute to reducing the recessionary bias associated with the asymmetric adjustment problem. Third, SDR allocations could reduce the need for precautionary reserve accumulation by developing countries.

The most ambitious reform in this area would be to finance *all* IMF lending with SDRs, thus making global monetary creation similar to how central banks create domestic money. This would involve counter-cyclical *allocations* of SDRs that help fund counter-cyclical IMF *financing*. This would follow the proposals made by the IMF economist Jacques Polak (1979) of making the IMF a fully SDR-based institution.

The simplest alternative would be to treat the SDRs not used by countries as deposits in (or lending to) the IMF that could then be used by the institution to lend to countries in need (Ocampo 2017: Chapters 2 and 7). This would require eliminating the division in the IMF between what 'general resources' and the SDR accounts (Polak 2005, Part II).

Following the discussions of the 1960s, there are also ways of including a 'development link' in SDR allocations, which would take into account the fact that developing countries have to accumulate reserves as 'self-insurance'. Williamson (2010) has proposed allocating a certain proportion to developing countries (around 80%), and then assigning the shares in the allocation among individual developing and high-income countries according to IMF quotas.

Many authors have also suggested that there could also be a broader use of SDRs in international capital markets (Cooper 2010, Eichengreen 2007). But, as the IMF has recently underscored, the market SDRs are less important than the more active use of them as reserve assets (IMF 2018).

For these reasons, it may be better again to think of a mixed system in which national or regional currencies continue to play the major role in private transactions, and the SDRs continue to perform the functions of reserve asset and medium of exchange in transactions among central banks. A mixed system would be politically more acceptable for the issuers of reserve currencies, particularly to the US.

Under a system that mixes SDRs with a multicurrency arrangement, a substitution account should be created, allowing central banks to exchange for SDRs other reserve assets they do not want to hold. This alternative was suggested by Bergsten (2007) before the 2008-09 global crisis, going back to proposals that have been made since the 1970s.

This instrument could also be seen as a transition mechanism of an ambitious reform effort (Kenen 2010). The essential issue is how to distribute the potential costs of this mechanism, the problem that blocked its adoption three decades ago.

The use of SDRs to finance IMF programmes would also help consolidate the reforms of the credit lines that have been introduced during the recent global crisis, particularly the creation of contingency credit lines (especially the Flexible Credit Line), including the Short-term Liquidity Swap recently proposed by the IMF (IMF 2017).

It would also eliminate the need for the IMF to get financing from its members in the form of 'arrangements to borrow' or bilateral credit lines. In fact, it would equally eliminate the need to make additional quota increases – though quotas would still have to be agreed to determine the size of access to IMF facilities as well as voting rights. ■

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Making Basel III work for emerging markets

Thorsten Beck and Liliana Rojas-Suarez assess the implications of Basel III for EMDEs and provides recommendations for policymakers to make Basel III work for these economies

The Global Crisis originated in the financial systems of advanced countries, so it is unsurprising that the Basel III international standards focused on the stability needs of these countries. This column assesses the implications of Basel III for emerging markets and developing economies. It also outlines the recommendations from a task force of current and former senior officials from central banks in these countries on how to make Basel III work for them.

The 2008 crisis originated in the financial systems of advanced countries and, not surprisingly, one of the important responses to prevent another credit crunch – the Basel III international standards – focused primarily on the stability needs of these countries. A detailed and wide-ranging set of measures developed by a forum of bank regulators, representing mainly the G20 nations, Basel III aims to strengthen the regulation, supervision and risk management of large banks around the world (BCBS 2017). While it is calibrated primarily for advanced countries, many emerging market countries are in the process of adopting and adapting to these rules, and many others are considering it (Hohl *et al.* 2018).

A [recent report](#) from the Center for Global Development (Beck and Rojas-Suarez 2019) assesses the implications of Basel III for emerging markets and developing economies (EMDEs) and provides recommendations for both international and local policymakers to make Basel III work for these economies. It is the outcome of intensive discussions among a task force of current and former senior central bank officials from EMDEs, led by the two of us.

Looking at Basel from the South

Our conceptual framework starts from specific characteristics of developing and emerging markets that, while not universal, are common enough to not be disregarded: variable access conditions to international capital markets; high macroeconomic and financial volatility; less developed domestic financial markets; limited transparency and data availability; and capacity, institutional, and governance challenges.

These characteristics help explain why the impact of regulatory reforms, such as those under Basel III, is expected to be different in EMDEs than in advanced countries. They also imply the need for a differentiated approach to bank regulation to make Basel III work in these countries and lead us to the following principles underpinning our recommendations:

- **Minimise/reduce negative spillover effects** of Basel III adoption in advanced countries, which might come through cross-border lending to EMDEs and the creation in EMDEs of uneven playing fields between affiliates of global banks and domestic banks.

... when banks are – correctly – subject to increasingly tighter regulatory standards, there is a bigger premium on developing non-bank segments of the financial system, such as insurance companies, pension funds, and public capital markets – segments that are still underdeveloped in most developing economies

- **Proportionality:** the application of Basel standards has to be adapted to the circumstances in EMDEs to maximise the stability benefits for their financial systems. This implies both proper specification of risks and adequate calibration and adaptation of the standards to the risks without weakening the prudential and supervisory framework.
- **Minimise financial stability versus financial development trade-offs:** while the primary objective of financial regulation is financial stability, the economic and social returns to further financial deepening are substantially higher in EMDEs than in advanced economies, calling for a balance between stability and development concerns.

In the following, we will discuss some of the task force's recommendations.

Minimising potential spillovers on EMDEs

One important area of concern are the significant changes in the volume and composition of cross-border financing to EMDEs since the Global Crisis, including a reduction in cross-border lending from global banks, a heavier reliance by EMDEs on debt issues rather than cross-border lending, and an increasing role of South-South lending (Cerutti *et al.* 2018, Rojas-Suarez and Serena 2015).

These three developments have important policy implications, but also call for more analysis. On the one hand, regulators from advanced economies may follow the US Federal Financial Institutions Examination Council's (FFIEC) example of making bank-level data on foreign exposures public, including on loans to EMDEs to thus expand the currently extremely limited research on the effects of Basel III on cross-border lending to EMDEs.

However, if these data cannot be made public, the Task Force recommends that the [International Banking Research Network](#) (IBRN), a group of researchers from over 30 (with the number growing) central banks and multilateral institutions that analyses issues pertaining to global banks, broaden and deepen their analysis on cross-border spillover effects for EMDEs.

Infrastructure finance

Emerging markets face daunting challenges in building and upgrading infrastructure in telecommunication, transportation, energy and water, which requires resources beyond those available to the public sector. There has been an increasing trend towards private participation in infrastructure funding, but many obstacles remain.

While it is far from clear that Basel III has been a primary factor behind the relative reduction in private infrastructure finance in EMDEs (FSB 2018), an ongoing challenge is that infrastructure is currently not an asset class in itself (Ketterer and Powell 2018). If projects can be developed in a more standardised fashion and there is agreement on the different dimensions of risk and how they should be quantified, then it may become easier to issue securities backed by infrastructure projects.

The task force therefore supports efforts to develop infrastructure as an asset class (or a set of asset classes) and to seek standardisation in various aspects of infrastructure project development (in terms of the analysis of cash flows and risks, in the types of contracts that are used and in terms of securities issued) should therefore be pursued and intensified.

Cross-border banking in EMDEs: a level playing field?

There is also potential for spillover effects through the large presence of affiliates of global banks in EMDEs (eg. Levin-Konigsberg *et al.* 2017). Supervisors of global banks in advanced economies require that regulations,

including Basel III, be applied and enforced on a consolidated basis, that is, to the entire banking group, including its foreign affiliates.

But this can mean that the same sovereign exposure might get different regulatory treatment by home-country than by host-country supervisors. Currently, for example, in calculating capital requirements, most EMDE authorities assign a risk weight of zero to papers issued by their sovereign and denominated in local currency, whereas global banks largely use their own internal rating models for this purpose.

Thus, it is plausible that the same sovereign paper issued by an EMDE government could be treated as a foreign currency-denominated asset, with higher risk weight requirements, if held by a local subsidiary of a global bank, and as a local currency-denominated asset if held by a domestic bank. This, in turn, increases the cost to the subsidiary to hold the sovereign paper.

Given the importance of these banks in the provision of liquidity of government securities, the financing costs of EMDE governments would face upward pressure. Although this issue has not changed from Basel II to Basel III, its relevance remains high.

One possible solution would be to agree on threshold values for a set of easily verifiable and widely available macrofinancial indicators (including, but not limited to, international credit ratings). For host countries whose indicators surpass the thresholds, home-country supervisors and global banks would accept, at the consolidated level, the host country's regulatory treatment of these exposures.

Aiming for proportionality

As EMDEs proceed to adopt and implement Basel III in their countries, proportionality implies adjusting capital

and liquidity requirements to the capacities and needs in EMDEs. Many emerging markets 'gold-plate' capital requirements, increasing them beyond international standards to reflect higher risks.

It might be better to use a data-driven process to determine the riskiness of assets and thus the necessary capital buffers. Where available, micro-data can be used to calibrate risk weights to the realities and stability needs of emerging markets.

When it comes to liquidity requirements, simpler ratios might be called for if the data requirements for the liquidity coverage ratio (LCR) and the net stable funding ratio (NSFR) are not easily fulfilled. On the other hand, the typical characteristics of EMDEs, as discussed above, might make a centralized, systemic liquidity management tool necessary.

Specifically, banks could be mandated to maintain a fraction of the liquid assets required to fulfil Basel III requirements with a centralised custodian such as the central bank. This would aid monitoring and would allow the relevant authorities to publicize the systemwide liquidity available, thus boosting market confidence and preventing systemic problems from occurring in the first place.

These liquidity requirements should be remunerated and would form part of the Basel requirements, and thus would simply be a centralised form of compliance. In highly dollarised economies, however, part of this centralised liquidity tool might have to be held in hard currency.

Not only do capital and liquidity requirements as recommended by Basel III have to be adapted to the needs and capacities of EMDEs, but they, along with a core regulatory toolbox in advanced countries, might not be sufficient to address critical stability concerns specific to many EMDEs.

There might thus be a need for cruder instruments than proposed under Basel III, including lending and exposure restrictions such as already exist in some EMDEs. Such restrictions would go beyond single-exposure limits and could refer to sectoral, geographic, or foreign-currency lending exposures.

Minimising trade-offs between financial stability and development

While the financial stability goal in Basel III is necessary, policymakers must keep in mind the sometimes sharp differences between advanced economies and their emerging market counterparts. The growth benefits from deeper and more efficient financial systems are larger in emerging than in advanced markets (Ranciere *et al.* 2008).

And when banks are – correctly – subject to increasingly tighter regulatory standards, there is a bigger premium on developing non-bank segments of the financial system, such as insurance companies, pension funds, and public capital markets – segments that are still underdeveloped in most developing economies.

Looking forward

Our report includes recommendations for regulators in advanced and emerging markets. However, it also includes important recommendations for international institutions and fora. One important challenge for international policy coordination is that although the Basel III framework in its current form might not be appropriate for many EMDEs, its adoption is often seen as important signal to the international investor community.

It might be worthwhile considering elevating other standards to fulfil such signalling functions. For example, compliance with the Basel Core Principles of Effective Banking Supervision (BCP) is a prerequisite for effective implementation of Basel III recommendations. However, in many EMDEs, there are significant deficiencies in meeting key BCPs.

Thus, the task force thinks that it is important that international financial institutions (including the Basel Committee) make explicit efforts to favour adoption of BCP as the primary signal of regulatory quality in EMDEs, thus helping to change the public perception that compliance with Basel III is the right metric to follow in EMDEs. ■

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How to ensure effective sustainable financing of international development

The world is committed to the development of low-income countries. Christine Lagarde considers the obstacles that must be overcome

Our focus today is on sustainability. Sustainable debt for sustainable growth—and, may I add, on a sustainable planet and for a sustainable future.

The challenge of attaining the SDGs

We are all committed to see low-income countries make decisive and lasting advances in development. This commitment is embodied in the Sustainable Development Goals, or SDGs—the noble trifecta of economic prosperity, social inclusion, and environmental sustainability. Attaining the SDGs is both an economic and ethical imperative.

Yet we face a steep uphill climb. Our work at the IMF has shown that many countries need to significantly scale up spending to meet the SDGs by 2030. The additional spending needs in vital areas such as health, education, and priority infrastructure represent as much as 15 percentage points of GDP on average in low-income developing countries—which is equivalent to about half a trillion US dollars in 2030. This is clearly a considerable challenge.

How can this be financed in a way that is sustainable? This is the key question. The first step begins at home—raising more domestic revenue, making spending more efficient, reducing corruption, and improving the business environment.

We believe that countries can raise as much as 5 percentage points of GDP in additional tax revenue—ambitious, but doable. But this alone will not be enough. Developing countries will also need support from the international community—from bilateral donors, international institutions, and the private sector.

On the latter: it is high time for the private sector to embrace a greater sense of social responsibility, focusing more on long-term development and less on short-term profit. Fortunately, we are seeing far greater interest in ‘impact

investing' and financial instruments that embrace environmental, social, and governance issues. This certainly bodes well for the SDGs.

The financing conundrum

We also need to talk about debt financing, which has become again an issue of concern. Let me drill down a little on this topic. On one level, of course, there is nothing wrong with borrowing for development—if it is done sustainably. Here, let me share some good news and some not-so-good news.

Over the coming decade, mobilizing financing to support the SDGs will be one of the most important challenges faced by the global community. But financing needs to be more sustainable than before

First, the good news. In recent years, low-income countries have been able to access more financing. This partly reflects relatively easy global financing conditions. More importantly, we have also seen a diverse group of official creditors step up to make funding available, and sometimes on a very significant scale in support of potentially transformative infrastructure investment.

China's Belt and Road Initiative has attracted considerable attention in this regard. The Asian Infrastructure Investment Bank (AIIB) has also emerged as an important source of financing, and the Islamic Development Bank's capital was more than tripled recently.

Now for the not-so-good news. Unfortunately, not all borrowers have managed this increased financing well, and others have been hit by significant economic shocks. The result has been a rapid rise in the median debt burden to 47 percent of GDP in 2018 for low-income developing countries. The rise has been particularly concentrated in commodity producers.

Forty-three percent of low-income developing countries are currently assessed at either high risk of debt distress or are already in debt distress, compared with 21 percent in 2013. So how can we get past the conundrum that countries need to spend more while their macroeconomic stability is in jeopardy?

International initiatives

As I survey the landscape, I do see a lot of efforts in the global community to find solutions that contain debt vulnerabilities.

Just to give some examples:

- The German Presidency of the G-20 initiated the Compact with Africa. It stressed the need for better public financial and macroeconomic management, as well as legal and regulatory frameworks to encourage private investment and strengthen borrowing countries' ability to better manage debt.
- China just announced a new framework for evaluating debt sustainability in Belt and Road recipients—closely aligned with the framework employed by the World Bank and the IMF. We welcome this initiative by an important official creditor.
- And Caribbean countries have been exploring ways to adapt their debt instruments to build resilience against shocks—with the support of the Paris Club, the World Bank, and the IMF.

These are all excellent examples of multilateralism at work, of global solidarity. We need to continue to push these initiatives forward together.

The role of borrowing countries

Of course, borrowing countries themselves have a role to play, first and foremost by raising the payoff from public investment. Moving from the lowest to the highest public investment efficiency quartile could double the impact of investment on output, and thereby better underpin debt sustainability.

Strengthening debt management will also be crucial. This can be quite tricky. As debt instruments get more complicated, debt management capacity needs to become more sophisticated. Yet today, only 40 percent of countries meet basic standards for debt recording, while just a third meet standards for reporting and monitoring of guarantees.

Technical assistance will be critical here. Many of you have made contributions to the World Bank-IMF Debt Management Trust Fund, to support this kind of capacity building, and I am extremely grateful for your support.

Backed by this Trust Fund, we will scale up our assistance over the next five years, with the aim to double it. Better debt management also leads to greater transparency. This is fundamental to sustainable financing.

The role of creditors

Let me now talk about the role of creditors, who have a vital role to play in encouraging greater transparency. As we have seen in Mozambique, private lenders can effectively facilitate hidden debt. Even for official creditors, non-disclosure agreements or complicated financing modalities can work against transparency.

I therefore welcome the work being done by the Institute of International Finance (IIF) on *Principles for Debt Transparency* of private creditors. I also welcome the G-20's self-assessment relative to its operational guidelines for sustainable financing. I encourage all G-20 members to participate. It is vitally important to push ahead with further reforms. The new creditor and instrument landscape is making it much harder to help countries restructure their debt.

Recent cases, such as the Republic of Congo and The Gambia, showed that restructurings can be drawn out, in part because we cannot rely on established creditor coordination mechanisms. And there is no one-size-fits-all solution here. In each of these cases, there was a different set of creditors. There is no one creditor to single out; it is a deeper and broader problem. Yet there are potential solutions on the table.

The role of the Paris Club

Most importantly, the Paris Club can play an important role in coordinating debt resolution because it incorporates

best practices and has a wide membership—recently expanded to include Korea and Brazil. Wider membership of the Paris Club, including new official and plurilateral creditors, could help secure more rapid and coordinated debt resolutions.

Short of that, any debt restructuring efforts involving non-members would do well to closely follow the tested rules that Paris Club members have used for many years.

Conclusion

Let me conclude by mentioning the role of the IMF and the World Bank in all of this. Our two institutions have been collaborating closely on a detailed multi-pronged work program to address debt vulnerabilities. This includes strengthening debt analytics to help lenders and borrowers better understand risks. It also includes improving the quality, comprehensiveness, and transparency of debt data; and strengthening countries' capacity to manage debt.

Over the coming decade, mobilizing financing to support the SDGs will be one of the most important challenges faced by the global community. But financing needs to be more sustainable than before.

We look forward to working with the international community to develop and implement the ideas to resolve these issues, and welcome today's forum to help advance our efforts.

After all, it is about the flourishing of all people in a way that respects the limits of nature. What can be more important? We have identified and acknowledged the challenge, now we must act together to deliver. ■

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This article is based on a speech [delivered](#) at the Paris Forum, May 7, 2019



Enable, empower, ensure: a new finance for the new economy

A new economy is emerging, driven by changes in technology, demographics and the environment. Mark Carney considers the future of finance and the Bank of England's response

New economy – new finance

There's a new economy emerging driven by changes in technology, demographics and the environment. This new economy requires a new finance. A new finance to serve the digital economy.

A new finance with products that are more cost effective, better tailored, and more inclusive. A new finance to support the transition to a sustainable economy. A new finance that balances innovation with resilience.

With its leadership in fintech and green finance, the UK private sector is creating the new finance, but your efforts will be more effective with the right conditions in which to innovate and the level playing fields on which to compete.

New finance - new bank

That's why a new finance demands a new Bank of England. Our strategy is to enable innovation and to empower competition, while ensuring monetary and financial stability. Our levers are the hard and soft infrastructure that we control:

- Our hard infrastructure, such as access to our balance sheet and access to our Real-Time Gross Settlement (RTGS) system, the heart of the UK payments system.
- And our soft infrastructure, such as our rules, regulations and standards.

In this spirit, last year at Mansion House I announced that Huw van Steenis would lead a review of the future of the UK financial system, including recommendations for how the Bank could best support innovation while continuing to promote resilience¹.

I would like to thank Huw and the Bank of England team, who over the past nine months have met 300 entrepreneurs, investors, consumer groups, charities, business leaders and policymakers across the country and around the world to produce an excellent report.

We have published Huw's recommendations and the Bank of England's response². And I would like to focus on a few of the actions that the Bank will take to enable the new economy; to ensure the resilience of the financial system; and to support the UK's transition to a carbon-neutral economy.

The digital economy is more inclusive, offering easier and more cost effective routes to market for firms both large and small, and greater access for consumers both near and far. This new economy is placing new demands on finance

First, to enable the digital economy

The very nature of commerce is changing. Last year, one fifth of all sales in the UK were online³. Next year, it will be one quarter. Over the past decade, the proportion of total payments made in cash has declined from two thirds to one quarter⁴.

The digital economy is more inclusive, offering easier and more cost effective routes to market for firms both large and small, and greater access for consumers both near and far. This new economy is placing new demands on finance. Consumers and businesses increasingly expect transactions to be settled in real time, checkout to become an historical anomaly, and payments across borders to be indistinguishable from those across the street.

While there have been some notable successes, the UK system has a way to go before it meets these expectations. Thus far, most innovation has happened around payment initiation – the method used to instruct a payment – such as credit or debit card, banking app or mobile wallet.

There have also been some advances in the networks – or rails – that underpin some of these apps. For example, the Faster Payment System (FPS) launched a decade ago has made payments quicker (within two hours) and more cost effective by encouraging direct bank-to-bank transfers.

While mobile app PayM uses FPS to facilitate direct bank-to-bank payments between individuals via text, it requires both the sender and recipient to be signed up to the third-party service. But few are⁵. And FPS is not yet used for in-store or online purchases as the infrastructure required at the point of sale does not reliably exist in the UK⁶.

In these regards, the UK is still a long way behind countries such as Sweden, the Netherlands and India where users can make direct, free and real time bank-to-bank payments in stores and online with a text or a scan of a QR

code⁷. UK card payments are convenient and they are now the most popular means of payment, but they can cost between 0.5% and 2% of the total transaction value, and it can take three days for the merchant to receive their money⁸.

And all these systems in the UK – whether card or bank payment – still depend on existing core infrastructure meaning they either carry the associated costs and limitations on speed or they require the right point of sale infrastructure for their full benefits to be realised.

The scope for improving cross border payments is bigger still. These can cost up to 10 times their domestic equivalent⁹. Anti-money laundering checks that are rightly required can be cumbersome, and settlement is slow with money taking up to a week to reach the recipient.

Most fundamentally, the new payment system must end the inequity that the people with the least money pay the most for financial services. The revolution of payments may not be driven by the old bank-based systems but by a new architecture. Major changes are on the horizon, bringing enormous advantages but also more than a few new challenges. That's why the Bank fully supports the Payments Strategy Review the Chancellor has launched.

To support private innovation and to empower competition, the Bank is levelling the playing field between old and new. This means allowing competitors access to the same resources as incumbents while holding the same risks to the same standards.

The Bank is in the midst of an ambitious rebuild of its Real Time Gross Settlement (RTGS) system, which processes £650 billion of payments on average every day. Until recently, only commercial banks¹⁰ had direct access to it, and alternative payment service providers (or PSPs) had to route through participating banks. That made sense in the

old financial world arranged around a series of hubs and spokes, but it is increasingly anachronistic in the new, distributed finance that is emerging.

So we are now making it easier for a broad set of firms to plug in and compete with more traditional providers. In July 2017, we became the first G7 central bank to open up access to our payment services to a new generation of non-bank PSPs. Since then, six have become members, processing over four million transactions over the past year. There is now a growing pipeline of twenty firms looking to join¹¹.

Responding to demands from innovators, the RTGS rebuild will also now provide API access to users to read and write payments data, as well as implementing a system whereby each payment will be tagged with information in a standardised format across the world. This global messaging standard will speed up settlement both domestically and across borders.

It is not a one-way street, however. As we extend access, we will safeguard resilience by holding settlement account holders to the appropriate standards. Along with the FCA and HMRC, who together supervise these institutions, we are committed to applying a strengthened supervisory regime for those who apply for an RTGS settlement account, to give assurance that non-bank PSPs can safely take their place at the heart of the payment system.

We can go even further. The Bank of England has announced plans to consult on opening access to our balance sheet to new payment providers¹². Historically, only commercial banks were able to hold interest-bearing deposits, or reserves, at the Bank¹³. That reflected their role at the core of the payment system. As new payment providers and systems emerge, access to the Bank's core infrastructure should change and it makes sense to consider whether they too can hold funds overnight on the Bank's balance sheet.

From the Bank's perspective, expanding access can improve the transmission of monetary policy and increase competition. It can also support financial stability by allowing settlement in the ultimate risk free asset, and reducing reliance on major banks. Users should benefit from the reduced costs and increased certainty that comes with banking at the central bank.

From the perspectives of UK households and businesses, wider access can improve inclusion and services.

This access could empower a host of new innovation. In wholesale markets, consortia of broker dealers are working to develop settlement systems using distributed ledger technology that could overhaul how markets operate. These consortia, such as USC, propose to issue digital tokens that are fully backed by central bank money, allowing instant settlement. This could also plug into 'tokenised assets' – conventional securities also represented on blockchain—and smart contracts. This can drive efficiency and resilience in operational processes and reduce counterparty risks in the system, unlocking billions of pounds in capital and liquidity that can be put to more productive uses¹⁴.

The potential transformation in retail payments is even more fundamental. Recently a cooperative of technology companies proposed a new payments infrastructure based on an international stablecoin – Libra. Libra would be backed by reserve assets in a basket of currencies including sterling. It could be exchanged between users on messaging platforms and with participating retailers. As designed, Libra may substantially improve financial inclusion and dramatically lower the costs of domestic and cross border payments¹⁵.

The Bank of England approaches Libra with an open mind but not an open door. Unlike social media for which standards and regulations are being debated well *after* it has been adopted by billions of users, the terms of engagement for innovations such as Libra must be adopted *in advance* of any launch

Libra, if it achieves its ambitions, would be systemically important. As such it would have to meet the highest standards of prudential regulation and consumer protection. It must address issues ranging from anti-money laundering to data protection to operational resilience. Libra must also be a pro-competitive, open platform that new users can join on equal terms. In addition, authorities will need to consider carefully the implications of Libra for monetary and financial stability. Our citizens deserve no less.

Leveraging our position at the heart of the international financial system and one of the world's largest fintech hubs, the Bank of England will help lead the way on these issues at the G7, G20, the FSB, BIS and IMF.

Whatever the fate of Libra, its creation underscores the imperative of transforming payments. The Bank's strategy to open access to a wide range of payment solutions combined with appropriate regulatory oversight of them maximises the likelihood that the payments revolution will meet the demands of the new economy and the needs of all our citizens.

Supporting more lending to SMEs through an open platform

Big data is opening up new opportunities for more competitive, platform-based finance of SMEs. Artificial Intelligence (AI) and machine learning (ML) techniques are already mining fields of data generated by online activity. This has the potential to yield enormous benefits for households and businesses by opening up new lines of credit, providing greater choice, better-targeted products and keener pricing.

Putting data to work is critical to closing one of the biggest funding gaps in the country.

SMEs are the engine room of our economy, generating around 60% of all private sector employment and accounting for over half of all private business turnover¹⁶. And yet SMEs face a £22 billion funding gap¹⁷. Almost half

of all SMEs don't plan to use external finance, citing the hassle or time associated with applying. Of those that have approached their bank, two fifths have been rejected¹⁸.

Part of the problem is that the assets that SMEs are seeking to borrow against are increasingly intangible – the value of a brand or user base – rather than physical assets, like building or machinery. SMEs that have not borrowed lack the historic data required for credit scoring. And legal requirements to prevent money laundering and 'Know Your Customer' make the process especially burdensome for a small business with limited resources.

This should not be the case in a data-rich world. Lenders should be able to access a broader set of information on which to base credit decisions.

Already, search and social media data are supplementing traditional metrics to unlock finance for smaller enterprises whose assets are increasingly intangible. In the UK, Iwoca has made over £900 million worth of loans based on trading data, such as sales and customer reviews, to over 25,000 small businesses over the past five years. Even the big banks are getting in on the action. Earlier this month, Santander announced that it was partnering with eBay to offer small business loans, based on sales, cash flow and customer review data to sellers on the eBay platform.

These initiatives are welcome but are still too small to plug the SME funding gap in the UK. To make real inroads, SMEs must be able to identify the data relevant to their businesses, incorporate it into their individual credit files, and easily share these files with potential providers of finance through a national SME financing platform.

This would put into practice the recommendations from Professor Jason Furman's Digital Competition Panel report on how to extract value from data and promote competition. One of the most important recommendations in this

regard is to give consumers control of their data. This would allow consumers to move their personal information from one platform to another and avoid lock-in effects, opening the door to new services¹⁹. To some extent, this is what Open Banking hopes to achieve. Although to make this a success means establishing common off the-shelf API standards and operating platforms onto which developers can build.

An open platform for SME lending would enable open banking and empower SMEs. It would help avoid lock-in on existing platforms and enable providers of finance to compete for SME lending, helping to broaden the products available to companies and offer more competitive rates, making access to finance quick, easy and cost effective²⁰.

It is not for the Bank of England to build this platform but we can help lay some of groundwork. The messaging standards we are adopting in the new RTGS will also include tagging payments with a unique ID called a Legal Entity Identifier (LEI)²¹. This will be mandated for financial institutions and as a next step we are considering how to extend this to corporate payments. That could mean that the payment data sent via CHAPs of non-financial firms could be made available for inclusion in a portable credit file. The LEI could also act as the unique identifier for a digital ID, which could help the two-step verification process required for a secure system.

The Bank will submit a formal response on how to develop an open platform for competitive SME finance to the Smart Data Review referenced by the Chancellor this evening.

Strengthen resilience in the face of new risks

The City of London has maintained its pre-eminence by innovating. This was as true in the First Industrial Revolution when finance oiled the pistons of the steam engines, as it is today at the dawn of the Fourth Industrial Revolution, with the advent of cloud computing and the *robosapien* fund manager.

Today the key competitive advantage in financial services is how firms – and supervisors — collect, store and analyse the explosion of data. Just as the steam engine transformed manufacturing, AI, ML and cloud- based technologies are transforming services. Accordingly, the second focus of the Bank’s initial response is how new general purpose technologies, like the Cloud and AI, can be used to strengthen the resilience of the system.

Embracing these technologies could herald leaner, faster and more tailored financial services. Banking is already the second biggest global spender on AI systems (after retail) and the sector is expected to invest a further \$6 billion on AI this year²².

A quarter of major banks’ activities and almost a third of all UK payments activity are already hosted on the Cloud, and there are considerable opportunities for even more intensive usage²³. Cloud service providers offer ready-made solutions that can speed up time to market, provide superior analytics, and enable businesses to adjust quickly their business models. If deployed at scale, cloud technology could provide low- cost, resilient computing power and easy access to AI capabilities, unlocking 30-50% unit cost savings²⁴.

These savings can be passed onto customers and, if properly managed, improve the resilience of the overall system. For these reasons, the Bank of England is open to greater adoption of the Cloud and usage of AI. This means ensuring that these technologies are adopted in a safe manner, in ways that increase resilience.

Careful attention will have to be given to risks, including of those associated in the single point of failure and market concentration. Two providers account for nearly half of revenues in cloud computing, bringing scale and efficiency, but also concerns about dependence and a single point of failure in the case of a cyber- attack. In AI and ML, there is a reliance on data, but when there are biases in data or algorithms, or the situation isn’t captured by past

experience prediction becomes difficult and judgement becomes more important. These situations require robust governance at board level.

To ensure that the benefits of cloud computing are realised and the associated risks are well managed, the PRA will issue a Supervisory Statement in the autumn that sets out its supervisory approach. The Bank, together with the FCA, will also establish a forum to discuss the results of a survey that it has conducted on AI use in finance and determine an appropriate supervisory approach.

The Bank's management and analysis of data is critical to our effectiveness as regulators and to the City's competitiveness.

The Bank now receives 65 billion data points each year of firm-related information. To put that into context, reviewing it all would be the equivalent of each supervisor reading the complete works of Shakespeare twice a week, every week of the year.

For firms, while the Cloud and AI have reduced the costs of storage and analysis, producing regulatory submissions is still labour intensive and costs the industry an estimated £2-4.5 billion per year²⁵.

This is the new frontier of regulatory efficiency and effectiveness. The PRA is exploring how new technologies could streamline firms' compliance and regulatory processes while improving our ability to analyse relevant data.

We see opportunities at each of the three stages of the supervisory process:

1. Rule-setting and reporting;

2. Analysis and monitoring; and

3. Setting and communicating a supervisory strategy to mitigate identified risks.

Consider rule setting and reporting compliance. At over 638,000 words, the *PRA Rule Book* is longer than *War and Peace*. It is also somewhat less interesting and infinitely more complex. We are currently using advanced analytics to understand that complexity and to simplify our rules in order to make compliance with them easier and less expensive.

An even bigger opportunity lies in the Bank re-thinking completely how we collect, store and analyse data. We cannot do this in isolation but will engage with industry to explore a range of options.

Our vision is that the Bank could be able to “pull the data on demand” from firms rather than “sit back and wait to receive data” from them. With the right API, Web Portal or Platform, manual interventions could become obsolete, making the process quicker, more efficient and hugely less expensive. It would free up resources for firms to focus on delivering a better service to their customers, and it could discipline us to take only the data that we need to use and have the capacity to review.

Equally important, utilising ML and AI to analyse the data could free up supervisors’ time to add the greatest value where humans excel over machines: judgement.

That is why the Bank has launched a *Review* to explore a transformation of the hosting and use of regulatory data over the next decade. This review will be conducted in close consultation with banks, insurers and financial market infrastructures. We are also embarking on proofs of concepts, in collaboration with firms and the tech sector,

to test how we can automatically extract regulatory firm data. And we will identify and implement near term improvements in how we use data, including greater use of AI and ML to interpret the information.

Support the transition to a carbon-neutral economy

My final example of how the new finance can serve the new economy is the most fundamental. Indeed, it is existential. This year, the threats from climate change spurred demonstrations across the country and prompted Parliament to declare a 'climate emergency'. In response, the Prime Minister announced legislation that would make the UK the first G7 country to commit to net zero emissions by 2050.

The changes required to achieve this are enormous. Carbon emissions will have to decline by 45% from 2010 levels over the next decade²⁶. This will require a massive reallocation of capital creating unprecedented risks and opportunities. As one example, it is estimated that annual investment in sustainable infrastructure could top £20 billion for decades²⁷.

Firms that align their business models to the transition to a carbon-neutral world will be rewarded handsomely; those that fail to adapt will cease to exist. The new finance can smooth the transition to a carbon-neutral economy.

The City has been leading the way. UK underwriters, led by the former Lord Mayor Sir Roger Gifford, helped create the green bond market which has doubled every year since 2012 to reach \$500 billion outstanding²⁸. UK-based banks, like Barclays and HSBC, insurers, like Aviva, and asset managers, like Generation, helped develop climate financial disclosure standards and were amongst the TCFD's first adopters. Now a range of firms at the heart of the City are beginning to reshape the management of climate-related risks and opportunities.

But we must go much further if the UK is to reach net zero carbon emissions. Disclosure must become comprehensive. Risk management must be transformed. Sustainable investing must go mainstream.

Fortunately, the momentum is growing. Four years ago in the run-up to the Paris Climate accord, the Bank called for improved financial disclosure of climate-related financial risks in order to break the *Tragedy of the Horizon*²⁹. Just two years ago, the TCFD led by Michael Bloomberg made its final recommendations to the G20 Leaders Summit in Hamburg³⁰. Since then there has been a step change in climate reporting by the private sector.

On the demand side, current supporters of the TCFD control balance sheets totalling \$120 trillion and include the world's top banks, asset managers, pension funds, insurers, credit rating agencies, accounting firms and shareholder advisory services³¹.

On the supply side, the TCFD report published last week showed that four fifths of the 1 100 G20 companies surveyed were now disclosing climate-related financial risks and three quarters of users of the information had seen a marked improvement in the quality of disclosures³².

In the future, to achieve a carbon-neutral economy, disclosure must become mandatory. Before it does, we need to get it right. Over the next few years, the current iterative process of disclosure, reaction and adjustment will be critical to ensure that these market standards are as comparable, efficient and decision- useful as possible.

Disclosure is just the start. Analysis needs to go beyond the static to the strategic. The nature of climate risks mean that the biggest challenge is in assessing the resilience of firms' strategies to transition risks. Transition risks result from the huge adjustments required to create a low-carbon economy. Changes in policies, technologies and

physical risks will prompt a reassessment of the value of a large range of assets as new costs and opportunities become apparent. The longer meaningful adjustment is delayed, the more transition risks will rise.

Where credible policy frameworks are in place (and when firms disclose the risks accordingly), the market will allocate capital to deliver the necessary innovation and growth and pull forward the adjustment to a carbon-neutral future.

The Bank of England is overhauling its supervisory approach in anticipation of these major shifts. Earlier this year the PRA published a Supervisory Statement that sets out our expectations for banks and insurers regarding their governance, risk management, scenario analysis and disclosure of climate-related financial risks³³. And to support the capacity building and the development of best practice, the PRA and the FCA established the Climate Financial Risk Forum to work with firms from across the financial system³⁴.

And the Bank is going much further. The FPC and the PRC are announcing that they will stress test the UK financial system for resilience against different climate pathways. The design of this stress test will start in the autumn, and the tests will be completed in 2021. The stress test will reveal the UK financial system's ability to withstand the financial risks from climate change that arise from the increased frequency of weather events and from the transition to a carbon-neutral emission economy.

The test will motivate firms to address data gaps and to develop cutting-edge risk management consistent with a range of possible climate pathways: ranging from early and orderly to late and disruptive. This test will be the first of its kind to integrate climate scenarios with macroeconomic and financial models. The Bank will develop the approach in consultation with industry, including insurers, and other informed stakeholders including experts from the Network for Greening the Financial System and the PRA's Climate Financial Risk Forum.

With this new supervisory approach, the Bank will help ensure that the financial system is resilient to the risks and can take full advantage of the enormous opportunities in a carbon-neutral economy. The path to a carbon-neutral economy will affect every institution in this country—very much including the Bank of England. We need to do more than just cutting out cups and bringing up bees³⁵. We must lead by example.

From next year, the Bank will become the first central bank to adopt the TCFD recommendations across our entire operations. And to improve our strategic resilience, the Bank will reduce the Bank's carbon footprint by almost two thirds by 2030, consistent with a transition to a 1.5 degree world³⁶.

Conclusion

The new finance has the potential to unlock stronger, more sustainable and more inclusive growth. By taking the measures I have outlined the Bank can enable the new economy; empower greater competition and ensure the resilience of the financial system.

Consumers should have greater choice, better services and equal access to finance. Small and medium sized businesses should have access to new credit to grow. Banks themselves should be more productive and supervision more efficient. And the financial system should seize the opportunities and manage the risks associated with the UK's transition to a carbon-neutral economy.

The success of the new finance will be assured if we remember some old lessons, namely:

- That similar activities should be regulated consistently;

- That markets don't always clear, liquidity is state contingent and the riskiness of an asset depends in part on the entity that holds it;
- That individual responsibility is essential for collective welfare;
- That ending Too big to Fail is a moral and a financial imperative; and
- That when it comes to financial stability, success is an orphan. Memories fade, complacency sets in and the virtues of prudence are soon forgotten.

Most fundamentally, we must always remember that finance is not an end in itself. It is a servant of the real economy, of the households and entrepreneurs that make this country great.

They are demanding a more sustainable, inclusive and prosperous future. The ultimate test of the New Finance is whether it helps deliver just that. ■

Mark Carney is the Governor of the Bank of England

Endnotes

1. Carney, M (June 2018) 'New Economy, New Finance, New Bank' speech given at Mansion House.
2. See: <https://www.bankofengland.co.uk/research/future-finance>
3. ONS: Comparing "bricks and mortar" store sales with online retail sales (August 2018).

4. UK Finance: UK Payment Markets Summary (2019).
5. See: <https://paym.co.uk/how-it-works/>
6. Particularly the soft infrastructure – such as rules around use and consumer protection.
7. In Sweden, Swish launched in 2012 by the six largest Swedish banks and connects bank accounts to mobile numbers, allowing money transfer in real time and eradicating the need for a card reader. In the Netherlands, iDEAL facilitates direct bank-to-bank payment for online purchases. India uses GooglePay technology to enable direct bank transfers through its Unified Payments Interface, a central platform which connects entities for real-time payment.
8. McKinsey research for Future of Finance Report; and UK Card Association Data.
9. McKinsey Global Payments (2016): strong fundamentals despite uncertain times.
10. As well as Financial Market Infrastructure providers such as Visa.
11. See: Bank of England: A Blueprint for a new RTGS service for the United Kingdom (May 2017).
12. Currently, the criteria for access to our balance sheet, defined at the time of the Winters Review, are three-fold: firms should be inherently exposed to overnight liquidity risk, they should be systemically important, and they should be regulated to the same standard as UK banks. In practice, that means banks, CCPs and broker-dealers are eligible for access, but other firms are not. The Bank will reach out to firms and to users of payments services to understand the needs of participants in this market and the barriers that still exist to competition and innovation. This dialogue will allow us to consult on the appropriate level of access to the Bank's infrastructure. For more information, see the Bank of England's response to the Future of Finance Review available at: <https://www.bankofengland.co.uk/research/future-finance>.
12. In recent years we have expanded access to our balance sheet to central counterparties and broker-dealers to recognise the important role played by these firms in the provision of critical financial services to the real economy. In providing these critical functions, both broker-dealers and CCPs are exposed to liquidity risk. As the supplier of the economy's most liquid asset, central bank money, the Bank is able to be a 'back-stop' provider of liquidity, and can therefore provide liquidity insurance to the financial system, promoting financial stability.

13. Oliver Wyman: *Fintech 2.0 Paper: rebooting financial services* (June 2015) and McKinsey: *Global Payments report* (2016).
14. See: <https://libra.org/en-US/>
15. Federation of Small Business: <https://www.fsb.org.uk/media-centre/small-business-statistics>.
16. NAO report 'improving access to finance for SMEs' (Nov 2013).
17. Report by British Business Bank: *Small Business Finance Markets* (2019).
18. See: Furman, J 'Unlocking digital competition' Report of the digital competition expert panel (March 2019).
19. See: <https://www.bankofengland.co.uk/research/future-finance>
20. The introduction of Legal Entity Identifiers (LEIs) will enable consistent and accurate identification of legal entities on a global basis. Their introduction was pioneered by the Financial Stability Board (FSB) following the financial crisis as a means of precisely identifying counterparty risks and exposures. The LEI is linked to a publicly available database about each registered entity. LEIs are not yet widely used in payments or supply chains. Following a consultation, the Bank is making LEIs mandatory for all payments initiated between financial entities.
21. IDC: *Worldwide Semiannual AI Systems Spending Guide* (March 2019).
22. See: <https://www.bis.org/review/r180727a.pdf> and Finastra, *FTI Consulting Survey 2019*.
23. McKinsey & Company research for the *Future of Finance* review.
24. "McKinsey & Company research for the *Future of Finance* review".
25. See: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/790626/2018-provisional-emissions-statistics-report.pdf
26. See: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/703816/green-finance-taskforce-accelerating-green-finance-report.pdf
27. Source: *Climate Bonds Initiative Data*.
28. Carney, M (Sept 2015). *Breaking the Tragedy of the Horizon*, speech at Lloyd's of London.
29. *Recommendations of the Task Force on Climate-related Financial Disclosures* (June 2017) available at:

<https://www.fsb-tcfd.org/wp-content/uploads/2017/06/FINAL-2017-TCFD-Report-11052018.pdf>

30. Not surprisingly, the supply of disclosure is responding. 785 organisations, with a total market capitalisation of US\$9 trillion, have endorsed the TCFD recommendations since 2017. Full list of current TCFD supporters available at:

<https://www.fsb-tcfd.org/tcfd-supporters/>

31. Task Force on Climate-related Financial Disclosures: Status Report (June 2019) available at: <https://www.fsb-tcfd.org/wp-content/uploads/2019/06/2019-TCFD-Status-Report-FINAL-053119.pdf>

32. Available at: <https://www.bankofengland.co.uk/-/media/boe/files/prudential-regulation/supervisory-statement/2019/ss319.pdf?la=en&hash=7BA9824BAC5FB313F42C00889D4E3A6104881C44>

33. See: <https://www.bankofengland.co.uk/news/2019/march/first-meeting-of-the-pra-and-fca-joint-climate-financial-risk-forum>

34. The Bank has cut its use of cups and food boxes by over 80% since 2016, that's over 2 million fewer items of single use plastic each year. We are also working on promoting natural biodiversity at our sites. We have a beehive in place at our Debden print works, and we are due to introduce our next hive at Threadneedle Street this year.

35. The Bank commits to reduce its emissions from gas and fuel, electricity and business travel by 63% by 2030. We plan for all the electricity and gas we purchase and use across our buildings to come from 100% renewable sources, such as wind, solar and biogas by April 2020. Our target is (1) informed by Science Based Targets, (2) in line with the aims of the Paris Agreement and (3) consistent with limiting global warming to 1.5°C [above pre-industrial levels]. The target has been fully validated by the Carbon Trust (CT).

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