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LAEL BRAINARD EXAMINES THE DIGITALIZATION OF PAYMENTS AND CURRENCY

THE GREAT DISTORTION. PATRICK MINFORD ARGUES THAT MONETARY POLICY NEEDS CHANGING

CHRISTINE LAGARDE FOCUSES ON CLIMATE CHANGE RISKS FOR THE FINANCIAL SECTOR

THE GLOBAL TRADE AND FINANCE PLATFORM

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Welcome 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.

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The great distortion

Patrick Minford argues that the traditional orthodoxy of fiscal caution is dangerous in today's zero interest rate world

What does the current developed world economic situation demand in the way of fiscal and monetary policy responses? I will argue in this article that the conventional wisdom of fiscal balance and monetary policy stabilisation needs to be thrown out until the monetary environment is brought back to normal.

We must begin from the widespread dissatisfaction the public expresses about current policy, not least with the persistence of 'austerity' policies since the financial crisis. This dissatisfaction has led to demands by some for a return to socialist policies and an abandonment of 'capitalism'; this is now the political position of the British Labour party, just as it is of some Democratic presidential candidates on the left of the party, such as Bernie Sanders, even though the US Democratic party has traditionally supported the general capitalist economic model.

So what is this opposition to capitalism all about?

The last big peacetime crisis of capitalism was created by the Great Depression of the 1930s. The current crisis has been created by the Great Recession starting in 2008.

After the Great Depression major changes were made in western countries' policies, as urged by Keynes. Governments became far more active in fiscal policy in preventing slumps in demand; monetary policy was relegated to a support role, setting interest rates to allow demand to be regulated by fiscal policy.

As is now well-known, these policies led after WWII to high and persistent inflation, so that today central banks target inflation and fiscal policy is generally held in control to prevent government debt getting too large.

Today's financial crisis and the Great Recession has in turn forced big changes in western countries' policies. We now have introduced heavy regulation of bank behaviour, combined with aggressive printing of money at zero or even negative interest rates, 'Quantitative Easing' (QE), in the attempt to create renewed growth.

Furthermore, these policies have been accompanied by sharp fiscal contraction, with 'austerity' the main fiscal aim of most western governments. The living standards of western households have fallen sharply; and it is because of this that there is widespread disappointment with capitalism, fuelling 'populist' revolts such as the election of President Trump and Brexit.

To anticipate, I will be explaining how it was a failure of monetary policy that caused the Great Recession, and that avoidance of future ones depends on a radical overhaul of monetary policy rules.

Fiscal policy must step in with a bold expansion designed to push interest rates back towards normality, decisively ending the zero lower bound episode

I will also argue that to put a full end to the Great Recession as it continues to drag on in the form of weak recovery and renewed recession, in spite of continued but ineffectual efforts from monetary policy, we have to endorse a self-limiting fiscal expansion, and within it tackle the discontents of average households that now fester, through more and better government spending and liberalising tax policies. Through these measures we will get the capitalist economy working effectively again and satisfying its critics with this improved performance.

The unnecessary financial crisis courtesy of central bank mistakes

To understand how the financial crisis occurred, we must first consider how monetary policy was conducted until 2008. In the early 1990s central banks started to embrace inflation targeting, together with associated 'central bank independence' so that supposedly spendthrift governments should not impose inflationary financing on them.

These new policies led to a period of low inflation which in turn we know encouraged firms to keep prices and wages stable: price and wage durations lengthened, meaning that output was increasingly dominated by demand shocks because these did not provoke the rise in prices that would have choked off demand and so contained the needed rise in output.

This was a 'New Keynesian' world, in the sense that prices and wages did not respond, much as Keynes argued they would not in the modern capitalist world of large companies and powerful unions. As it turned out the 1990s were an era of moderate demand shocks; also productivity growth was steadily positive.

The era became known as 'The Great Moderation', with low and stable inflation and moderate positive growth. In retrospect it looks like a time of unusually benign shocks: small demand shocks and positive productivity and other supply shocks.

As it proceeded from the 1990s, monetary policy began to encourage strong credit growth, especially in the US. Public policy also entered the mix, with the US government encouraging mortgage loans to poor families, to be underwritten by 'Fannie' and 'Freddie', two public institutions able to buy mortgages. It seemed that with real wages having stagnated, 'getting poor people onto the housing ladder' could be an alternative route for obtaining the 'trickle down' effect of growth.

With low inflation successfully engineered, central banks disregarded the growth in the monetary and credit aggregates which accelerated into the 2000s. As dollars became more plentiful, the central bank of China bought them to prevent the yuan appreciating against the dollar; and easy money spread to China through this channel.

World growth increased, with China reaching 13% at one point; world growth peaked at over 5% and world commodity and oil prices soared as excess capacity was used up. By 2007 these prices had hit high peaks, with oil at $150 a barrel.

It was plain that growth must be arrested, if only by lack of resource capacity, even though final prices were slow to generate downstream inflation with firms still setting long price durations and so reacting slowly to cost increases.

Central banks were finally realising the threat of rising inflation by 2007, when the mortgage crisis burst, with various banks reporting defaults on their bought-in packages of mortgages. The interbank market seized up, with uncertainty about which banks borrowing in it might be at risk.

Interest rate rises were put on hold and central banks went into crisis-prevention mode: various banks were rescued by central bank loans plus concerted take-over by other banks. This early era of bank bail-out created a political backlash, especially among US Republican politicians.

It succeeded in stabilising bank liquidity so that by the middle of 2008, it seemed as if a full-scale banking crisis had been averted. Then out of the blue in September 2008, Lehman went bankrupt; shortly afterwards, AIG, the world's biggest insurance company went down with it. The financial crisis had occurred with a vengeance.

Could central banks have averted it? The answer is plainly: yes. Lehman could have been saved by a coordinated package of take-over by other banks (among whom Barclays was keen to buy parts of Lehman) and loans injected by central banks, plus general liquidity provision to the interbank market, where Lehman's problems originated.

It seems that central bankers lost their nerve in the face of a political climate increasingly hostile to bank bailout; not just in the US but also the UK, where Barclays was expressly forbidden from buying Lehman in the talks led by the Fed that attempted to prevent the bankruptcy.

Even among central bankers, such as Britain's Mervyn King, a school of thought had arisen that banks needed to be taught a lesson, to avoid in future the 'moral hazard' of excessive lending, implicitly supported by the taxpayer. Other banks, whose cooperation was needed in any Lehman package, became increasingly alarmed that if their turn ever came, the central bank willingness to supply money would have run out.

So it was that after long discussions on Sunday September 14th, 2008, Lehman's bankruptcy was finally decided. No action was taken to close markets or provide special assistance. After AIG's bankruptcy, the full savagery of the financial crisis became clear and forced governments to intervene with large taxpayer bailouts, both in the US and the UK. World trade and growth collapsed overnight, as credit lines were extinguished. The Great Recession had begun.

It is plain that central banks could have averted it at two stages. First, monetary policy could have been tightened in the 2000s, so preventing the massive credit boom up to 2007. Second, central banks could have coordinated a rescue of Lehman along earlier lines.

However, central bank failure did not stop there. What was needed, given the general banking collapse, was an immediate liquidity injection into the banking system, together with the easing of any restrictions on banks' lending capacity. This could have caused a rapid turnaround from credit blight to credit expansion.

Unfortunately, central banks had taken from this whole episode the moral that banks, not they, had behaved irresponsibly; and that bank regulation should be sharply tightened to prevent future credit expansion to 'risky' clients. The fact that bank clients are in general risky, it being banks' role to extend risky credit, duly escaped central banks under this new view of the need for regulation to 'prevent future crises'.

Plans for this new regulation were drawn up in early 2008 and instead of being put on indefinite hold when the crisis struck in September, they continued to be rolled out and duly prevented the necessary snapback in bank lending.

So central banks now became the reason why recovery from the crisis was so slow. Of course for them there was the undoubted consolation that through it all their own bureaucratic role had been massively strengthened, to include bank regulation, as well as their continued independent execution of monetary policy.

QE and the Great Distortion

As part of this enhanced role, central banks developed the new tool of deliberate balance sheet expansion, printing

money to acquire large amounts of government debt. This 'Quantitative Easing' was an extension of 'open market operations' in debt, but on a greatly expanded scale and in one direction only.

We know that at the macro level of monetary loosening QE has been effective, at least to begin with[1], though by now interest rates on safe government bonds have been driven to zero or close. How did QE work? By driving up the prices of assets, especially government long-term bonds demanded by pension funds, and the equities and corporate bonds of large companies that have low risk. So for large private sector agents such as these companies it has been cheap to borrow and raise equity.

Meanwhile capital remained expensive for SMEs for whom market risk drives down equity prices, and capital regulation with high SME risk-rating makes banks reluctant to lend to them. The effect of all this has been to distort the financial markets in favour of large dominant companies against their smaller competitors.

The effect on competition and productivity has been modelled by Liu *et al*[2]. Casual observation confirms that large companies now dominate great swathes of industry, and not merely in technology: concentration has never been higher. This, Liu *et al* argue persuasively, has damaged productivity growth, which has fallen since the crisis erupted- as illustrated by US experience shown in Figure 1, which is rather typical.

So we have had the Great Moderation in the 1990s, the Great Recession in the 2010s. Now we are having the Great Distortion of financial markets as QE and bank regulation take their toll. The various phases of monetary policy can clearly be seen in Figure 2 showing the UK's M3, monetary behaviour rather typical of most developed economies.

Figure 1. Labour productivity growth trend and its components, United States

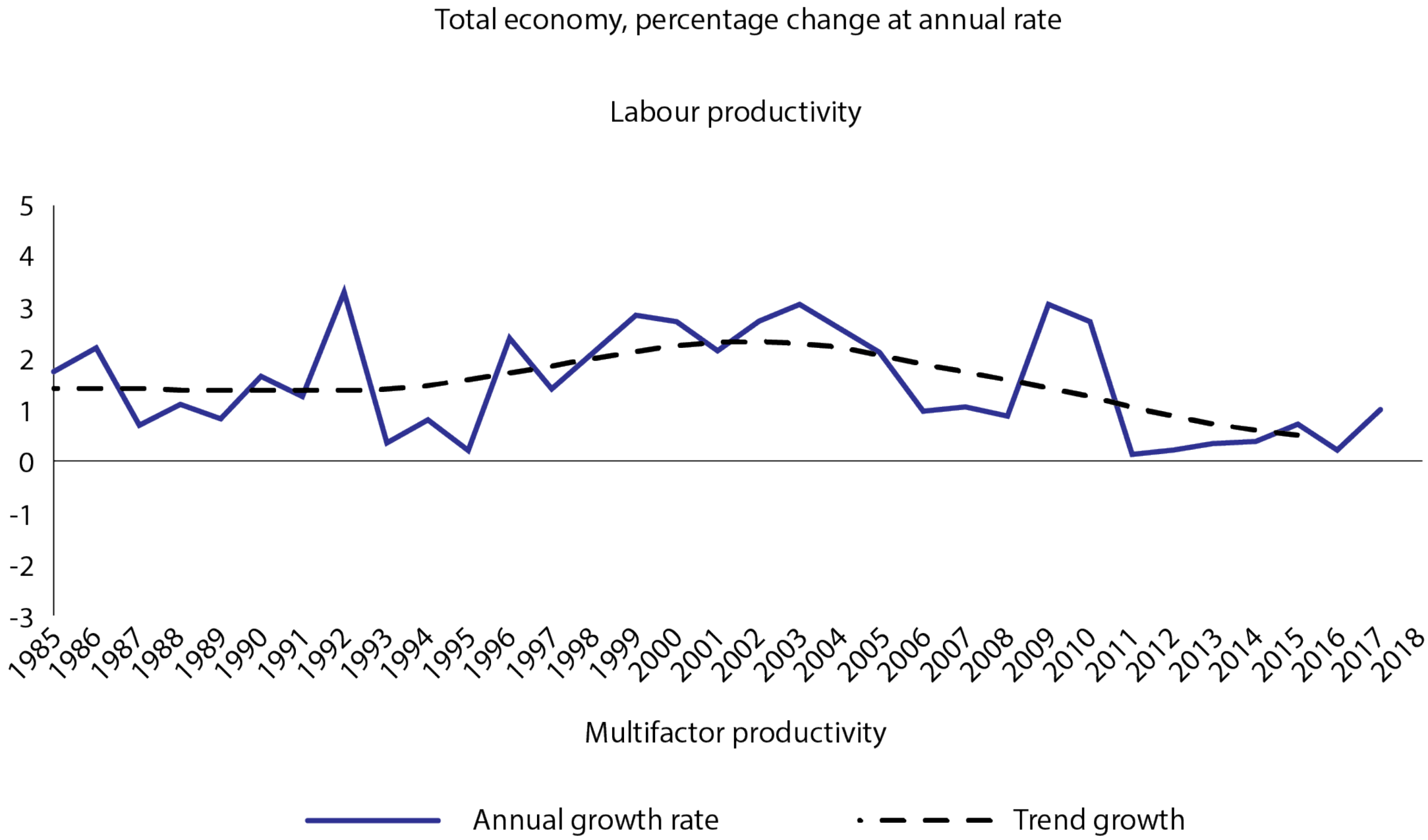
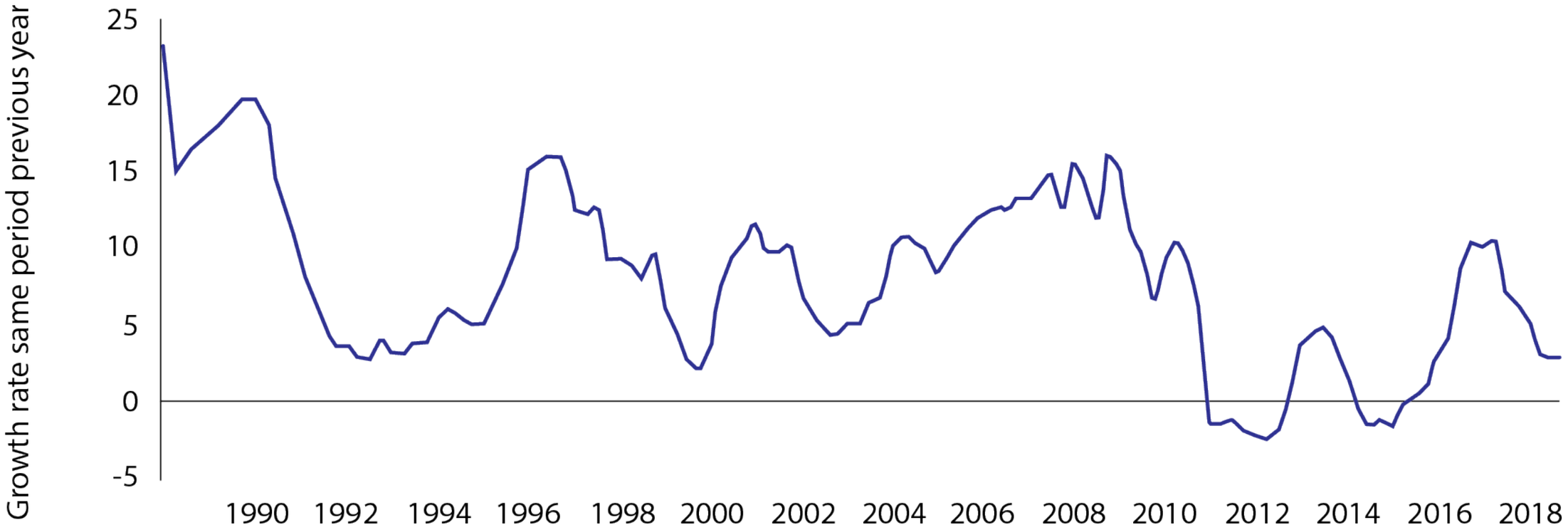


Figure 2. Monetary aggregates and their components: M3: M3 for the United Kingdom



Source: Organisation for Economic Cooperation and Development

How to dig the world economy out of the Great Recession created by central bank mistakes? The need for a bold but self-limiting fiscal expansion

The state of the world economy can only be described as weak and lacking in confidence, with low productivity growth. Interest rates on safe assets like government bonds range from zero on short-dated paper to a maximum of around 2% on very long-term bonds, but close to zero on most western countries' long-term bonds, with the US around 2% as the only exception. In Japan and the eurozone all rates are close to zero, while rates paid to banks on their central bank balances are actually negative.

On risky assets rates are generally positive, reflecting the risk premium; however, as noted above, large corporations enjoying dominant market positions are able to access capital at close to zero cost which is heavily distorting market competition. As for governments, they can raise capital at negative real interest rates, implying that they are being paid to borrow; they can even print money to finance themselves through QE.

These facts signal desperate times are with us. Monetary policy is a busted flush, with its latest tool, QE, actually damaging the situation. Can nothing be done?

The clue to what can be done is to be found in that last sentence of the earlier paragraph: that people will pay governments to borrow and spend. This mirrors the desperate plight of the private sector, unwilling to borrow enough at such low interest rates that the economy would surge and raise the rate of return to normal.

Because of the bailouts of banks and related financial costs, western governments have historically high debt/GDP ratios. Yet because of QE, as much as a third of this debt is actually simply money - the debts have been bought by central banks in return for printed money. In normal times we would worry that all this printed money would cause

inflation; and we would be urging the central banks to sell their bonds and retrieve the money. Yet plainly we are not in normal times.

It is as if people were going around too emaciated to eat large stores of accumulated food that in normal times we would worry might cause obesity. The economy is too emaciated to use the huge supplies of money that have been printed.

Abnormal times require abnormal solutions. Fortunately all western countries have governments that can borrow, spend and cut taxes. As we have seen, they can do this at negative cost in debt interest; this means that future taxpayers will gain from the negative real interest cost on the debt, effectively only paying back less than the real value of the debt.

From society's viewpoint, provided the government can get a social return on its spending or its tax cuts that is positive, then this borrowing pays. Future taxpayers will have more income with which to pay off less than 100% of the debt. This means that there is no argument to be had with future taxpayers.

Meanwhile, current taxpayers will plainly be delighted if the government would take this action, bringing immediate direct benefits, but more importantly restoring the economy to functionality and confidence.

For those who feel concerned about adding to public debt ratios for fears of insolvency, this arithmetic provides reassurance. The truth is that if such fiscal policies work and push up interest rates once more to the normal real interest rates of the past, then any current rise in debt ratios will actually be reversed.

Here is a simple arithmetical example of what can happen. Suppose a country starts off with a debt ratio of 100%, of which say 60% is very long-term debt, say perpetuities, with long term interest rates at 1% p.a. Now assume it spends 10% of GDP borrowing on more very long-term bonds to spend and cut taxes over three years; and that this in time drives interest rates up to 3%.

Its stock of very long-term bonds will rise at first to 90% of GDP, with another 40% of GDP in short term bonds, making a total of 130% of GDP. But once interest rates rise to 3%, its debt ratio will fall to 70% of GDP, close to the 60% level considered prudent in the long run; this is because the long term debt is now being discounted by a rate three times higher than the current 1% (the value of a perpetuity is the coupon paid each year divided by the rate of interest).

For governments with long term debts the rise of long-term interest rates to normal devalues their existing debts, improving their solvency.

This example also shows that fiscal expansionism in these troubled times will bring its own termination and so can be thought of as self-limiting. Once interest rates get back up to normal, the normal solvency calculus will apply. New borrowing will once again be expensive in real terms, and should induce the usual caution over fiscal deficits.

It is important to realise that the case I am making here for fiscal expansion is strictly exceptional, to be ended once normality returns. It echoes Hayek's response to Keynes' work, *The General Theory of Employment, Interest and Money*; Hayek agreed that, in the very special circumstances of a stubborn depression, fiscal stimulus could be justified but he said there was not a 'general' case for fiscal 'activism', which Keynes was arguing for, on the grounds that the unaided economy might repeatedly fall into this state.

The same is true here. Usually, the economy works well without fiscal intervention. Any needs of stabilisation can be supplied by monetary policy. What has happened however is that monetary policy has laid waste the economy's usual robustness by dreadful mistakes, leaving only fiscal policy as the tool for the restoration of its robustness that we desperately need.

Once this restoration has occurred, we can also restore a powerful stabilising role for monetary policy, reacting in the future not so much to inflation as to Nominal GDP; as shown by Le *et al*[1] this shift of target implies a much stronger reaction of monetary policy to the sort of shocks involved in the Great Recession.

Conclusions

Monetary policy is powerless now to restore vigorous growth to the world economy, with interest rates, long and short, around zero. Fiscal policy must step in with a bold expansion designed to push interest rates back towards normality, decisively ending the zero lower bound episode.

With real interest rates negative, there is no threat to government solvency from this fiscal expansion, which will come to an end naturally once interest rates have normalised. Meanwhile the expansion can be used for necessary public spending and tax cuts that will stimulate supply-side growth.

I leave on one side here the details of what spending, what tax cuts and how great, in total, borrowing should be in the rest of the world. I would simply commend President Trump's tax cuts and Congress' willingness to agree with him to rising fiscal deficits. In the eurozone I would urge a general liberalisation of fiscal policy, backed up by an ECB pledge to buy the bonds of any government facing market pushback; in particular I would urge the German government to abandon its doctrinal opposition to fiscal deficits, at least until the Great Recession is over.

For the UK, the excuse of Brexit is there for a radical new direction in policy, to be backed up by fiscal liberalism. In recent work the Economists for Free Trade campaign group that I chair has set out proposals[3] for well-targeted spending and tax-cuts in the UK that raise spending power and strengthen corporate competitiveness.

We hope that Boris Johnson's government will be bold and carry out such a fiscal reform programme, that will underpin the various trade- and regulation- liberalising policies that will come, as I have explained before in these columns, from Britain leaving the EU. ■

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Endnotes

1. See Le et al, 2016: Le, M, Meenagh D, Minford, P, 'Monetarism rides again? US monetary policy in a world of Quantitative Easing' [https://econpapers.repec.org/article/eeeintfin/], Journal of International Financial Markets, Institutions and Money, 2016, vol. 44, issue C, 85-102

2. Liu, E, Sufi, A and Mian, A, 2019 - https://review.chicagobooth.edu/economics/2019/article/how-low-interest-rates-can-hurt-competition-and-economy

3. https://www.economistsforfreetrade.com/wp-content/uploads/2019/11/Evaluating-the-Conservative-and-Labour-Manifestos.pdf; see particularly section on 'Projecting the Effects of the Brexit Supply-Side Reform Policy'

Riding through the storm

Marco Buti draws the main lessons out of five key moments in the euro crisis for the completion of EMU and the appropriate policy mix in the euro area

On 1 December 2019, after eleven years, I left the position of Director General of Economic and Financial Affairs at the European Commission. I have tried to encapsulate both a sense of this journey through the euro crisis as well as my policy conclusions in a CEPR Policy Insight by focusing on selected past episodes, some well-known, others less prominent (Buti 2020).

The 'moments' I've chosen are the following:

- Latvia, one of the 'Baltic Tigers', asking for financial assistance in November 2008, which could be seen as a prequel of the crisis in the euro area, with the sudden stops after the build-up of large imbalances and deep-rooted bank vulnerabilities.

- The G20 Meeting in Toronto in June 2010 where policy authorities (though with different degree of enthusiasm) 'declared victory' over the financial crisis and decided to start withdrawing the fiscal stimulus with a commitment to halve their deficit by 2013 and stabilising the debt ratios – a decision which in retrospect proved largely premature and economically very painful.

- The Deauville meeting in October 2010 between the then French President, Nicolas Sarkozy, and the German Chancellor, Angela Merkel, where a decision was made to bail in sovereign bond holders, which is widely accepted as having been pivotal for the euro area crisis.

- Mario Draghi's speech at Jackson Hole in August 2014 which started to change the narrative on euro area policy mix, with a call for fiscal stimulus and structural reforms to be deployed side by side with monetary expansion.

- As an 'extended moment', the developments in Greece, starting in 2010 with a dramatic revision of the Greek fiscal accounts, subsequent loss of market access and the need for the EU and the IMF to intervene in the context of a generalised loss of trust, culminating with the 'Grexit' debate in summer 2015 and Greece successfully exiting the programme in August 2018.

While the jury is still out on the desirable fiscal trajectory in presence of ultra-low interest rates, there is little doubt that a long-lasting boost of public investment should be undertaken

A reading across these episodes and the ensued policy responses lead me to draw eight lessons for European policy coordination and governance:

- **The way in which the crisis unfolded tainted the narrative on its nature. Because of Greece's fiscal crisis, we also viewed the other countries through 'fiscal lenses', which I believe to have been a mistake.** For instance, if Ireland had come to fall before Greece, perhaps different causes for the crisis would have been diagnosed for all programme countries, events would have unfolded quite differently, and we would probably be telling an altogether different story today.

While Greece caused our diagnoses to be incomplete, we moreover also did not recognise at the time that the prior events in the Baltics were relevant for the euro area. The Baltic crisis in 2008 could have been used to inform programmes for struggling euro area countries and to prioritise adequate policy responses and reforms. Instead, they were perceived as unrelated developments.

With the main focus on fiscal retrenchment, financial sector reform and recapitalisation of banks did not receive adequate priority at first. The proposal for creating Banking Union had to wait for the sovereign debt crisis and was only put forward in June 2012.

- **Financial crises even in small countries can have pervasive effects and a high potential for contagion.** This contagion risk was not perceived at the time. The crisis in the Baltics was seen as potentially having spillovers effect in the rest of Eastern Europe, but the thinking was that individual IMF-EU programmes would suffice to tackle it. Similarly, as we learned painfully in the case of Greece, a crisis in a relatively small corner of the euro area could have lethal effects in the context of an incomplete currency union, lacking appropriate lending of last resort and risk sharing mechanisms.

- **Financial markets operate according to 'horizontal and vertical lines'.** Financial markets do not exert gradual pressure on borrowers, or, in other words, market sentiment change rapidly from benign neglect to extremes.

As the Deauville episode shows, it is a daring undertaking to rely on markets to discipline countries. The non-linear behaviour of markets is heightened by exclusive focus on risk reduction, which, if not coupled with risk-sharing measures, can actually increase risk. At the same time, as market sentiment can change quickly, any fiscal misbehaviour can be punished harshly.

This is a warning to high debt countries on the need to keep their debt credibly on a downward trajectory. Even wrong messages tailored to domestic political constituencies can lead to dear consequences – as Keynes famously quipped, *"markets can stay irrational longer than you can stay solvent".*

- **A certain amount of risk sharing is needed in EMU: either via national budgets or via the ECB balance sheet.** In order to function properly – as with any currency union – EMU requires a certain amount of risk sharing. This can either be accomplished directly via fiscal risk sharing (via the national budgets, a euro area central fiscal capacity or a common safe asset) or – in a less transparent way – via the balance sheet of the ECB. The euro area chose the latter. The limits of this choice, however, are evident today as the ECB has become overburdened in fulfilling its mandate.

- **Monetary policy cannot be the only game in town.** There is a growing consensus that today, with monetary policy facing increasing constraints, a more active role of fiscal policy, in particular by countries with fiscal space, is needed. Experience also shows that, in the aftermath of deep crises, early withdrawal of fiscal support can be very damaging and lead to an unbalanced policy mix.

The logic of Sargent and Wallace's (1981) *"unpleasant monetary arithmetic"* is that unless countries conduct prudent fiscal policy, the independence of monetary policy can be called into question via pressure for monetising the debt. However, paradoxically, excessive fiscal prudence may also be a form of fiscal dominance: when monetary policy is at the effective lower bound, fiscal inaction hampers the effort of the central bank to fulfil its mandate. Hence, in today's world, Sargent and Wallace's argument is turned on its head.

- **Achieving an appropriate euro area fiscal stance only via horizontal coordination of national policies is exceedingly difficult.** Over the past several years, it has proven politically impossible to attain an adequate fiscal stance for the euro area as a whole via bottom-up coordination.

When a broadly acceptable overall stance was achieved, that took place via the wrong distribution between countries, in violation of their respective fiscal space. This was not fully recognised during the crisis, but since then, the issue has received more attention.

A central European fiscal capacity complementing the national budgetary policies is needed to achieve the required fiscal stance for the euro area and, if well designed, also help to better enforce the common fiscal rules at country level.

- **EU-level decisions should be insulated as much as possible from domestic political economy considerations.** It has proven very difficult to make the swift decisions and stick to them even on matters with potentially high relevance for market sentiment and financial stability. More generally, processing policy decisions only through 'moral hazard lenses' may not lead to sound policies.

Whilst providing the right incentives for policymaking is essential, moral hazard considerations have to be

tempered by the need for urgent policy responses. This is particularly true in times of economic and financial stress, for instance as was the case in Greece, or in the sovereign debt crisis in the euro area in 2011-12.

- **Programme work exposes to political risks.** The Commission paid a hefty political price for running the rescue programmes together with the IMF and ECB. It was criticised from both sides of the spectrum: on the one hand, it was perceived as being an agent of the creditors and enforcer of austerity in vulnerable countries; on the other hand, the Commission was also unpopular among governments and the public in countries like Germany, where it was perceived as being too lenient.

These perceptions were unfortunate, since the Commission's North Star has always been the common interest of Europe and its citizens. The decisive role of the Commission in averting Grexit is a case in point. The larger responsibilities in crisis management attributed to the ESM will in the future help dispel the perception of the Commission as the 'agent' of the Eurogroup.

I believe the above lessons have important implications for the next steps in the completion of the EMU architecture. They should also lead us to reflect on a better policy mix to ensure balanced and sustainable growth.

As to the architecture of EMU, we need to do the following:

- **Complete the Banking Union.** A crucial insight guiding the design of the Banking Union has been that risk reduction requires risk sharing, and the latter should be seen as insurance, not as a one-way street.

- S**et up a European fiscal stabilisation capacity.** While an appropriate fiscal stance is needed to achieve a

balanced policy mix, it has become increasingly clear that achieving it solely via national coordination is very difficult, underscoring the usefulness of a central fiscal capacity (Buti and Carnot 2018).

- **Increase the democratic accountability of European integration.** As argued in Buti and Krobath (2019), a move from the intergovernmental method, which gained ground during the crisis, back towards the community method would improve both efficiency and accountability.

- **Strengthen the international role of the euro.** A fundamental condition for that is completing the EMU, also in terms of governance, including addressing the relative scarcity of euro denominated safe assets (Acedo Montoya and Buti 2019).

The current slowdown and lacklustre medium-term growth prospects also indicate that the fiscal, monetary and structural policy mix needs to be changed. As Mario Draghi stated in his speech in Sintra (2019), monetary policy needs to remain patient, persistent and prudent. Fiscal policy needs to fulfil the three Ts as identified first by Larry Summers (2008): timely to be effective, targeted by focusing on high multipliers expenditure and – possibly – temporary.

While the jury is still out on the desirable fiscal trajectory in presence of ultra-low interest rates, there is little doubt that a long-lasting boost of public investment should be undertaken. One such example would be quality-investment to ease the environmental transition.

Complementing Draghi's three Ps for monetary policy and the three Ts from Summers, I propose three Fs for structural reforms: they should be feasible to be effective in the short term instead of aiming for unrealistic goals; forward-looking, for instance regarding environmental issues; and fair, by incorporating distributional concerns and

moving away from the perception of reforms as 'blood and tears'.

Joining the letters, they spell TFP, a fitting acronym to capture today's economic and policy predicament in Europe. ■

Marco Buti is the Head of Cabinet of Commissioner Paolo Gentiloni at the European Commission

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Author's note: I write in my personal capacity and the expressed opinions should not be attributed to the European

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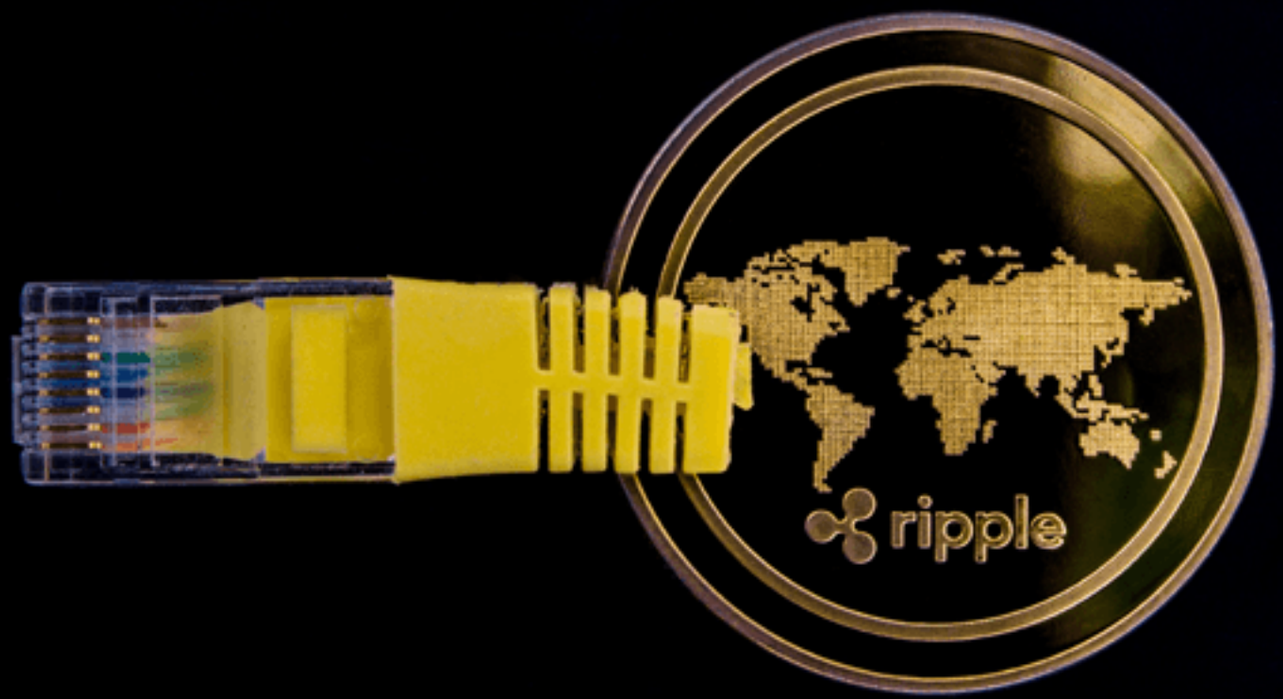
Ahead of the GAME



WCR sat down with Euro Exim's Graham Bright to talk about the $22 trillion cross-border payments market, the disruptive effects of technology and how regulators will respond

Graham Bright is Compliance and Operations head at Euro Exim Bank

Traditionally, cross-border payments have been slow and expensive and the lag creates inefficiencies and extra costs for corporates that transact globally. How does Euro Exim Bank help with liquidity for cross-border trade?

Our participation with Ripple has been game-changing. From being an early supporter, we have rapidly implemented both the RippleNet real-time xCurrent payment capability and the On-Demand Liquidity (ODL) services.

By resolving the original problems of slow, costly transactions, the new dynamic of blockchain-enabled Ripple services brings speed, certainty and access to liquidity between two non-fiat currencies, allowing local firms to pay and be paid in local currency through the medium of guaranteed digital asset flows.

Technology has the promise to improve cross-border payments. Will DLT/blockchain solutions offer better and cheaper services, and lower the cost of compliance with AML/CFT regulation?

Investment in financial services technology has become mandatory for all institutions wishing not only to provide more savvy customers with fast, competitive and reliable systems, but

to remove legacy and create customer environments which meet ever changing expectations. Let us not forget that DLT and blockchain technologies are excellent enablers for the right use-case, and completely inefficient for others.

The key is finding the business area which is clearly defined and has agreed and used standards already in place. For example, a payment transaction has few fields of structured information, as does the structured data when assessing identity, address, passport or bank account details. So, in this setting, DLT/blockchain based dissemination of transparent immutable data between few parties already versed in transmission of such data is a relatively short implementation process and immediate benefit.

Industry experts have long said the next key area for DLT could be revolutionising trade finance, adding instructions, invoices, inspection certificates, insurance documents, bills of lading etc. to a chain, all viewable but not changeable by all parties to the transaction.

However lofty the ideal, the market is not yet ready. The ecosystem remains challenged through multiple standards, jurisdictions, document formats, regulatory processes, geographies, geopolitical forces and people costs.

Banks are responding to disruptors in an effort to retain market share in payments, and cross-border instant payments is the new battle ground. Why have traditional banks have fallen behind?

Burdened by regulatory, constant non-revenue generating changes to systems, procedures and training, banks are constantly playing catch up in their battle to maintain IT and service supremacy. And it is not just lack of investment holding them back but trying to meet the pressure from customers for smarter services.

As an example, imagine your institution has offices in 10 locations, with 50 branches and 2000 staff requiring a simple system upgrade. All applications will need to have been tested in non-banking time to avoid fall off of version support.

Banks may also test everything but may still risk catastrophic connectivity failure, such as rendering cash machines unusable over a bank holiday weekend. But this may be only one of a hundred planned mandated committed projects requiring enhancement across the whole of the banking arena, where some banks are still supporting multiple systems reliant on mission-critical code over 20 years old.

[With] the untapped markets of East Africa, emerging manufacturing hubs and the BRI goods corridors spanning Europe and Africa, our role is clearly defined as the pre-eminent issuer of financial instruments driving and facilitating world trade

It is no surprise that smaller focused challengers and disrupters are entering the market with customer on-boarding in minutes and cheaper, faster, future-ready services, which are breathing fresh air into a stifled, legacy based industry.

Clients want intelligent apps, accessible on smart phones from anywhere at any time and the new players are primed to take customers with their new delivery mechanisms. It remains to be seen how quickly major banks can catch up.

Corporates are increasingly demanding digital, 'best-in-class' products and services. How could fintech innovations reshape the cross-border payments landscape?

Seemingly unencumbered by regulators, new entrants have developed totally digital solutions in the Cloud. Not for them the costs of building and maintaining *"bricks and mortar banks"* with branches. Not for them employing relationship managers, but rather using artificial intelligence, with automated interaction robot applications (BOTS) to 'converse' and assess true customer needs at a fraction of the cost of call centre staff.

Clients want agility, choice, ease of use and, failure to deliver means losing customers based on a single click.

It is the fintech companies, with innovative management looking to gain significant market share through lean, well designed systems, bypassing legacy applications, that will ultimately win, unless banks embrace and quickly implement competitive architectures.

There are several networks and consortia in the trade finance space. What are your thoughts about this going forward?

Competition is always good. And, again the objective is always to find the most suitable service providing least cost, highest coverage and best institution and client benefit at the right time for the appropriate purpose.

A key benefit is matching suppliers and buyers, reducing the investigation stage, reviewing tenders and appropriate parties to participate in a trade.

We are also evaluating new network offerings to see how these may be complementary to our business, and with which consortia to participate. Our ultimate goal is always improving our efficiency, reducing our costs and providing the best possible pricing and service to clients to encourage repeat business.

There is change on the horizon. Banks are increasingly leveraging new technology or working with fintechs in order to bring the cost down and increase the speed of international transactions. Target Instant Payment Settlement (TIPS) and the Single Euro Payments Area (SEPA) in Europe, The Clearing House's Real Time Payments (RTP) initiative launched in 2017 in the US, Singapore's Fast and Secure Transfers (FAST) and SWIFT GPI Instant are just some of the initiatives in place to encourage and support instant cross-border payments. What's next in terms of borderless trade?

The dream of true borderless trade is some way off. Whilst networks and collaborations exist which very much focus on established payments centres and their technology, let us not forget the rest of the world moving small volume or low value goods cross-border. For many, payments are complicated by lack of liquidity, costly access to

fiat currency, complex document and legal processes, corruption, poor infrastructure, lack of trust and regulatory barriers.

Free trade agreements, which currently number more than 400 worldwide are of strategic importance. As an example, the 16-country Regional Comprehensive Economic Partnership – RCEP, would be the world's largest when operational, spanning India to New Zealand, including 30% of global GDP and half of the world's people.

However, India have decided not to be part of the group, which would benefit all, making it easier for products and services of each of these countries to be available across this region focussing on trade in goods and services, investment, intellectual property, dispute settlement, e-commerce, small and medium enterprises, and economic cooperation.

Similarly, Nigeria have decided not to ratify the AfCFTA agreement. There continues to be gap between what various African countries need and what is produced on the continent. Collectively, African nations could reduce foreign imports and increase trade flows within the continent. For AfCFTA to succeed fully, more countries need to diversify their production of goods to better match the import needs of their neighbours.

So, whilst the speed and unhindered reach of payments traverse borders in seconds, the complex, difficult mechanics of physically moving the goods to ultimate often difficult and remote destinations where protectionism, isolationism, nationalism, self-interest and xenophobia still exist.

Particularly disadvantaged are landlocked countries as their goods navigate and negotiate across multiple countries towards ports, ultimately keeping costs high and remote economies uncompetitive.

To what extent might new technologies reduce service shortcomings, and alter market structure by favouring market platforms over intermediaries, reshaping business plans and firm boundaries, or encouraging entry?

New technologies which can assist the financial markets and payments in particular, will change the financial landscape.

What does the future offer? The time-honoured system of developing relations with and building networks of correspondent banks will be redundant, surpassed by electronic networks offering account to account direct cross border access, seamlessly supporting payments in seconds, in real-time with dashboards and monitors providing full visibility of transactions and immediate notice of credit or debit.

Rather than just sending payment instructions, resulting in waits of up to 3 days for funds to be cleared, the latest technology allows true seamless, frictionless transaction reception and processing at a price and speed that customers now expect from 21st century providers. Platforms will be the way forward.

And how should regulators respond?

Regulators have a key role to play in ensuring that appropriate regulations and guidelines are in place as the dynamics of the payment and trade markets change.

Rather than taking a remote stance, and issuing new rules in isolation, regulators should take a pro-active position where they convene the new market entrants and traditional players. The objective? Protect the clients,

but also make it possible for new entrants to have clear guidance on what is mandatory and how services can unambiguously be delivered, in light touch regulation rather than heavy, complex to implement detail.

Regulators are a clear and experienced source of vital information for all service providers in the payments space and should be viewed not as a problem but consulted as partners.

Financial inclusion and sustainability are key goals. How do see this developing with technology such as yours?

According to the World Bank, globally, about 1.7 billion adults remain unbanked - without an account at a financial institution or through a mobile money provider, mainly reliant on cash, especially in rural economies, where the age demographic remains important - often resisting latest technology trends.

Surprisingly, even for a developed economy such as the USA, the Federal Reserve estimated there are 55 million unbanked or underbanked adult Americans in 2018, which account for 22 percent of US households.

Our institution facilitates trade with countries across the African Continent, the Middle East and Asia. Many of these countries are classified as third-world with low liquidity local banks, populations with many unbanked and excluded populations, however, mobile phones have for years made a significant in-roads into bank account ownership and e-wallet connectivity.

Our business relies on working with corporates with bank accounts and financial records, hence we are potentially locked out from major opportunities.

Whilst we may not have solutions to the continuing issues of restricted financial inclusion, our business model is attuned to ensure that companies in emerging and undeveloped countries can import effectively, fairly and economically and to realise their true potential.

From a sustainability perspective assessing profit, planet and people, before embarking on any agreements, we are careful to assess the environmental impact of trades, type of goods (responsibly sourced), working with buyers where fair-trade prevails and sellers/manufacturers pay fairly and treat their workforce with consideration and respect.

Our CSR policy is key, from charity fund-raising events raising thousands of pounds supporting hospitals and the underprivileged to local sponsorship of cultural events both at home, the Caribbean and in Africa, our organisation is pleased to provide regular support and awareness to those less fortunate than ourselves.

In addition to the company's stance on working with clients dealing in goods of ethical origin, Euro Exim Bank aims to reduce carbon emissions. As an international bank with a growing global footprint, its management actively demonstrate its commitment to good causes and making a difference for underprivileged, disabled and disadvantaged communities across the globe and the environment.

In conclusion, how do you see Euro Exim developing going forward?

Our technology platforms are future-ready and blockchain-enabled incorporating advanced payment mechanisms with digital assets, enabling trade through issuance and relay of financial instruments such as Letters of Credit and Standby Letters of Credit that keep the circle of global goods moving.

Our business expansion is leading to creation of a significant sales team in India, and more country specific offices in Africa, Middle East and Asia. These will serve emerging markets and challenge existing areas where major banks are tactically withdrawing through de-risking.

The potential from the untapped markets of East Africa, emerging manufacturing hubs and the BRI goods corridors spanning Europe and Africa, our role is clearly defined as the pre-eminent issuer of financial instruments driving and facilitating world trade.

With Asia and Africa being the fastest emerging and growing markets for trade, Euro Exim Bank has uniquely positioned itself to serve buyers across the continents. ■

Graham Bright is Compliance and Operations head at Euro Exim Bank

Governance of financial globalisation

Jon Cunliffe sets out the progress that has been made and the challenges to be faced around the governance of financial globalisation

The UK has left the European Union. Our status as a non-member of the EU, what is called a 'third country', is now quite clear. The future relationship between the UK and the EU, of course, is not yet fixed. It will depend on the outcomes of the negotiation that has now commenced.

Those negotiations are for the UK government and the EU authorities and member states. Our job as the Bank of England is to deliver monetary and financial stability within the mandates that are set for us. So I will not – and indeed I could not – write about the trade negotiations or hazard guesses about the outcome.

But while we are not responsible for trade negotiations and while all decisions about the future relationship are for governments, the governance of the UK's financial links with the rest of the world, the EU included, is important to us given our responsibility for financial stability in the UK.

I want to talk in part about the governance of financial globalisation, the progress we have made, and the challenges we face. That is a subject that is crucially important to the UK and to the EU, given our integration into the global economy.

Financial globalisation – an integrated global capital market and cross-border financial services – mean that our economies can benefit from better matching of saving and investment, from greater choice and from risk sharing and diversification.

But, of course, it also means that we import and export financial risk from across borders. We saw just over a decade ago the damage that can come from financial globalisation if we do not have appropriate governance at the international level.

This question of governance, and of the import and export of financial risk, is a subject of crucial importance to me, and not just because I am still scarred by the great financial crisis. I am Deputy Governor for Financial Stability at the Bank of England. We are responsible for the largest and I think most complex international financial centre in the world.

And I also want to talk specifically, from the particular perspective of financial stability about how, in the light of the current governance of financial globalisation, we build the new arrangements for the governance of the financial sector connections between the EU and the UK.

... over the past ten years achieved a step change in the governance of financial globalisation and the way in which we manage cross border risks

Governance of financial globalisation

I have used the word 'governance'. The word is of course closely related to the word 'government'. But while related, they are not the same thing. We can have governance of the global financial system even though we do not have global government.

Governance can mean legislation, regulation and the institutions of government. But it also encompasses broader frameworks of standards, norms and conventions, international organisations and agreements that fall short of hard law.

Indeed, in a world of nation states and national legislatures and governments, it is on these broader frameworks that we need to depend for the governance of financial globalisation, and the management of cross border risk.

This challenge is not of course confined to the financial sector. International governance structures are required in many economic and non-economic spheres. But since the liberation of global capital flows and liberalisation of international financial markets which began 50 years ago, financial authorities in multiple jurisdictions have sought together to build the necessary governance frameworks to enable the benefits of financial globalisation while managing the risks.

The first Basel Banking Accords of the early 1980s were motivated by the need to ensure that banks involved in cross border services were made subject by their home authorities to minimum standards. In other words, to ensure that the benefits of cross border flows were accompanied by assurance on the risks that might be imported.

Financial globalisation accelerated through the last decade of the last century and up until the great financial crisis.

External financial assets and liabilities increased from 60% of GDP in the 1980s to 400% of GDP in 2008. In advanced economies, this was 6 times the level of exports and imports as a % of GDP. This helped to drive unprecedented growth and poverty reduction in the global economy, with the share of the world population living extreme poverty falling over 60% since the 1980s.

But financial globalisation also gave rise to a series of regional capital and financial crises that exposed the risks; and the international governance structures did not keep up.

It took the great financial crisis and the near-death experience of the global economy to bring home the lesson that a step change in governance was needed. And to create the political will to make it happen.

The response to the great financial crisis has been the largest, most comprehensive set of reforms to the governance of the international financial sector that we have seen.

New international standards ensure that banks engaged in cross border activity are far more resilient. They have more and better quality capital to absorb losses and much greater reserves of liquidity to withstand stress. The development of resolution regimes and an international standard for loss absorbency in resolution makes it far more possible for international banks to fail without endangering the whole financial system.

OTC derivatives, a key amplifier of the stress and largely unregulated and unreported before the crisis, are now transparent and collateralised – an additional $1 trillion is now held globally against all derivatives trades. A raft of measures have moved shadow banking into the light, eliminating its toxic elements and ensuring more resilient market based finance.

And, perhaps most importantly, the crisis led to a reformed governance structure with the creation of the Financial Stability Board (FSB), accountable to both the G20 Finance Ministers and Governors and to the G20 leaders. The FSB brings together the central banks, regulators, and finance ministries of jurisdictions representing around 90% of the global financial system. It has a broad mandate to promote financial stability, monitor and assess risks, and coordinate standard setting bodies to ensure no regulatory gaps.

The FSB has driven the great reform programme to address the fault lines exposed by the crisis. That programme is largely complete and in its implementation phase. We cannot and do not need to be forever in a post crisis reform phase. But, looking forward, there is always the danger that we fall behind again.

The progress we have made in governance since the crisis gives us the ability to prevent this from happening. We have far better institutional machinery today, through the FSB and G20 to bring governance into line with new risks and challenges before rather than after a crisis.

The FSB's work on cryptoassets in 2018 is a good example. The G20 identified the rapid growth of cryptoassets as a potential problem and tasked the FSB with analysing the risks posed. In the space of less than a year the FSB concluded that cryptoassets did not currently pose financial stability risks.

But it also put in place a monitoring framework to ensure that this assessment is kept current and keeps pace with rapid developments in this area. The FSB also identified a number of non-financial-stability risks that need to be addressed by the relevant regulatory bodies in line with its mandate to prevent regulatory underlaps and overlaps.

And it is not just in the scanning of risks and responses to them that the post crisis reforms have left us in much better position. The stronger institutional framework, reporting to the highest political level, and the development

of more granular and more comprehensive standards, provides much greater assurance for jurisdictions about the import and export of financial sector risks.

That was the objective of the global leaders at the Pittsburgh Summit when they committed to developing and implementing global standards in a way that ensures a level playing field and avoids fragmentation of markets, protectionism, and regulatory arbitrage.

And that is why, five years later, G20 leaders felt able to conclude that *"jurisdictions and regulators should be able to defer to each other when it is justified by the quality of their respective regulatory and enforcement regimes, based on similar outcomes, in a non- discriminatory way."*

We need to make sure we can sustain this especially in the face of new challenges.

Crisis concentrates minds. It is perhaps inevitable that as time passes and memories fade, there is less political focus on these issues and less will among jurisdictions to ensure governance keeps pace with the risks. Fatigue sets in. For example:

- Before the crisis Basel II, which was not particularly ambitious, took 10 years to agree.
- By contrast, post-crisis the key elements of Basel III, which was a significant step-change, took just 2 years.
- But as the crisis receded and fatigue developed, it took a further 5 years to finalise Basel 3.1, which implemented less sweeping changes.

The lesson fades that in an integrated global economy we are all ultimately in the same boat or in the words of Benjamin Franklin that *"if we do not hang together we will most assuredly hang separately."* This had led to fragmentation in the way we implement the reforms we have agreed.

Moreover, the circle of players has grown. The governance reform efforts of the last 50 years have been predominantly led by the advanced economies whose financial institutions dominated the global economy. That is changing with the increasing importance in the global economy of emerging markets – indeed much of the financial innovation we see today is happening in the emerging market and developing world rather than in the advanced economies.

We are now in short having to work harder to generate the consensus to keep the governance necessary for financial globalisation moving forward in line with the risk. And we can see major challenges emerging.

One example is artificial intelligence. Ten years ago, the potential impact of AI and machine learning on financial firms was discussed in niche conferences as one of those things on the horizon. Today, 80% of firms we regulate use machine learning. The increasing use of AI will pose big societal questions – what kind of decisions can AI be allowed to make, how to protect against AI creating and amplifying biases/discrimination.

These are debates which go much wider than the international financial regulatory community, but to which we must contribute. And there are also specific financial-regulatory issues that have cross border implications. For example, whether AI systems could contribute to *procyclicality and risk amplification*, whether and how they should be used *in regulatory capital models*, and what should be the standards for the appropriate *governance and oversight* of decisions made by AI.

That is just one example. Use of the cloud by financial firms poses similar issues – as does the technology-driven changes that are happening in cross-border payment systems and that present new combinations of risk.

The challenges go beyond new technology. Regulators and supervisors are increasingly working together to ensure the financial system is resilient to the risks posed by climate change and the transition to a low carbon economy. The regulatory response to this complex financial stability risk is, rightly, multi-faceted.

One core element has been reporting and disclosure, on which the FSB has led progress through the Task Force on Climate-Related Financial Disclosures (TCFD). But we also need to accelerate work to develop firms' and authorities' climate-related risk analysis and stress testing capabilities, so as to bring climate- related financial risks into the heart of decision-making, and ensure that the global financial system plays its part in the transition to net zero.

The UK's international financial centre and the EU

Ensuring that the governance of international finance keeps pace with cross border risk is crucial to both the EU and the UK, integrated as we are in the global financial system. It is of huge importance to the Bank of England which is charged with ensuring financial stability.

We are home to the largest and most complex financial centre in the world. And it is a truly global financial centre, where global capital, liquidity and risk are pooled and managed, with the accumulation of the people, skills and the expertise necessary for such a concentration of international finance.

The City is home to around 250 foreign banks including all of the major investment banks. It is the same story for other financial sectors like asset management and insurance. Its financial markets are truly global.

50% of the global market in swaps and 43% of forex trading takes place in London[1]. Around 2.5 times as many USD are traded in the UK as in the US. It is the world's second largest centre for asset management. And its role as an innovator in global financial services looks set to continue. It is a global leader in fintech[2].

The EU is of course of major significance to these pools of global capital, liquidity and risk. But London is much more than just a financial centre for the EU. And in the same way, while one should be careful not to overestimate it, London is important to the EU. It is the major financial centre in which the EU meets the rest of the world.

The UK's exit from the EU will of course change some of this. But it will not change the fact that if the EU economies want to be part of global pools of capital and liquidity, if they want to hedge their risk in the broadest possible markets, trade in the deepest possible markets and establish a global role for the euro, they will need to meet the rest of the world somewhere.

That may of course be in the EU for some markets and products. And it is conceivable that the global markets in London will transfer to EU jurisdictions. But I suspect that will not be likely and if it did happen it would not happen quickly. It is true that the past, global financial centres emerged in jurisdictions with huge trade surpluses: Amsterdam in the 16th century, London in the 19th century New York in the early 20th. But London's re-emergence 60 years ago was long after the global economic dominance of the UK – and long before the single market in financial services developed in the EU.

Openness, time zone, language, law, developed domestic financial markets and, crucially, the concentration of skills and expertise and talent, seem better explanations of the agglomerations of economic activity that are today's global financial centres[3].

The EU has the ambition to build a more integrated and more market based financial system – the Capital Markets Union. I certainly believe this is the right ambition; a greater role for risk capital and for market based rather than bank-based finance will help to diversify risk across borders, reduce costs to the real economy and avoid too great a reliance on the banking channel of credit intermediation.

But while financial markets and financial centres need to be supported and governed by the right regulatory framework, one cannot regulate deep capital markets into being, and certainly not global ones.

The development of market-based finance in the EU has, in my view, more to gain than lose from access to the markets, expertise and concentration of financial activity in London – from partnership rather than rivalry with the global financial centre on its doorstep.

We cannot, of course, read the future and predict how the financial arteries and veins now connecting the UK and EU will develop now the UK is no longer a member of the EU.

What we can say, with some confidence, however, is that though the financial connections between us will change and adapt, they will not be severed. The UK, and the global financial centre we host, will remain open to access from the EU and its members as we are open to access from the US and Asia.

And unless the EU and its members want to reverse their integration into the global financial sector – and I see no real signs of that - there will continue to be strong financial sector connections between us.

Governance of EU-UK financial interconnectedness

And that brings me back to the subject of the governance of international finance – the way in which jurisdictions

can gain the assurance about the import and export of financial sector risk necessary for their economies to benefit from the efficiency, opportunity and risk management offered by financial globalisation. For the last 30 years or so the governance for cross border financial activity within the EU has been increasingly provided by the legislation, regulation and institutions of the single market in financial services. For the UK, this will continue for another 11 months.

But after that we will need new ways to provide the governance for the deep financial connections that will continue between us. The progress in stronger international governance frameworks that I have described provides the basis for that. The development of international standards, of the norms for cooperation, the machinery for scanning and assessing risks and for generating common approaches, provide for mutual assurance in a way that was not possible in the past.

We will be able and will need to build on that basis. Some of this may come through the 'equivalence' regimes present in some EU legislation, regimes that will initially at any rate be mirrored in UK legislation as we start with the EU acquis on-shored into national law.

But those regimes cover only a part of the cross border connections. They do not, for example, cover how the supervisors of the large EU banks active in London will cooperate with the UK supervisory authorities to provide assurance about the risk being imported into the UK. Or how the EU authorities – at European and at member state level – will manage the pooling of EU risk in the global markets of London.

We have a good basis on which to build. Most obviously we leave the EU with the same legislation and regulation – 'equivalence' at the starting point of this new relationship should not take the regulatory authorities on either side very long to establish. The Financial Policy Committee of the Bank of England has made clear that it is committed to

maintain a level of financial sector resilience that is at least as great as that currently planned, which itself exceeds that required by international standards.

On the supervisory side, the Bank of England has over the last 18 months signed 30 MoUs with EU and EU member state authorities covering pretty much all aspects of financial sector activity. The Financial Conduct Authority has done likewise.

The issue therefore is not the starting point but how our regulatory frameworks and supervisory practices and cooperation will develop over the future.

The UK has been very heavily involved and instrumental in the development of the EU regulatory framework. That will no longer be possible. As a third country, the UK is no longer involved in the development of EU legislation and regulation.

As new challenges emerge, as EU regulation no longer needs to cater for the greater complexity and scope of risk and activity in London, and as the complex processes and structures needed to manage the regulatory framework within the EU are no longer needed in the UK, there may well be divergence.

The issue, from a financial stability perspective, is how we will manage that to provide the necessary assurance on the import and export of risk on both sides.

The EU needs assurance on financial stability risk once the UK is no longer subject to the EU framework. Indeed, as an importer of risk from EU jurisdictions, the UK regulatory authorities have the same need.
And the degree of assurance is related to the degree of risk.

Equivalence assessments are, in the words of the EU/UK Political Declaration, 'autonomous' matters for each side. But if we want the relationship to work, the following considerations matter.

First, and I think self-evidently, the UK cannot outsource regulation and supervision of the world's leading complex financial system to another jurisdiction. That argues against a relationship built on textual alignment of our regulatory frameworks.

Rather, and in line with the way in which global governance has developed, it requires a relationship built on the assessment of similar outcomes, in a non-discriminatory way, paying due respect to home country regimes in line with FSB norms. Both the EU and UK have I think recognised principle.

Second, future regulatory and supervisory arrangements between the EU and the UK need to be stable and built on good faith. This is not primarily because cross border activity beneficial to both sides will not be maintained in an unstable environment – true though that is. It is because abrupt disruption of cross border activity in the financial sector is in itself a source of risk.

Of course, even in a relationship grounded on similar outcomes and deference, it must be possible for supervisory and regulatory arrangements to change over time – for one side or the other to conclude that due to changes in the regulatory framework or new challenges handled in different ways, financial stability risk cannot no longer be managed in the current framework.

In such a case, additional controls and restrictions on cross border activity may be needed. But these need to be clear and transparent regulatory and supervisory decisions, grounded in evidence and applied within agreed

procedures to ensure that their implementation itself does not become a source of risk. A relationship in which financial sector disruption can become the tool of other policies is difficult to square with financial stability.

Third, we need on both sides to have deep supervisory cooperation in all areas of cross border financial activity – banking, insurance, markets and market infrastructure.

Depending on the circumstances, that can mean line of sight, joint discussion of risks and mitigation – in short ensuring that the importer of risks has information and influence. It means assurance not just about business as usual but also that failing firms that are active cross border can be resolved effectively and safely by their home jurisdiction. We have such arrangements at present with non-EU jurisdictions whose firms are highly active in the UK.

In areas such as global financial infrastructure, supervisory co-operation can mean a degree of joint supervision. Again, we have such arrangements with non-EU jurisdictions – and indeed with EU jurisdictions particularly in the payments area. We are likely to need to develop such arrangements more generally at the international level in future to manage the technology driven changes in cross border payments systems.

But such arrangements must be practical. Effective supervision of systemically important firms in business as usual cannot be achieved with multiple hands on the steering wheel. Firms need clear and consistent messages. This is true, a fortiori, at times of stress.

Arrangements for shared supervision, therefore, need to be worked out carefully, subject to agreed procedures and, crucially, recognise the primacy of the lead supervisor. And, given the systemic importance of global infrastructure to many jurisdictions, they must above all be stable.

And finally, these arrangements need to be reciprocal and proportionate. This means as I have said, the degree of assurance depends on the degree of risk. In areas for example where there is no cross-border activity, there is little need for assurance on cross border risk.

In the end, both sides will need to make a balanced assessment. It is perhaps human nature on either side to want maximum control and minimum responsibility. But a stable and effective regulatory and supervisory relationship cannot be built on those lines.

I am an optimist in this area. Of course, I expect some change. But I also believe we have a very solid foundation on which to build the broad supervisory and regulatory relationship necessary for the UK and the EU economies to continue to benefit from our cross border financial connections and from the integration of global and European markets that this encompasses.

I am here talking, with our responsibility for financial stability in the UK, about the management of financial stability risk on both sides. I am not, to be clear, talking about trade negotiations. As a former UK Ambassador to the EU, I know full well that there are many things in the world of EU-UK relations apart from financial regulation and financial stability. It is, however - and as I said at the outset - for others to decide those things.

My point is that we have over the past ten years achieved a step change in the governance of financial globalisation and the way in which we manage cross border risks. As memories of the crisis fade, we need to work together to sustain and reinforce the progress we have made to deal with new cross border financial sector risks – challenges like the impact of climate change on the financial sector and the technologically-driven changes we are seeing in cross border payment systems.

The reforms to governance of financial globalisation also provide the direction, once the UK leaves the single market for financial services, for the development of the governance of the deep financial links that will continue to exist between us, to the benefit of all our economies. ■

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

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Central banks and climate change

Central banks have been called on to fight climate change. Markus K Brunnermeier and Jean-Pierre Landau present a framework for thinking about the issue and identifies some major trade-offs and choices

Fighting climate change had become the major priority of public policy in a great number of countries, and central banks have been called to contribute. Some have shown an inclination to internalise climate change in their policy objectives and frameworks. Others are more reluctant. In this column, we present a framework to think about the issue and identify some major trade-offs and choices.

An essential distinction must be introduced from the start between the two responsibilities that central banks undertake in most countries: the supervision, regulation, and oversight of financial institutions' activities; and the implementation of monetary policy.

Central banks, regulation, and oversight of financial activities

One can think of a spectrum of interventions on climate change, some of them uncontroversial, others more innovative or intrusive.

Internalising climate risks in financial supervision

This seems an obvious obligation. Climate should be a major part of financial risk assessments. Stress tests and, in the euro area, the Internal Capital Adequacy Assessment Process (ICAAP) should have a climate component.

Climate scenarios should be conducted in parallel (or as complements) to macroeconomic scenarios, as the climate has an obvious impact on the valuation of long-term assets and liabilities. Climate sensitivity analyses should systematically be conducted and updated for the portfolios of insurance companies, institutional investors, and asset managers.

A subtle distinction must be introduced, however, between three categories:

- The *risks* stemming directly *from climate events* (for instance, mining, farming or some industrial activities may become impossible in some areas and existing assets must be depreciated accordingly)

- The future impact of *existing climate policies* that must be assessed and priced accordingly

- The impact of *future climate policies* that have not yet been decided. For instance, should a carbon tax (or some equivalent measure) be implemented, some oil reserves would become 'stranded' and exposures by

The big question is whether central banks can use their monetary instruments to actively promote the fight against climate change

financial intermediaries should record some impairment. It is economically logical that institutions be stress-tested against that possibility.

It is also financially sound that institutions be asked to protect against it. However, it may be operationally awkward for supervisors to assess the probability of policies that have been enshrined in international agreements (the Paris Agreement, for instance) but not enacted by the legislator.

Interestingly there is a feedback effect. If private institutions provision for the impact of future climate policies, they will be more resilient when measures are taken. In turn, increased preparation in the private sector may make it easier and politically more feasible to adopt the necessary policies.

Using of prudential ratios (capital requirements) to direct financing towards sustainable investments

Most capital ratios under Basel III regime are 'risk weighted' – they vary with the estimated riskiness of loans and assets held by banks. It would be relatively straightforward to expand the concept and definition of riskiness to take climate risks into account.

Again, there is a graduation of possible regimes depending on the kind of risks that would be considered: existing and materialised climate risks or future possible climate risks; impairments resulting from existing policies of future possible policies.

Capital ratios could also be used in a more proactive way by applying favourable regimes to loans and investments deemed 'green' by supervisors. While operationally easy to implement, such regimes would confront central banks with a triple challenge:

- Green investments may be intrinsically riskier and would, per se, require higher capital buffers.

- How would the 'green' characterisation be defined and by whom? Are regulators equipped to make such a determination?

- Using prudential ratios to influence the allocation of credit would mark a shift toward more 'directed credit' policies. Those policies were abandoned in most advanced economies several decades ago but are practised in many emerging economies.

Again, the question would arise as to whether central banks are equipped to implement such policies. The central banks might become subject to severe lobbying pressure from various interest groups.

None of these challenges is insurmountable, but they would need to be addressed ex ante and the proper institutional and governance arrangements put into place.

Creating and increasing incentives to 'green finance'

While the concept of green finance is widely utilised, it remains largely undefined in terms of instruments and legislation. At this stage, in addition to specific regulatory incentives, central banks could pursue two general and distinct objectives:

- Encourage the development of long-term project finance as most of the difficulties attached to financing the energy transitions are common to all long-term risky projects

- Push governments and parliaments to take clear and predictable measures. Uncertainty on future policies

– more than the lack of financing – is the main factor inhibiting investment in climate change. Once those uncertainties are removed, investors will be able to take full advantage of existing low interest rates and easy financial conditions.

Central banks, monetary policy, and climate change

This section outlines a problematic rather than preconising specific orientations. It is obvious that the link between climate change and monetary policy is looser and less well-defined than with financial stability and supervision.

One major difficulty is the difference in horizons. The conventional wisdom on monetary policy is that it has no impact on long-term growth; its influence is mostly felt on a 1.5 to 2.5 years horizon. By contrast, climate change is all about the long term; effects and policies materialise and matter over several decades.

Impact of climate risk on macroeconomy

This being said, central banks may want to take several climate change-related aspects into account when designing and implementing monetary policies:

- First, they should incorporate climate risks in their assessment of potential growth and output as well as the *natural* equilibrium interest rate (r*).

- Second, even in the short run, the climate can have an impact if it leads to an *increased frequency* of extreme weather events. Those events are 'negative supply shocks' with inverse effects on output and prices. They very much complicate the conduct of monetary policy. Some small and medium-sized emerging economies may be especially exposed and adjust their policy frameworks accordingly.

Monetary instruments

The big question, however, is whether central banks can use their monetary instruments to actively promote the fight against climate change (Honohan 2019). Over the last decade, central banks have significantly expanded their balance sheets, often by a factor of five or ten.

In many countries, those balance sheets are now commensurate to the size of the national economy. With such an imprint on the economy and financial markets, central banks could take a more proactive approach to financing the climate transition.

Two possibilities come to mind, both without significant changes to the current operational framework:

- Reorient their asset purchases towards 'green' securities
- Modulate haircuts applied to different kinds of collateral used in refinancing operations, thus creating an incentive to detain some and offload others.

Some reflections in light of Musgrave's categorisation

Should central banks take that route? This may be the most sensitive and difficult question. In this column, we simply present some reflections – first at a general level, and then applied to particular central banks.

Generally speaking, it is useful to refer to the classical Musgrave distinction between the three functions of public economic policies: *allocation* (of resources), *redistribution* (of incomes) and *stabilisation* (Musgrave 1939).

In countries in which central banks are subordinate to the government and do not enjoy any independence, a clear assignment of the various policy functions is less relevant. This is especially true if the government-directed credit is part of the economic model, as in the case of China for example.

In democratic societies, decisions on allocating resources and redistributing incomes are taken by elected bodies. Obviously, policies relating to climate change belong to that category. Independent central banks are non-elected 'agents' of the society; they have a well-specified *mandate to stabilise the economy*.

It can be argued that central banks would be going beyond their mandate if they were to tweak their instruments of monetary policy to allocate resources and direct credit. This seems to be the position taken by the Federal Reserve. Chairman Powell stated recently that *"[c]limate change is an important issue but not principally for the Fed."*

The situation may be more complex for the ECB. Compared to the US Federal Reserve, its mandate is both more hierarchical – with price stability as a priority objective – and more complex. The Treaty states that *"… without prejudice to the objective of price stability,"* the euro system shall also *"support the general economic policies in the Union with a view to contributing to the achievement of the objectives of the Union."* These include 'full employment' and 'balanced economic growth'.

To the extent that price stability is not compromised, and fighting climate change is a major (recently reaffirmed and emphasised) priority of the EU, the question arises as to whether the ECB can use some of its available instruments to also pursue a climate change objective.

This is certainly a point made by many climate activists. However, this immediately raises further questions. Governments in various countries pursue many policies. Is it legitimate for the central bank to pick and freely

select its preferred secondary objective? Or should it defer to elected bodies if the policy aims at allocating public resources, as seems normal in a representative democracy.

The trade-off is real and difficult. If the central bank were to assess the situation itself and contemplate actions, its legitimacy would be challenged (Tucker 2018). In addition, it would expose itself to various political pressures.

One other hand, if it requests some formal guidance by elected bodies (eg. the parliament), it risks fuelling the perception that it has lost its independence. There might be subtle ways and procedures to navigate between those risks, but the dangers are real and would justify a great caution.

Under all circumstances, the central bank should keep the absolute discretion to interrupt any action or programme if its first-priority objective – price stability – were to be compromised. ■

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Climate change and the financial sector

Climate change constitutes a major challenge. Christine Lagarde writes that central banks need to devote greater attention to its impacts

Climate change constitutes a major challenge, causing both threats and opportunities that will significantly affect the economy and the financial sector, depending on which carbon emission scenario eventually unfolds.

That is why central banks need to devote greater attention to understanding the impact of climate change, including its implications for inflation dynamics. At the ECB, the ongoing review of our monetary policy strategy creates an opportunity to reflect on how to address sustainability considerations within our monetary policy framework.

Today, however, I will focus my remarks on climate change-related risks for the financial sector. Broadly speaking, the main risks fall into three categories: risks stemming from disregard, from delay and from deficiency.

Risks from disregarding climate change

Disregarding the implications of climate change can generate significant risks for the financial sector. Total insurance losses for weather-related events reached 0.1% of GDP in 2018, with total economic losses approximately double that amount.

The number of catastrophes caused by natural hazards increased from 249 in 1980 to 820 in 2019, peaking at 848 in 2018. Adjusting for inflation, overall economic losses increased from around USD 60 billion in 1980, to USD 150 billion in 2019, with a peak of USD 350 billion in 2018[1].

According to the Intergovernmental Panel on Climate Change, global warming of 1.5°C above pre-industrial times is likely to bring about substantial changes in our climate, increasing the likelihood of more extreme weather conditions[2].

As a result, insurance and economic losses caused by climate-related events are likely to start trending upwards as a share of GDP[3]. Insurance and reinsurance companies need to continue to ensure that risk pricing remains appropriate and that reserves are adequate to cover expected losses.

Banks also need to consider the risks such events create for their credit exposures. Losses can arise from both direct damage and from the effects that potentially higher maintenance costs, disruption and lower labour productivity could have on profitability and hence default risk.

The transition to a carbon-neutral economy provides opportunities, not just risks

Risks from delaying the response to climate change

The second source of risk for the financial sector arises from the pathway taken to a carbon-neutral world. Achieving the transition almost certainly requires intervention by public authorities through regulation and taxation. Early and coordinated action can help deliver a smooth transition for the economy.

But if that intervention is delayed, the reduction in emissions may have to be sharper, resulting in a disorderly, disjointed and more disruptive transition for the economy. Certain economic activities may quickly be rendered obsolete, leading to a re-pricing of assets and the risk that some will become stranded.

It is vital, then, for financial institutions to understand the risks on their balance sheets. Greater disclosure by companies on their climate exposure is a prerequisite, bolstering the ability of market participants and financial institutions to carry out appropriate risk assessment.

Disclosures by financial institutions themselves suggest that there is some way to go.

Recent analysis of the 12 largest banks and 14 largest insurers in the euro area shows that a majority disclose the impact of their business travel, commuting and other energy usage. Yet most of their exposure to climate-related risk is likely to stem from their financial activities. Only 5 out of the 26 partially disclose the impact of their financial assets, and none of them provide full disclosure[4].

The Eurosystem is now reviewing the extent to which climate-related risks are understood and priced by the market and is paying close attention to how credit-rating agencies incorporate such risks into their assessments of creditworthiness. We will continue to evaluate the implications for our own management of risk, in particular

through our collateral framework. ECB Banking Supervision is assessing banks' approaches to climate risks and developing supervisory expectations on those risks.

Preparatory work is also under way for a macroprudential stress test to assess climate-related risks, with the first results expected by the end of the year. The stress test framework aims to assess how climate-related risks propagate through the real economy and the financial system.

The stress test will draw on granular information, possibly including geographical location and carbon footprint, and focus on 90 significant institutions across the euro area. Importantly, it will also at some stage model how dynamic interactions can amplify the effects, for example if banks react to losses by deleveraging.

Risks from deficiency in the provision of finance

Which leads me to my final category of risk: deficiency. The financial sector will be pivotal in mobilising the necessary financial resources for the transition and in helping our economies to cope through adaptation and mitigation. It is vital that it provides finance of sufficient quantity and quality for the task.

High insurance coverage and deep capital markets help mitigate the macroeconomic impact of disasters[5]. This matters at a microeconomic level, too, where a lack of effective access to insurance and finance can lead to a disproportionately greater impact of disasters on poorer households[6]. In the absence of insurance, households will have to rely more on precautionary saving or government transfers.

Substantial investment is likely to be required to underpin the energy transition, with some estimates running to hundreds of billions of euro each year in the European Union alone[7]. Meeting that challenge requires contributions from both the public and private sector.

The European Union has been at the forefront of the global push to substantially reduce carbon emissions. In December 2019, the European Commission proposed a European Green Deal, subsequently endorsed by the European Council, that calls for zero net emissions of greenhouse gasses by 2050. This goal enjoys broad public[8] and political support, and the concrete measures required to meet it are now being fleshed out.

Another field where the European Union has taken the lead internationally is on the issuance of green bonds. The European Investment Bank was the first issuer of green bonds in 2007. In 2018, 31% of the financing it provided was oriented towards climate mitigation and adaptation.

That has helped foster a growing market for green bonds within Europe. European entities account for around half of global issuance of green bonds, and around 42% of the global market is denominated in euro[9]. Indeed, green bonds are now approaching 10% of total euro-denominated bond issuance.

The European Union also launched a comprehensive action plan in 2018 to promote sustainable finance. That plan is already bearing fruit, including the recent agreement on the taxonomy framework for assessing the sustainability of economic activities. The taxonomy represents an important step towards categorising green investments on a sound and consistent basis and will help underpin further market developments in green finance.

But a common approach is needed to mobilise global funding for the transition, while at the same time remaining vigilant against attempts to green wash. Unnecessary fragmentation in regulation will impair the sustainable growth of green finance.

Conclusion

The transition to a carbon-neutral economy provides opportunities, not just risks. By shifting the horizon away

from the short term and contributing to a more sustainable economic trajectory, the financial sector can become a powerful force acting in our collective best interest. The future path for carbon emissions and the climate is uncertain, but it remains within our power to influence it. As Lyndon B Johnson said, *"yesterday is not ours to recover, but tomorrow is ours to win or lose."*[10] ■

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Endnotes

1. Source: Munich Re NatCatSERVICE. To an extent, that increase also reflects a greater concentration of economic activity in regions vulnerable to natural hazards.

2. Intergovernmental Panel on Climate Change (2018), Special report – Global Warming of 1.5°C.

3. See European Commission (2014), "Climate Impacts in Europe – The JRC Peseta II Project", JRC Scientific and Policy Reports.

4. See Carbone S, Giuzio M and Mikkonen K (2019), "Climate risk-related disclosures of banks and insurers and their market impact", Financial Stability Review, ECB, November.

5. See von Peter, G, von Dahlen, S and Saxena, S (2012), "Unmitigated disasters? New evidence on the macroeconomic cost of natural catastrophes", BIS Working Papers, No 394, Bank for International Settlements; Noy, I (2009), "The macroeconomic consequences of disasters", Journal of Development Economics, 88(2), pp. 221-231.

6. See, for example, Carter, M, Little, P, Mogues, T and Negatu, W (2007), "Poverty Traps and Natural Disasters in Ethiopia and Honduras," World Development, 35(5), pp. 835-856; Nazrul Islam, S and Winkel, J (2017), "Climate Change and Social Inequality," Working Papers, No 152, United Nations, Department of Economics and Social Affairs.

7. According to the European Commission, achieving the Paris Agreement targets requires up to €260 billion of additional

investment per year.
8. 79% of Europeans see climate change as a very serious problem. 92% – and more than 8 in 10 people in each member state – agree that emissions should be reduced to a minimum in order to make the EU climate-neutral by 2050. See Special Eurobarometer 490 – climate change, European Commission, April 2019.
9. Source: Dealogic.
10. Johnson, LB (1963), Thanksgiving Day Address to the Nation, Washington, November 29.

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Climate risks to European banks

Alexander Lehmann looks at a new era of stress tests that take into account potential climate-related risks

Several European central banks have begun assessing the impact of adverse climate scenarios on banks' capital. Comparable work at EU or euro area level has evolved more slowly. Supervisors need build up a distinct and more complex type of analysis, and should engage with banks now.

The release of a proposed methodology for assessing climate risks within UK banks and insurers by the Bank of England just before Christmas has fuelled calls for a similar 'climate stress test' for European banks.

That climate risks should be a significant concern for financial supervisors is no longer in doubt. The central bank Network for Greening the Financial System ('NGFS' consisting of now 54 institutions) last year already called for climate-related risks to be integrated into standard financial stability monitoring and supervision.

The French and Dutch central banks have conducted quantitative top-down studies and found a substantial potential risk. In the case of the Dutch study, a disruptive climate scenario was shown to reduce insurance sector portfolio values by up to 11 per cent, and banks' core equity ratio by about 4 percentage points.

Well-defined shocks in the EU stress tests

Stress tests have become the main tool to assess the impact of external shocks on the EU banking system. They are still a relatively new instrument, first used across the EU in 2011, and most publicly in the comprehensive assessment ahead of the ECB taking on its new responsibilities in 2014.

Unlike the US, the EU adopted a bottom-up approach. From the start, banks were given much greater discretion in using their internal models in simulating the impact of the adverse scenario defined by supervisors. This was subject to some limited constraints, for instance in precluding unrealistic asset disposals.

In essence, a single EU exercise has been trying to meet two conflicting objectives: of banks which need to communicate resilience under their own business models to investors; and of supervisors which require a single consistent methodology to gauge the need for additional capital requirements under the so-called pillar 2 approach.

This resulted in an increasingly costly and complex iteration between the EBA and the ECB on the one hand, and the banks and their advisors on the other.

Climate risks will add an additional layer to risk management

Following the ongoing round, stress tests are now due for a significant revamp. In late January, the EBA proposed that future stress tests be split into a top-down exercise led by the supervisor, and a parallel bank-led process that relies on bank-specific internal models to a greater extent (see EBA website).

Climate risks are different

Stress tests simulate a single adverse macroeconomic shock that is defined by the EBA, ESRB and national authorities. Country-specific assumptions for key macro variables given banks a clear pathway over a three year horizon. As was again made clear by a comprehensive new report from the BIS and Banque de France, climate change defies such timelines.

Even though the timing is unclear, a combination of transition risks (from a re-pricing of carbon-based technologies), and physical risks (from increasingly frequent severe weather and climate patterns) is now certain to materialize. There are also more drastic scenarios of predominant physical risks ('no policy action') or transition risks ('too late, too sudden').

Either way, there are likely to be sudden impacts ('tipping points') and complex spillovers between corporate, household and sovereign balance sheets. Outcomes are highly dependent on policy action in key polluting countries in the near term, though also on private sectors mitigation, and technological innovation.

The agenda for EU supervisors, banks and investors

The recent EBA work programme on sustainable finance committed the agency to develop a dedicated climate-related stress tests. This year a voluntary sensitivity analysis is planned, though by 2021 standards for disclosure are to be put in place. Plans for incorporating environmental, social, and governance (ESG) risks into supervision are more tentative, and maty not be taken up until 2024.

The first priority for EU supervisors should be to develop plausible common scenarios and share these with banks. Scenario analysis is common in large multinational firms, but what is often a 30-year time-horizon is certain to exceed the planning range of most financial firms.

The Bank of England's proposed assessment, for instance, anticipates three scenarios: timely policy measures that will limit global temperature rise to below 2ºC; delayed action only in ten years' time which ultimately succeeds in a similar limitation, though at that point proves highly destabilizing; and no significant policy action which results in substantial temperature increases, and sharp increase in physical risks (damaging weather events, such as storms or floods). Climate scenarios have already been simulated in the insurance sectors of several EU countries and the UK. But they would challenge banks in many ways.

Second, a realistic ambition needs to set in light of the uncertain and drawn-out nature of climate risks. A climate stress would not have the same degree of granularity as is the case currently. As in the BoE proposal initially, the focus should be only on credit losses, not on a comprehensive assessment of the health of a financial firm, its income and capital.

Early on, such analysis (an 'exploratory scenario' in the terminology of the Bank of England) should not be the basis for capital requirements at bank level. A so-called temperature alignment score could be a helpful and public measure of convergence by individual firms towards the commitment made by states under the Paris Climate Agreement: how much would the world warm based on that firm's exposures?

Within EU banks climate risks will add an additional layer to risk management. The already complex workaround supervisory stress tests, of course, will need to continue and is essential for bank soundness. But the conventional

credit risk analysis based on bank-internal models is not suited to climate risks. Historical correlations embedded in bank models simply cannot capture large and complex risks which have not materialized to date.

Banks should not expect that supervisors will accept assumptions of a rapid divestment from carbon-intensive sectors or an adapted business model. The Bank of England proposes to assess the impact on individual exposures in a constant (static) portfolio of assets in a first-round, and allowing a change in the firms' business model only in a subsequent exercise. This approach would be in line with the supervisor-driven approach that limits bank-specific flexibility.

Investors, for their part, should not see future EU climate stress tests as offering the same degree of apparent precision that they have come to expect of stress tests. But disclosure and market discipline will be key incentives for changing portfolios and business models. ESG disclosure under the new EU guidelines on non-financial reporting will need to be quickly rolled out by governments (this has already happened with French state-owned companies, and ESG disclosure will be mandatory in the UK from 2022). Our understanding of climate risks in banks will depend on knowing those across the entire real sector. ■

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The future of fiscal rules in the euro area

Creating a central fiscal capacity is one of the three critical unfinished jobs to complete the euro area architecture, Vitor Gaspar argues

The IMF has been engaged with members countries on the introduction or improvement of fiscal rules. We have also been looking at cross-country experiences with fiscal rules. It goes without saying that we have been participating in the debate on fiscal rules as well as the broader subject of euro area architecture.

Our views are public. For example, in his September 2018 speech, Poul Thomsen, the director of the European Department, has used a powerful image. He argued that the euro area should have full public and private risk-sharing mechanisms. But, in parallel, risk sharing must be accompanied by risk reduction. Many countries will not support risk sharing in the absence of risk reduction.

More generally, IMF staff has identified three crucial elements (see also Berger, Dell'Ariccia, and Obstfeld, 2018):

- Completion of the banking union. Some important progress has been made, including the creation of a single supervisor and a single resolution mechanism. But the banking union also requires a European Deposit Insurance Scheme.

- Integrated single European capital market. This is crucial for making the financial system in Europe more resilient. To fully unlock the potential of capital markets there is need to increase information transparency, move to more efficient insolvency regimes and to simplified and harmonized withholding tax rules.

- Central fiscal capacity. A central fiscal capacity at the euro area level would strengthen the ability to deploy fiscal policy, complementing monetary policy, in case of significant euro area-wide downside dynamics. It would also help countries stabilize their economies in downturns.

Progress on these reforms is essential but has been too slow. And there is no political agreement on the way forward.

European integration and the euro reflect political priorities. The completion of the euro area reform agenda depends on the European politics. The solution will likely go well beyond economics and finance.

My piece is organized as follows:

- First, I will focus on the original rationale for having fiscal rules.
- Second, I will discuss some important lessons we have learned over the last thirty years and identify some open issues.

The euro area architecture requires the completion of banking union, capital markets union and a central fiscal capacity

- Third, I will present some policy options.

- In the last section, I will conclude.

Also to note: I will focus on supranational fiscal rules and on the euro area. I may slip and occasionally use Europe or European Union in a loose way.

Why fiscal rules in the euro area?

In general, fiscal rules are necessary to offset biases in fiscal policy conducted according to day-to-day politics. The most relevant are deficit and debt biases. In most advanced economies, public debt ratios have been on an increasing path one business cycle to the next. Such half-century increases in public debt are unprecedented in peace time.

In the late 1980s, countries were starting to change their macroeconomic policy frameworks in fundamental ways. New Zealand provides an early and pioneering example. It passed its Public Finance Act and its Reserve Bank Act in 1989. That was the year when the *Delors Report* was adopted.

Reforms in New Zealand and other countries reflected a fair amount of consensus on the superiority of a stability-oriented macroeconomic policy framework. In such framework, an independent monetary policy would be responsible for delivering price stability. Sometimes employment or economic activity were on par with price stability. But, in any case, by maintaining price stability, over the medium term, monetary policy would keep output close to potential.

Monetary policy would achieve such goals by systematically deciding on policy interest rates. In this it followed an old insight from Wicksell. In such a context, fiscal policy contributed to stability mainly through automatic stabilizers and by preserving sound public finances. Only in extreme cases of a severe and prolonged recession did expansionary discretionary fiscal policy offer any promise.

What about the euro area? In my view, at the time, the case for fiscal rules was stronger. With monetary unification, the elimination of exchange risk, would make sovereign bonds, from participating countries, into closer substitutes. If one considers the limiting case of perfect substitutability, the public bond market of the euro area would become a common pool (Detken, Gaspar and Winkler, 2004).

The consequences from fiscal profligacy would be muted in the large European market. At the same time, there would be negative international spillovers associated with bond market turbulence and financial instability. Lamfalussy (in the *Delors Report*) argued that market discipline alone would not suffice. Rules were necessary for stability.

Risks were associated with high levels of debt and deficits and hence the rules would have the form of upper limits. That was the vision that shaped the Maastricht Treaty. The latter also encompassed such important rules as 'no bail-out' of sovereigns and the prohibition of monetary financing.

Let me recall that I personally started my involvement in European economic and monetary issues when the *Delors Report* had just come out in 1989. I remember very lively discussion on whether the *Delors Report* would be 'a' basis for the forthcoming negotiations or 'the' basis. 'A' won. I was then involved in the Maastricht negotiations representing my country, Portugal. Later, I became chairman of the alternates of the Monetary Committee.

In that context, we helped prepare many important pieces of legislation, including the first version of the Stability and Growth Pact. In 1989, I joined the European Central Bank (ECB) SDG research. I was involved in the setting up of the ECB's monetary policy strategy (see, Issing and others, 2001) and in the first review of the strategy, in 2003.

In 2009, at the time of the tenth anniversary of the euro I was at the European Commission leading its Bureau of European Policy Advisers. I edited the book, *The Euro: The First Decade* in collaboration with Servaas de Roose, Marco Buti and Joao Nogueira Martins (2010). Now that I have established beyond reasonable doubt that I am old let me move on.

Over time, the fiscal rules in Europe have become more complex and opaque. The evolution process followed a long and winding road. Changes to the original setup of the fiscal framework were frequent and substantial. Blanchard, Leandro and Zettelmeyer (2019) compared the evolution of fiscal rules with the Cathedral of Seville. But I believe the complexity of the evolution of fiscal rules is even better captured by the evolution of another building also in Andaluzia, Spain: Mosque-Cathedral of Cordoba.

It is a building that integrates successive layers of building spanning a full millennium. In the area of fiscal rules more layers were built in a period thirty times shorter. It is opportune to recognize that in the remarks that follow I benefited from careful reading of the contribution by Blanchard, Leandro and Zettelmeyer (2019). My debt goes well beyond Medieval Andalusian architecture[1].

It is, I believe, opportune to revisit the analysis on fiscal policy included in the *Delors Report*. The main contribution was a paper, submitted by Alexander Lamfalussy (and produced in collaboration with his team at the Bank for International Settlements (BIS)). The title: *Macro-coordination of fiscal policies in an economic and monetary union in Europe* (1989).

It made two fundamental points: first, given the insignificant size of the EU budget, the task of defining a Union-wide fiscal policy stance had to rely on the *coordination* of national budgetary policies. Second, fiscal discipline is necessary. Financial markets can exert some disciplinary influence.

But they are not sufficient: *"The constraints imposed by market forces might either be too slow and weak or too sudden and disruptive."* The conclusion was that sharing a single financial market and a single currency implied the need to accept constraints on the conduct of fiscal policies.

For the purpose of my piece it is interesting that both elements of Lamfalussy's analysis proved problematic in actual practice. We have a perfect illustration of the too slow and weak market discipline in the period from 1999 to 2007. And quite sudden and disruptive in the period of the sovereign debt crises in the euro area. The rules did not prevent the market turmoil that they were designed to avoid.

Despite the governance reforms implemented over 2005–13, such as increased flexibility, greater automaticity in enforcement, and greater ownership supported by revisions in national legislation, compliance track record with fiscal rules has been very poor.

Here we follow Eyraud *et al*, 2017. The idea is simply to compare fiscal results with four simple numerical references (disregarding the complications, qualifications and judgement allowed by the fiscal framework).

Under these simplifying conditions: the MTO was violated in 80 percent of observations under consideration, with almost two-thirds of countries exceeding the MTOs in every single year. Compliance worsened during the crisis: in 2009, the MTO rule was violated by 90 percent of countries, the debt ceiling by 50 percent of countries, the deficit ceiling by 85 percent of countries, and the required fiscal effort by 75 percent of countries.

In parallel, the share of countries with a debt ratio greater than 60 percent increased from 35 percent in 1999 to 75 percent in 2015. There are a number of important caveats and qualifications to this summary that are spelled out in Eyraud, Gaspar and Poghosyan (2017).

Our analysis of the compliance with 3 percent deficit rule over the three-year planning horizon suggests that the main driver of poor ex post compliance was weak execution of plans. Given that the EC has not applied any fines or sanctions, this is also a sign of weak enforcement.

Although the noncompliers consistently planned to reduce their deficits below the 3 percent threshold set out by the rules in each of the projected years, execution slippages more than offset these plans, leading to a median upward deviation from the ceiling of up to 2 percent of GDP at the end of the third year[2].

I summarize Edward Prescott's intuition about commitment through rules as: first, societies must find good – but often time-inconsistent – policy rules; second, societies have to find a way to stick to these rules. The evidence presented on the frequent revision of the rules and poor compliance suggests that we are far off Prescott's standard.

European fiscal rules did have effects. They may not have worked as intended but – still – they did affect policymaking. That is clear in the process leading to the start of the euro area. But here I want to quote an interesting result documented by Caselli and Wingender (2018).

They show the 3 percent deficit rule ceiling did not act as an upper bound but more as a target or a 'magnet'. The number of observations around the threshold increased, reducing the occurrence of both large government deficits and surpluses.

One of important features of the fiscal rules is to make sure that countries accumulate sufficient buffers in good times so as to be able provide support to the aggregate demand in bad times – through automatic stabilizers or even discretionary expansionary policy.

In other words, fiscal rules should be designed to favour counter-cyclical fiscal policies. Nevertheless, despite various amendments to strengthen the counter-cyclical features of the rules, the outcomes have been mainly pro-cyclical.

At the individual country level fiscal policy was procyclical in most countries most of the time. Using the Industrial Production Index to compare the Great Depression and the Global Financial Crisis follows an original contribution from Barry Eichengreen and Kevin O'Rourke to VoxEU. The original idea was to show that the turning point happened much earlier in the Global Financial Crisis (likely due to effective policy action).

The idea then was to prolong the comparison to show that the recovery may have come earlier but has not been strong (a point made in Barry Eichengreen's *Hall of Mirrors*). It is remarkable that industrial production in the euro area is yet to recover to pre-crisis levels.

That remind us of the words of Alvin Hansen, in his Presidential Address, delivered to the American Economic Association, in December 1938: *"This is the essence of secular stagnation – sick recoveries which die in their infancy and depressions that feed on themselves."* In a secular stagnation there is excess of savings over investment.

In addition, economic performance within the euro area was very uneven. Persistent divergences have occurred. This is best illustrated by contrasting real per capita GDP growth in Germany and Italy. Over the last twenty years

Germany experienced a very strong real per capita GDP growth, above the average for the euro area and at the level that of the United States. In contrast, real per capita GDP in Italy is almost at the same level as twenty years ago.

Importantly, the growth performance was similar in the first years of the euro area. But afterwards, following the implementation of structural including the labour reforms, Germany was well prepared to weather the global financial crisis (eg. Krebs and Scheffel, 2013). In contrast, in Italy structural impediments to growth contributed much to the disappointing economic performance. That became very visible since the onset of the global financial crisis.

Germany is the issuer of the reference safe assets in the euro area.

Surprisingly, over the last twenty years, the average structural primary surplus in Italy was 1½ percent of potential GDP, against 0.9 percent for Germany. Nonetheless, Italy is characterized by high and rising public debt. In contrast, in Germany debt is quickly declining.

Between 2010 and 2019, Italy's gross debt-go-GDP ratio increased by about 18 percentage points. During the same period, debt in Germany declined by 24 percentage points of GDP. Low growth and high cost of debt are primary reason why Italy has not managed to escape from vicious circle of high public debt.

Italy is also quite sensitive to changes in market sentiment as evidenced by significant swings in sovereign bond yields. Interest rate-growth differential, on the other hand, is very favorable in Germany thanks to record-low and negative interest rates.

Using an extended accounting approach that fully recognizes the importance of economic growth (which keeps track of the impact of growth on primary fiscal surpluses) Mauro and Zilinsky show that differences in growth rates are key in determining changes in the debt-to-GDP ratios (Mauro and Zelinsky, 2016).

Going forward, long-run competitiveness and prosperity in the euro area requires deep transformation towards green and digital economy and society. This requires higher public investment, more extensive synergies with private investment and, more generally, smart and agile public policies that facilitate change and transformation.

For example, the outline of a EU's Green Deal, presented by the Commission on December 11, 2019 provides a list of 50 initiatives designed to achieve carbon neutrality by 2050 in a sustainable growth framework. It is clear that the transition toward carbon neutrality requires substantial investments.

The IMF database on public sector balance sheets shows that the general government net worth has, on average, worsened in euro area countries, since 2000. The median general government net worth moved – roughly - from positive 20 percent of GDP, in 2000, to negative 20 percent of GDP, in 2016.

European countries have relatively low level of public sector net worth. Targeting public sector net worth is used in New Zealand. The similar approach has recently been proposed by some authors as part of new fiscal frameworks (see for example, Hughes and others, 2019).

The recent improvements in fiscal reporting to hold governments to account for the value of assets created by public investments provides an opportunity to go beyond the traditional debt and deficits. Policymakers need to understand the extent of the public sector fiscal exposure through state-owned enterprises, public-private partnerships, pensions and guarantees (IMF, 2020; Detter and Fölster, 2015)[3].

Aging societies change the political equilibrium by tilting spending preferences in favor of the elderly. This makes reforming programs such as pensions, even more difficult. Such reforms are necessary because pressures stemming from age-related spending will increase in the decades to come.

The Public Sector Balance Sheet (PSBS) approach offers a framework to discuss the implications from macroeconomic changes. For example, low interest rates make the situation even more challenging. The present value of future cash-flow commitments increases. Pre-funding pension obligations becomes more expensive. This was emphasized by Alan Auerbach (2019), at the fourth ECB biennial conference on fiscal policy and EMU governance. His presentation was on the future of fiscal policy. Any prudent fiscal framework has to account for the future burden associated with policy commitments (mostly pensions and health).

Something that would have surprised me in 1989 would be to be told that negative interest rates on bonds would be common in thirty years' time.

In the early 1970s, with the US exiting from Gold Standard in 1971 and the onset of the fiat money regime, inflation increased in most countries. The period became known as the Great Inflation. That was followed by an active, successful disinflation – with Paul Volcker as Fed Chairman - from 1979. Eventually, inflation entered an enduring declining path globally.

As a result, nominal interest rates have fallen significantly. Even if we take a very long-term historical perspective, nominal interest rates have never been this negative before. This is true for all major advanced economies, including the euro area countries.

The prevalence and the persistence of low rates has encouraged some scholars to start questioning the conventional wisdom about the costs of deficits and debts. For example, in his American Economist Association presidential lecture Olivier Blanchard (Blanchard 2019) argued that with interest rates so low including relative to growth rates, *"the issuance of debt without a later increase in taxes, may well be feasible."* The purpose of the lecture, according to Blanchard, was to allow for a richer discussion of debt policy and appropriate debt rules.

In doing so we are following John Hicks. In a little known paper, *The Classics Again*, he explains that under Wicksell's policy interest rule approach the LM curve is horizontal in the (Y,i) space. He, then, goes on to argue that Keynesian and Classic Economics diverge when the LM curve is horizontal, not by policy choice, but because circumstances are so that policy is constrained. As this happens, we move from Wicksell to Keynes.

As of today, the relevance of the effective lower bound on monetary policy and very low and persistent interest rates are a fundamental characteristic of the landscape that was not anticipated in 1989 (not even in 2009).

The implications for the conduct of fiscal policy associated with the prospect of low interest rates for long has been, in recent months, explored by Olivier Blanchard (Blanchard, 2019a and 2019b; Blanchard and Pisani-Ferry, 2019; Blanchard and Summers, 2019; Blanchard and Tashiro, 2019; Blanchard, Leandro, Merler and Zettelmeyer, 2018).

In contrast, it is important to note that we are not seeing anything unusual regarding the interest rate-growth differential. If we take a long-term historical perspective interest rate-growth differential was negative for most advanced economies, for most time. The current period does not stand out. That is why in my keynote I emphasize the constraints on monetary policy rather than on interest rate-growth differential.

Given these macroeconomic circumstances, what is the role of monetary policy? The conventional view originates with Knut Wicksell. He showed how—by controlling policy interest rates—central banks would be able to deliver overall price stability.

It is interesting to note that Wickell emphasized that his version of the interest rate rule made Central Banks' knowledge of the natural rate of interest unnecessary. Observed price changes provided sufficient information for policy action.

Interest rate rules—as a means to deliver price stability—were formally considered in the context of New Keynesian and New Neoclassical Synthesis Models (Clarida, Gali and Gertler, 1999; Goodfriend and King, 2001; Woodford, 2005).

If policy rates are constrained or under the shadow of the effective lower bound, the ability of monetary policy to deliver price and business cycle stability is limited. The role of fiscal policy is, therefore, reinforced. From the viewpoint of business cycle stability that is best done through enhanced automatic stabilizers.

Creating a central fiscal capacity is one of the three critical unfinished jobs to complete the euro area architecture, along with completing the banking union and capital markets union.

I may just repeat what I said at the beginning. There are three fundamental priorities to consider in the architecture of the euro area:

- Completion of the banking union. Some important progress has been made, including the creation of a

single supervisor and a single resolution mechanism. But the banking union also requires a European Deposit Insurance Scheme.

- Integrated single European capital market. This is crucial for making the financial system in Europe more resilient. To fully unlock the potential of capital markets there is need to increase information transparency, move to more efficient insolvency regimes and to simplified and harmonized withholding tax rules.

- Central fiscal capacity. A central fiscal capacity at the euro area level would strengthen the ability to deploy fiscal policy, complementing monetary policy, in case of significant euro area-wide downside dynamics. It would also help countries stabilize their economies in downturns.

An important guiding principle for the future of fiscal rules in the euro area is simplicity.

Three main directions: first, consolidation of preventive and corrective arms, second, shifting to a single fiscal anchor and a single operational target, and third, establishment of a central fiscal capacity (Andrle and others, 2015).

Shifting to a single fiscal anchor and a single operational target could serve the dual objective of fiscal sustainability and simplicity. An option is to use the public debt-to-GDP ratio as the anchor and an expenditure growth rule as the operational target, with a debt correction mechanism to better link the rule to the anchor.

Tying real expenditure growth to the economy's potential growth rate would serve economic stabilization and debt sustainability, while providing a clear operational guide that is easier to measure, communicate, and monitor.

The IMF's recent research shows that the level of public debt is the most important predictor of crises, showing strong nonlinearities (Moreno Badia, Medas, Gupta and Xiang, 2020). Moreover, beyond certain debt levels, the likelihood of crises increases sharply regardless of the interest-growth differential. Also, the interest rate-growth differentials are no higher prior to sovereign defaults than in normal times (Mauro and Zhou, 2019).

Moreover, contrary to common belief, lower nominal interest rates do not necessarily imply more fiscal policy space. This is clear from debt's equation of motion. Nominal GDP growth and interest rates are closely related. If both growth and interest rates decline by the same magnitude, the effect on public debt is zero. The headline deficit should fall in line with interest payments.

Expenditure rules a balance between the objectives of flexibility and simplicity, although they can be sensitive to initial conditions. An increasing number of countries have shown interest in in expenditure rules in recent years. Spending rules have to be supplemented by correction mechanisms to deliver the debt anchor.

The experience of many countries with the golden rule of public finance has not been encouraging. That provides another motivation for the PSBS approach. As a complement to a system of rules focusing on debt and deficit the PSBS provides useful information to consider the public finance impact of public investments.

There is room for progress. The first comprehensive estimate of public assets in the European Union was only released in November 2018, by the European Commission. The publication highlights significant data shortcomings in many countries (Gaspar, Gonguet and Stone, forthcoming).

The new macroeconomic reality of low nominal interest rates and the complexity of the implications of population dynamics and transformational dynamics suggests the reinforced public expertise in public finances. The role of

fiscal councils could be made commensurate to these challenges. In particular, they could be entrusted, among other tasks, with the responsibility to produce the macroeconomic forecasts grounding the budget, and also the costing of fiscal policy measures.

According to this logic, fiscal councils could be made fully independent. The European Fiscal Board could also be made fully independent and be placed at the center of a system of independent national fiscal councils. To repeat: this could be a good way to respond to the increased complexity arising from the constraints on policy interest rates and economic transformation associated with the green and digital transitions.

Based on the survey that the IMF conducted in 2016, fiscal councils in the euro area differ in terms of the extent of their independence. Also, most fiscal councils do not prepare forecasts and do not provide costing of fiscal measures (IMF, 2013).

Let me conclude

The euro area architecture requires the completion of banking union, capital markets union and a central fiscal capacity.

The review of the ECB's monetary policy strategy is timely.

There is ample room to simplify fiscal rules for the euro area by using a single debt anchor and a single operational (nominal) spending target.

The added complexities associated with constraints on policy rates and the intertemporal dimension of population dynamics and green and digital transformations point to:

- better information based on accrual accounting and the PSBS approach;

- reinforced role for a system of independent national fiscal councils with an independent European Fiscal Council, at its centre. ■

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Endnotes

1. Delors' Report – The Delor's report was launched in Apr 1989 by the Delor's Committee, which was chaired by the then President of the European Commission, Jacques Delors and consisted of central bank governors and other members. The Delor's report suggested the three stages for achieving Economic and Monetary Union and helped the monetary and economic unification process to develop. The three conditions were - full and irreversible convertibility of currencies, the establishment of the free movement of capital, irrevocably fixed exchange rates between European currencies and, finally, the adoption of a single currency.

Maastricht Treaty - Representatives from 12 countries signed the Treaty on 7 February 1992 – Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain and the United Kingdom. The treaty established the European Union; laid the foundations for the Euro; introduced the criteria that countries must meet to join the Euro and it was a step forward for European integration.

Stability and Growth Pact (SGP) – The inception of the SGP comes about as the EU Member States agree to strengthen the monitoring and coordination of national fiscal and economic policies to enforce the deficit and debt limits established by the Maastricht Treaty.

Preventive Arm - The preventive arm of the SGP aims to ensure sound budgetary policies over the medium term by setting

parameters for Member States' fiscal planning and policies during normal economic times, while taking into account the ups and downs of the economic cycle.
Corrective Arm - The corrective arm of the SGP ensures that Member States adopt appropriate policy responses to correct excessive deficits (and/or debts) by implementing the Excessive Deficit Procedure (EDP) and essentially bring down the headline deficit figure of 3% of GDP.
Structural Balance –Corrects the nominal government budget balance for one-offs and business cycle effects and it is used to assess the underlying fiscal policy effort. Estimates of the structural budget balance play a central role in the preventive arm of the Stability and Growth Pact.
First European Semester – The Commission proposed in May and June 2010 to create a European Semester and this new governance architecture was approved by the Member States on 7 September 2010. The semester entails the EU and the euro zone to coordinate ex ante their budgetary and economic policies, in line with both the Stability and Growth Pact and the Europe 2020 strategy.
Six Pack –The reinforced Stability and Growth Pact (SGP) enters into force on the 13th December 2011, with a new set of rules for economic and fiscal surveillance. These new measures, the so-called "Six-Pack", are made of five regulations and one directive proposed by the European Commission and approved by all 27 Member States and the European Parliament.
Fiscal compact – The fiscal compact as enshrined in the new "Treaty on Stability, Coordination and Governance in the Economic and Monetary Union" was agreed at the EU summit of 30 January 2012 and signed on 2 March by the Heads of State or Government of all EU countries, with the exception of the United Kingdom and the Czech Republic. The main provision of this Treaty is the requirement to have a balanced budget rule in domestic legal orders.
Two –pack- The "Two-Pack" established in 12 March 2013 completes budgetary surveillance cycle for euro area and further improves economic governance.
Communication Flexibility – This guidance essentially focuses on how the Commission will apply the SGP rules to foster the strengthening of the link between structural reforms, investment and fiscal responsibility in support of jobs and

growth.
2. However, this Gaspar et al. exercise should not be considered a formal test of compliance, at least, for five reasons: first, it is based on ex post data (using the AMECO database) and does not correct for the classification changes that occurred following the transition from the ESA95 to the ESA2010 fiscal reporting formats; second, targets are assumed to be similar across countries, cover the whole period, and be constant over time; third, the assessment does not take into account the possible activation of escape clauses or other provisions granting some flexibility; fourth, the comparison is carried out for all 19 EA countries, comprising those that introduced the euro after 1999; and fifth, numerical deviations may not necessarily represent cases of noncompliance given that the EC also exerts economic judgment, on top of its quantitative assessment, in both preventive and corrective arms.
3. In the United Kingdom, Richard Hughes and others recently proposed a net worth 'objective' to deliver an improvement in public sector net worth as a share of GDP over a fixed five-year term from 2020-21 to 2024-25. This means that the growth in the value of the government's total financial and fixed assets needs to exceed that of its debt and other liabilities over the next five years as a share of GDP.

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From vision to legislation

In fighting anti-money laundering the European Commission should act fast toward creating a European anti–money laundering supervisor, Nicolas Véron and Joshua Kirschenbaum argue

The European Union is moving toward implementing a policy to strengthen anti–money laundering (AML) supervision across its Single Market, namely enforcing requirements on banks and other firms to ensure they do not facilitate transactions involving proceeds from illegal activities.

The European Commission, in charge of the next steps, should act fast to capitalize on the political momentum toward creating a central AML supervisory authority, the only credible response to the bloc's AML challenges. It should present a full proposal to EU co-legislators (ie. European Parliament and Council) by the summer of 2020.

A joint paper published in November 2019 by six EU finance ministers paved the way for progress. The finance ministers of all EU member states, in the conclusions of their ECOFIN meeting on December 5, *"invite[d] the Commission to explore…conferring certain responsibilities and powers for AML supervision to a Union body with an independent structure and direct powers vis-à-vis certain obliged entities chosen by the EU body in accordance with a risk-based approach."*

They asked the Commission *"to present legislative proposals in that regard in parallel to efforts to achieve a higher level of harmonization through an AML regulation."*

The ministers' language is clear enough to guide the Commission's drafting and avoid protracted technical deliberations. Ten key questions call for straightforward answers.

- Should there be an EU body with a direct AML supervisory mandate? Yes, because an EU-level *"supervisor of supervisors"* by definition acts too late, as we concluded in a 2018 Policy Contribution. Under the current system, the Paris-based European Banking Authority (EBA) is the EU-level supervisor of national AML supervisors for banks.

But it has not prevented or stopped large-scale AML violations and even failed to impose remedial measures in the ill-starred case of Danske Bank. The EU AML supervisor should have the ability to impose fines and business restrictions on noncompliant firms, a tool the EBA lacks even after the recent strengthening of its AML duties.

- Should this central authority be the European Banking Authority or a new agency? A new EU agency is preferable. The EBA's existing capacity is too small to make a difference: no more than a dozen AML staff in the current budget. A radical overhaul of its governance and decision-making structure would be required for it to become effective as an AML supervisor.

Such an overhaul could be more complicated than creating a new agency, because the structure would also need

If the Commission further delays, it would risk losing the current reform opportunity. That would be bad for the EU financial system's integrity, and for all of Europe

to accommodate the EBA's other duties as banking regulator.

Moreover, the European AML supervisor should also cover nonbank financial firms, and even nonfinancial firms someday, whereas the EBA's scope is focused on banks – as its name indicates. Creating another EU agency should not be undertaken lightly, but AML supervision is important enough to justify it.

- How should that new agency be designed? It should be an authoritative and independent supervisor that can judge each case's merits without regard to diplomatic balancing acts. Independence will likely lead to more aggressive supervision, larger fines, and greater deterrence.

A compact decision-making board of at most half a dozen members would be appropriate, following the precedent of the Single Resolution Board (SRB), which was established on the same EU Treaty basis.

- Where should it be located? This is ultimately a political decision. A city with an active labour market for financial and legal specialists—perhaps a medium-sized financial centre in post-Brexit European Union—would make sense.

- How should it be funded? As is customary for financial supervisors, the agency's funding should be raised via a levy on the financial industry under due EU parliamentary scrutiny, separate from the general budget of the European Union.

To succeed, it probably needs a staff of 500 to 1,000, including dedicated 'country desks' to enable proper communication with the judiciary and law enforcement communities in each member state, a feature that was not deemed necessary for the SRB or the European Central Bank's prudential supervisory arm known as the

Single Supervisory Mechanism (SSM). This would make the new AML agency staff a bit smaller than the SSM staff of about 1,100 at the ECB.

- When should it start? As soon as is practical but not rushed, because it must be fully operational from day one. At least two years of preparation may be needed after the legislation is enacted. Assuming a Commission proposal in August 2020 and 18 months of legislative discussion, the transfer of supervisory authority could take place in the first half of 2024.

- Which entities should be directly supervised by the central body? This is a potentially contentious issue, but the ECOFIN conclusions' language already addresses the key choices. The SSM has set a mostly quantitative and non-discretionary boundary between banks that are directly supervised by the ECB and those that remain under national supervision with only indirect ECB oversight.

But a new AML supervisor should be able to make its own determinations, based on its risk assessment utilizing both quantitative and qualitative factors, with no presumption from pre-set mechanical criteria that would be easily circumvented by malicious actors. This different reading of the principles of proportionality and subsidiarity is justified because prudential supervisors examine the haystack, but AML supervisors look for the needles: the worst behavior is often channeled through small institutions.

If the incentives are right, the new EU agency should focus its time and resources on problematic firms, market segments, and member states (large or small). Conversely, it may choose to conduct no direct supervision whatsoever in member states where the national authority does an excellent job and AML risks are assessed to be low.

Proper drafting of the legislation can establish such risk-based differentiation while complying with EU

jurisprudence on decision-making autonomy by EU agencies, especially the Meroni and ESMA short selling cases.

- Should there be an AML Regulation to complement or replace the existing AML Directives, and what should it include? Harmonization is needed, as the December ECOFIN conclusions hint, by way of an AML Regulation (immediately applicable EU law) and modification to existing directives that would create the 'single rulebook', which the new AML supervisor would enforce.

This must include requirements on supervised firms in terms of AML program, customer due diligence, and reporting obligations, as well as fines for noncompliance. The legislation should also lift any legal obstacles to proper information sharing between the new supervisor and its counterparts in the member states, including Financial Intelligence Units (FIUs).

Even so, the best can be the enemy of the good, and the regulation should only cover items that are indispensable to set up the new body. Other harmonization efforts that are desirable but not critical may be left to a later legislative phase.

- Can that AML Regulation and the legislation establishing the new AML supervisor be enacted simultaneously? Yes—in fact, they could be pooled in a single legislative act. A sequential approach would lose momentum and risk jeopardizing the entire reform effort. Here again the ECOFIN conclusions send the right signal by recommending the proposal for the new agency 'in parallel' to harmonization.

- Should the reform include an EU-level Financial Intelligence Unit? No, because such a step is less urgent and more complicated than creating a central AML supervisor. The major AML lapses of the past few years in the

European Union have ostensibly involved failures of AML supervision, rather than of the FIU functions of collecting, transmitting, and analyzing information on suspicious transactions.

Centralizing the FIU function may be desirable in the longer term but trying to do so now would burden and possibly cripple the urgent effort to establish an effective European AML supervisor.

The European Commission should consult widely in the spring and propose legislation this summer, no more than nine months after the December ECOFIN conclusions. As for precedent for such a timetable, the Commission was unexpectedly asked for a proposal to establish the SSM on June 29, 2012 and published it on September 12, and that project ventured into much less charted waters than AML supervision.

If the Commission further delays, it would risk losing the current reform opportunity. That would be bad for the EU financial system's integrity, and for all of Europe. ■

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The digitalization of payments and currency

Technology firms are driving the digital transformation of payments. Lael Brainard examines some issues for consideration

Digitalization is enabling consumers and businesses to transfer value instantaneously, technology platforms to scale up rapidly in payments, and new digital currencies to facilitate these payments. By transforming payments, digitalization has the potential to deliver greater value and convenience at lower cost.

But there are risks. Some of the new players are outside the financial system's regulatory guardrails, and their new currencies could pose challenges in areas such as illicit finance, privacy, financial stability, and monetary policy transmission.

Given the stakes, the public sector must engage in order to ensure that the payments infrastructure is safe as well as efficient and fast, assess whether regulatory perimeters need to be redrawn or new approaches are needed in areas such as consumer data and identity authentication, and explore the role of central bank digital currencies in ensuring sovereign currencies stay at the centre of each nation's financial system.

These issues are complicated and consequential. I will only touch on them in the spirit of sketching out an agenda for the public sector along with the private sector and research community.

Digital players

Technology firms—from BigTechs to fintechs—are driving the digital transformation of payments. Not only are the new players bringing innovation to the way payments are made between businesses and consumers and peer-to-peer, but they are bringing new business models that bundle payments with other activities in novel ways.

Payments have traditionally been a service provided by trusted intermediaries such as banks. The operations of banks and some related financial service providers, such as card companies, are subject to regulatory oversight for

sound risk management. Banks offer important consumer protections, including deposit insurance, error resolution, and fraud protection.

In addition to providing payments services, banks generally provide credit, with deposits providing stable funding. Many banks rely at least in part on legacy technology.

The digitalization of currencies and payments is being driven by technology players that are bringing new business models to this space and fresh attention to age-old questions

In contrast, BigTechs tend to be established platforms with massive user networks that provide payments in support of core nonfinancial services—ranging from commercial transactions to social engagement to mobile apps to search engines.

In China, the majority of consumers and businesses participate in two mobile payment networks, Alipay and WeChat Pay, which by some accounts handled more than $37 trillion in mobile payments in 2018[1]. BigTechs and fintechs typically leverage cloud-based platforms and computing power, along with mobile applications, often to provide different combinations of services and enhanced user experiences.

They generally benefit from network effects: the more users they have, the more convenience and benefit new users derive from joining. These network benefits may be augmented by leveraging economies of scale and scope in user data for a host of purposes, from prioritizing which information is pushed to users to allocating and pricing credit to sharing reviews.

The entrance of BigTech and fintech into payments may drive competition, enhance product offerings, and lower transactions costs. It has the potential to enhance financial inclusion by expanding the number and diversity of ways people gain access to financial services and by creating more consumer-friendly offerings. A Federal Deposit Insurance Corporation (FDIC) study found that 8.4 million households are unbanked and an additional 24 million are underbanked[2].

These households often rely on more-expensive means of payments, including nonbank providers and bank money orders. Many have smartphones, which could facilitate access to payment apps.

The entry of big technology networks into payments brings risks as well as benefits. Statutory and regulatory protections on bank accounts in the United States mean that consumers can reasonably expect their deposits to be insured up to a limit; their banks to be held to strong data security standards; many fraudulent transactions to be the liability of the bank; transfers to be available within specified periods; and clear, standardized disclosures about account fees and interest payments to be readily available.

Consumers may not appreciate that nonbank providers might not provide the same protections. Further, the integration of payments with a variety of consumer services that rely intensively on user data raises the urgency of questions surrounding data security, how consumers' financial data are used, and the circumstances under which the data are disclosed to third parties.

Unlike many foreign central banks, the Federal Reserve does not have plenary authority over payment systems. No federal agency does. The Federal Reserve has broad authority over payment systems that are designated as systemically important by the Financial Stability Oversight Council or that are chartered as entities for which the Federal Reserve is the primary supervisor.

These authorities cover two large-value interbank payment systems but no retail payment system to date. The banking agencies may oversee certain aspects of a nonbank payment system to the extent there is a bank nexus, under the Bank Service Company Act, or bank affiliation, under the Federal Deposit Insurance Act[3].

However, this oversight will be quite limited to the extent that nonbank players reduce or eliminate the nexus to banks, such as when technology firms develop payments services connected to digital wallets rather than bank accounts and rely on digital currencies rather than sovereign currencies as the means of exchange.

Given the growing role of nonbank technology players in payments, a review of the nation's oversight framework for retail payment systems could be helpful to identify important gaps. A good place to start may be contrasting the US oversight framework for retail payment systems with other jurisdictions. Many foreign central banks, for example, have explicit authority for general retail payments oversight[4].

Moreover, most jurisdictions require that payment systems obtain a license and/or registration before commencing operations. A 2018 World Bank study found that the large majority of jurisdictions have some sort of license and/or registration requirement for mobile money platforms, payment card networks or switches, or clearinghouses[5].

The United States requires registration of a money transmitter at the federal level for purposes of Bank Secrecy Act/Anti-Money-Laundering compliance, but it does not require broader federal oversight of payment system operators[6].

In contrast to other jurisdictions where there is explicit responsibility for broad regulation of payment systems, the Federal Reserve's role as an operator has instead long formed the basis of the US approach to promoting accessible, safe, and efficient payments. Since the Federal Reserve Banks opened for business around the country in 1914, as directed by the Congress, they have provided payment and settlement services in competition with private-sector providers.

Real-time infrastructure

So let's turn to our retail payments infrastructure, which touches every American. While new players are making important contributions to the digital transformation of payments, it is critical that consumers and businesses can achieve the same speed and efficiency using their trusted deposit account providers with the safety and security

they have come to expect. To make this possible, it is vital to invest in real-time retail payments infrastructure with national reach.

Today, it can take a few days to get access to your funds. A real-time retail payments infrastructure would ensure the funds are available immediately—to pay utility bills or split the rent with roommates, or for small business owners to pay their suppliers. Immediate access to funds could be especially important for households on fixed incomes or living paycheck to paycheck, when waiting days for the funds to be available to pay a bill can mean overdraft fees or late fees that can compound.

Similarly, for small businesses, getting immediate access to funds from a sale in order to pay for supplies can be a game-changer.

The latest evolution in the payments infrastructure is faster payments, in which the payment message is transmitted and funds are settled between banks and made irrevocably available to recipients in real (or near-real) time. Consistent with the real-time and anytime nature of faster payments, settlement takes place in real time on a 24-hour, seven-day basis.

We are committed to closing the gap between the transaction capabilities in the digital economy and the underlying payment and settlement capabilities. Recognizing that consumers and businesses across the country want and expect real-time payments, and the banks they trust should be able to provide this service securely, this summer, the Federal Reserve announced that it is building its first new payments rail in more than forty years—the FedNow Service[7].

FedNow will facilitate end-to-end faster payment services, increase competition, and ensure equitable and ubiquitous access to banks of all sizes nationwide.

Together, the Clearing House's RTP and FedNow are moving the US banking system to real-time retail payments. These systems will enable consumers and businesses to settle retail transactions in real time, at any time, and allow them to manage their money with greater flexibility. RTP and FedNow should significantly increase the speed and efficiency of the US payment system.

Given the importance of safety in faster payments, providing access to more than one real-time payment service for back-up purposes will enhance resiliency. The Federal Reserve has always had a vital role in the payment system by providing liquidity and operational continuity in times of stress, and FedNow will extend this role into the real-time retail payments market.

The addition of FedNow should also provide a neutral foundation for private sector innovation in developing end-user services. Some stakeholders noted that a single provider that is owned and operated by one segment of the payment industry may focus on a limited set of use cases instead of the full breadth of possible use cases for faster payments.

The FedNow team is already hard at work determining initial business requirements. The comment period for the Federal Register notice seeking public input into FedNow features and designs closed in November, and we are analyzing the nearly 200 letters submitted[8]. We understand the urgency among stakeholders to launch FedNow quickly with features that support safe, efficient, and ubiquitous faster payments.

Digitalization of currencies

Digital transformation of payments extends not only to the systems and players, but also to the medium of exchange[9]. The existing payments system combines central bank money, commercial bank money, and certain kinds of nonbank private money, which provide a medium of exchange based on the US dollar as a unit of account.

By contrast, some technology players have payment systems based on their own digital currency rather than the sovereign currency. Depending on their design and scale, private digital-currency-based payment systems could magnify concerns surrounding illicit activity and consumer risk, while potentially creating challenges for the public sector's ability to safeguard financial stability and use monetary policy to buffer the economy.

Central bank money is important for payment systems because it represents a safe settlement asset, allowing users to exchange central bank liabilities with confidence in their acceptance and reliability. In the United States, central bank money is composed of paper currency and money held in deposits at the Federal Reserve Banks.

Commercial bank money—money held in deposits at commercial banks—is widely used because consumers and businesses trust that the money they deposit with a commercial bank can be converted, on demand, into a claim on another commercial bank's money or currency. This confidence owes in large part to bank deposit insurance and the fact that commercial banks are supervised and regulated.

Nonbank private money based on the US dollar as the unit of account exists on a smaller scale for a variety of consumer uses, particularly in closed-loop payment systems like prepaid cards and digital wallets. In some cases, such nonbank private assets may have value only within the network, while in other cases, the issuer may promise convertibility to a sovereign currency, such that this becomes a liability of the issuing entity.

Although various federal and state laws establish protections for users, issuers of nonbank money are not regulated to the same extent as banks, the value stored in these systems is not insured directly by the FDIC, and consumers may be at risk that the issuer will not be able to honour its liabilities.

To provide a sense of the scale, PayPal Holdings Inc. had customer accounts that totaled $22.5 billion as of September 30, 2019; Walmart had roughly $1.9 billion in deferred gift card revenue as of October 31, 2019; and Starbucks reported $1.6 billion in stored-value card liabilities as of September 2018—more than the deposits at many banks[10].

In contrast, cryptocurrencies introduce separate units of account. Built using distributed ledger technologies, cryptocurrencies typically allow for peer-to-peer payments without the need for a financial intermediary. The private sector is exploring uses of distributed ledger technologies to create a wide range of payment instruments, some that are designed to resemble traditional commercial bank money, some that look similar to Bitcoin, and some that have attributes more similar to securities.

Cryptocurrencies vary across multiple attributes, including whether the arrangement is open to everyone or only approved entities and whether they are intended for general-purpose use or for wholesale use.

One important design choice is whether a digital currency is account-based or token-based. From an accounting perspective, there is an account structure for the asset owner and for the asset itself. Individual accounts could take the form of traditional account structures of commercial banks or be pseudo-anonymous. The accounting of the asset itself could take the form of debiting and crediting account balances or tracking of specific 'tokens'.

Another key design consideration is the method for authenticating the asset owner—to open an account and to make transactions. Traditionally, identity authentication is done by the account provider, but new tools, such as biometrics, may be required for decentralized systems. A third important design variant is convertibility. Private-sector digital currencies vary in important ways with regard to whether they are linked in a legally binding way to a sovereign currency.

A decade ago, Bitcoin was heralded as a new kind of digital money that would serve as a store of value, means of exchange, and unit of account delinked from any sovereign currencies without the need for centralized governance. Bitcoin has not achieved widespread acceptance as a means of payment or unit of account because of its extreme volatility, as well as limited throughput capacity, unpredictable transaction costs, limited or no governance, and limited transparency.

Stablecoins were designed specifically to overcome the volatility of first-generation cryptocurrencies by tying the digital currency to an asset or basket of assets, such as commercial bank deposits or government-issued bonds. Unlike first-generation cryptocurrencies, they may be issued by a central entity and rely on third-party institutions for some aspects.

But even within this broad class of digital currencies, stablecoins vary widely in their underlying reference assets and the associated 'exchange rate', the ability to redeem the stablecoin claims for the underlying assets, and the extent to which a central issuer is liable for making good on redemption rights.

Because Facebook has an active user network of one-third of the global population, the company's Libra global stablecoin project has imparted urgency to the debate over what form money can take, who or what can issue it,

and how payments can be recorded and settled. Any stablecoin project with global scale and scope faces a core set of legal and regulatory challenges.

Cryptocurrencies already pose risks associated with fraudulent activity, consumer losses, and illicit activity, and these could be magnified by a widely accepted stablecoin for general use. Not only is it not clear what protections or recourse consumers would have with regard to their global stablecoin transactions and balances, but it is also not clear how much price risk consumers will face in cases where they do not appear to have claims on the stablecoin's underlying assets.

If not managed effectively, liquidity, credit, market, or operational risks—alone or in combination—could affect financial stability, triggering a loss of confidence and run-like behaviour. The precise nature of the risk would be driven in part by how the stablecoin is tied to an asset (if at all), the underlying legal arrangements, and the features of the asset itself.

For smaller economies, there may be material effects on monetary policy from private-sector digital currencies as well as foreign central bank digital currencies. In many respects, these effects may be the digital version of 'dollarization', with the potential for a faster pace and wider scope of adoption.

Central Bank Digital Currencies

The prospect for rapid adoption of global stablecoin payment systems has intensified calls for central banks to issue digital currencies in order to maintain the sovereign currency as the anchor of the nation's payment systems. In a Bank for International Settlements survey of 66 central banks, more than 80 percent of central banks report being engaged in some type of central bank digital currency (CBDC) work[11]. The motivations for this work range from payments safety and robustness for advanced economies to payments efficiency for emerging economies.

The latest survey suggests there is greater openness to issuing a CBDC than a year ago, and a few central banks report that they are moving forward with issuing a CBDC. Building on the tremendous reach of its mobile payments platforms, China is reported to be moving ahead rapidly on plans to issue a digital currency[12].

Given the dollar's important role, it is essential that we remain on the frontier of research and policy development regarding CBDC. Like other central banks, we are conducting research and experimentation related to distributed ledger technologies and their potential use case for digital currencies, including the potential for a CBDC. We are collaborating with other central banks as we advance our understanding of central bank digital currencies.

In assessing CBDC in the US context, there are policy and design issues to explore, as well as legal considerations. It is important to consider whether a new form of digital central bank liability might improve the payment system, taking into account the innovations offered by the private sector.

We would need to consider whether adding a new form of central bank liability would reduce operational vulnerabilities from a safety and resilience perspective. Another consideration is whether a CBDC would reduce complexity in payments, improve end-to-end processing, or simplify recordkeeping.

With regard to cross-border payments, it is important to consider what would be required in terms of cross-border cooperation for CBDCs to address current frictions and reduce costs.

It is also vital to consider the implications for the broader financial system of the issuance of a CBDC. In light of considerations of privacy and guarding against illicit activity, issuance of a digital currency would raise important questions about what kinds of intermediaries might provide CBDC transaction accounts for consumers. While some proposals are centered on commercial bank intermediaries, others propose new types of intermediaries that might

develop with a narrow focus on payments. New types of intermediaries in turn could create a need for new types of accounts and new forms of oversight.

Related to this, the design of any CBDC needs to address important questions surrounding financial stability. A variety of approaches have been put forward to address the potential run risk associated with the ability to convert commercial bank deposits into CBDC with a simple swipe[13].

There are also important legal considerations. It is important to understand how the existing provisions of the Federal Reserve Act with regard to currency issuance apply to the CBDC. It is also important to consider whether CBDC would have legal tender status, depending on the design.

While the legal framework is well-established with regard to the rights and protections for Federal Reserve notes in the current system, it is untested for new instruments such as CBDC and, more generally, other digital currencies. A different approach may be necessary to ensure that holders of CBDC have appropriate protections, including privacy rights, fraud protection, digital identity safeguards, and data protection.

These are some of the issues that would need to be addressed before deciding to issue a CBDC in the United States. Some of the motivations for a CBDC cited by other jurisdictions, such as rapidly declining cash use, weak financial institutions, and underdeveloped payment systems, are not shared by the United States.

Physical cash in circulation for the US dollar continues to rise because of robust demand, and the dollar plays an important role globally. We have a robust and diverse banking system that provides important services, along with a widely available and expanding variety of digital payment options.

Agenda ahead

The digitalization of currencies and payments is being driven by technology players that are bringing new business models to this space and fresh attention to age-old questions. While the potential for seamlessly integrated and lower-cost transactions brings important benefits, digitalization also brings risks.

In the United States no less than in other major economies, the public sector needs to engage actively with the private sector and the research community to consider whether new guardrails need to be established, whether existing regulatory perimeters need to be redrawn, and whether a CBDC would deliver important benefits on net. ■

Lael Brainard is a member of the Board of Governors of the Federal Reserve System

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What does the future hold for Facebook Libra?

The move to bring more affordable transactions to the masses may have been well-intentioned, but Christoph Strnadl believes the future of Libra is in doubt

The news that Facebook is now rethinking its plans for Libra is unsurprising. Originally announced as a way to bring more affordable transactions to the masses, Facebook's proposal for a new digital currency has had no shortage of criticism.

Originally set for launch this year, Libra promised to transform the payments landscape, taking power away from the fat cats where financial control had typically lay. Instead, it would be the Libra Association who controls the currency and transactions, an organisation consisting of technology companies, venture capitalists and payments organisations, many of whom have since cut ties.

Perhaps unsurprisingly, the project was met with considerable resistance from EU and US regulators, the US senate included. Now, after months of pressures and pushback from regulators and politicians alike, Facebook's plans for Libra have shifted.

The Libra coin will no longer be the centrepiece of its digital payments strategy which instead, will also *"support existing government-backed currencies"* (It is unclear to me whether that means crypto-euros or crypto-dollars or simply a trivial fiat money account).

While the move to bring more affordable transactions to the masses may well have been well-intentioned, Libra was infeasible from the beginning for several reasons – here's why.

Blockchain as a first choice

First, Libra's technology architecture raises doubts. Cryptocurrencies and blockchain are highly complex technologies and using them to implement a shared database to support a mere 1,000 transactions per second (a bit more in the future) for a few dozen members of the Libra Association may prove to be over-engineered.

In fact, there are countless other database technologies which could achieve the same means for a fraction of the cost of a distributed ledger implementation. It therefore remains unclear as to why blockchain was chosen to support this solution at all – if not to ride the hype surrounding this new technology.

A complicated governance

Second, another question centres around how Facebook Libra would be governed. Facebook's claims state *"decentralised governance"* and that a *"global currency"* should be governed as a *"public good"* – but the facts say something entirely different.

The fact that the Libra association is not answerable to any outside entity beside Swiss law enforcement raises further doubts around its feasibility

The Libra association, its entry conditions, and its (incomplete) governance structure and processes are anything but independent or beneficial to the public. For instance, even if a company wanted to spend the $10 million entry fee, Facebook (or later, the Libra Association at large) would still have the last word on its admission.

Nobody needs to be reminded about the $5 billion fine that Facebook accepted from the FTC for grossly violating user privacy in the Cambridge Analytica scandal. This happened despite all the assurances Facebook gave its users of the improved controls it had implemented because of another earlier FTC Commission Order from 2012.

The fact that the Libra association is not answerable to any outside entity beside Swiss law enforcement raises further doubts around its feasibility. After all, any public good needs to have public oversight.

In the recent hearing on the Libra project, Mark Zuckerberg faced a thorough cross-examination before the House Financial Services Committee. This included questions over discrepancies found regarding data privacy in Libra and how Facebook can safeguard user data, ultimately avoiding another Cambridge Analytica scandal.

Learning from past mistakes

Finally, a global currency, or any public good for that matter, cannot and must not be governed by any private entity. This is because it will inevitably, and despite the best of intentions, result in one company gaining a monopoly or a tyranny.

Similar ideas existed as early as in the 19th century when mining and logging companies established their truck wages and company scrip systems, all in the name of the cash-poor workers. All these schemes, which have been deployed and tried all over the world, not just in the US or the UK, were long ago declared unlawful. This was

because of the egregious mark-ups the monopolists extorted from their employees, resulting in peonage and slave-like conditions for them.

We see yet another irregularity in the fact the Swiss Libra Association is registered as a not-for-profit organisation. This status merely serves to disguise who the true financial beneficiaries would be. During the congressional hearings in the wake of the Libra announcement, Libra officials repeatedly stated that they do not regard Libra to be a bank. Clearly, they want to avoid the accompanying oversight as much as possible.

However, on a deeper level, this is the signature of an insatiable appetite for global dominance, a *coup d'état* or *coup du monde*, perfectly in line with Mark Zuckerberg's 2009 claim that *"in a lot of ways Facebook is more like a government than a traditional company."*

The future of Libra in doubt

The departure of several founding members from the Libra Association signalled a slow start for the project, casting doubt that it will reach the 100 members for which it had hoped this year. Instead, it kickstarted a change in direction which may put the whole future of Libra into question.

Facebook's revisited approach, to have its Calibra wallet now support multiple currencies of which Libra will be just one, will certainly work in principle. This would provide users with greater flexibility for online transactions. However, it also minimises the initial ambitions of the Libra coin.

We have seen similar approaches being successfully implemented in normal banking over the years, driven by the EU's PSD2 regulation; and any decent crypto-exchange has long been offering mobile wallets carrying all crypto-currencies and assets traded on their platform.

Although ultimately, the revised Libra approach will likely fail because of its pedigree and ill-conceived architecture. After all, who would want to have a company monitor, control, and censor their financial transactions, crypto or otherwise, which displays *"the ethics of Uber, the censorship resistance of PayPal, and the centralisation of Visa, all tied together under the proven privacy of Facebook"* (to quote Twitter's Executive Director of Open Privacy, Sarah Jamie Lewis)?

In light of the fact that there are competitors out there, like Austria-based Bitpanda, which not only falls outside the scope of the US Cloud Act, but also honours privacy by design and privacy by default as mandated by Europe's GDPR. I think the answer is *"no one."* ■

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Libra as a currency board: are the risks too great?

The Libra Association claims it will be analogous to a currency board regime. Julia Anderson and Francesco Papadia write that they have overlooked the problems of monetary management that come with it

Facebook's Libra project to create a digital currency has had a difficult start, with criticism from authorities, and the departure of some founding members. Libra's critics have mostly focused on risks associated with money laundering, financial stability and data privacy. But the project also raises questions about monetary management.

Libra's promotors present it as a payment system innovation. It is, however, also a new monetary system, because it implies the creation of a new currency—at least in the project's initial form—and because the Libra Association itself has characterised its approach as *"similar to the way in which currency boards (eg. of Hong Kong) have operated."*

Currency boards are a type of monetary system in which the issuer balances its liabilities with assets in the form of foreign currency. For example, the Hong Kong Monetary Authority issues its own currency—the Hong Kong dollar—and holds US dollars on its asset side. Similarly, Libra would hold a basket of high quality and liquid assets, such as bank deposits and government securities, against Libra issuance.

Libra is thus analogous to a currency-board regime. And yet, Libra's proponents have so far overlooked the problems of monetary management that a currency board raises.

Destabilising shocks threaten all monetary systems and Libra would be no exception. To ensure their stability, successful currency boards like Hong Kong's require active management and discretionary interventions. But unlike a traditional currency board, the Libra issuer would be a private association, not a legally-mandated monetary authority.

And Libra is a profit-making endeavour, without the tools that can assure stability. Such differences have significant implications for the Libra currency, which the Libra Association has so far glossed over.

Managing Libra

In currency boards – and Libra – the issuing entity holds different items on the two sides of its balance sheet and must ensure consistency between them (eg. Libra coins on one side, a basket of high-quality assets on the other). But shocks will inevitably hit both the asset and liability sides of the Libra issuer's balance sheet, potentially disrupting this consistency.

Shocks to Libra would not have this destabilising effect should the issuer allow shocks to fully affect the value of its liabilities, ie. if it lets its currency float freely. But letting the currency float would contradict Libra's stated aim

Creating a new monetary system, such as Libra, seems a disproportionate and potentially ineffective approach to achieving a safe, stable, cheap, simple and instantaneous global payment system

of stability, where 'stability' is explicitly understood in terms of purchasing power in relation to real goods. Libra is *"designed to be a currency where any user will know that the value of a Libra today will be close to its value tomorrow and in the future."*

Shocks would also not have this destabilising effect if the shocks affecting the two sides of the balance sheet are always small or, if large, are very closely correlated. However, financial history shows it would be very imprudent to base the entire construction on this unwarranted assumption.

In fact, experience with currency boards (and metallic monetary systems) shows that the maintenance of a peg (to reserve assets) requires very active protection.

On the liability side, in particular, changing expectations can generate significant destabilising shocks. In national currency boards, conflicting government interests might drive fears that the government will abandon its commitment to maintaining the peg in order to pursue some macroeconomic goal, as Argentina did in 2002.

In private currency boards, the profit motive plays the role that macroeconomic interests play for national currency boards. Libra holders might fear that, when opportunities for profit arise, the Libra Association will violate its commitments, eg. that it issues liabilities in excess of its assets, that it suspends convertibility or even that it debases Libra. There are many historical examples of such cases, for instance in metallic monetary systems.

One Libra-specific vulnerability would be the issuer's right to change the composition of reserves. Such changes would, according to the project, be exceptional and subject to strict decision-making. This feature, however, might drive speculative activities: if Libra holders expect a composition change that could imply a jump in value on the asset side of the balance sheet, speculation could drive demand for Libra up or down for fairly long periods.

The very low yield that could be earned, now and in the foreseeable future, from holding highly liquid and high-quality reserves, might drive deviations from Libra's commitment to maintaining the peg. Holders might fear that Libra will succumb to the temptation to chase yield, for example by changing the composition of Libra reserves to enhance the meagre return on its assets – ie. giving more weight to less liquid and less creditworthy, but higher-returning, assets.

The temptation to look for yield could be aggravated by two distinctive features of Libra:

- Interest on the reserves will be used to pay dividends to the currency's first investors. These first investors, however, also happen to be Libra board members whose financial interests might conflict with the stability of the system. Libra's incentive structure thus has a tendency to encourage instability.

- Libra Association members will be subject to limited liability, undermining the credibility of the association in satisfying fully the claims of Libra holders.

Stability strategies

As we have seen, asymmetric shocks threaten the stability of currency boards and Libra would be no exception. Nevertheless, some currency-board systems, such as Hong Kong's, have proved resilient. To ensure sustained maintenance of the peg to reserves, successful currency boards include strong stabilising mechanisms.

These amount to: (i) an organisational set-up that allows for intervention in case of shocks, and (ii) operational tools to implement such decisions. One solution for Libra could be to adopt its own stabilising mechanisms. To assess whether this might be possible, Libra can be compared to the currency board of Hong Kong.

Hong Kong's currency board, introduced in 1983, has proved long-lasting. This success most certainly drives Libra's explicit comparison of itself with the territory's monetary system. However, Hong Kong's success rides on a complex framework.

Firstly, the Hong Kong Monetary Authority (HKMA) maintains a greater than 100% reserve. The equity buffer represents insurance for the HKMA's ability to defend the currency peg, enhancing the system's credibility.

Secondly, the HKMA has high transparency standards and commits to public outreach. HKMA market operations are announced immediately, and relevant data is published daily. Prior to any major reform of the system, HKMA officials inform market participants about the changes, and research is published to provide background information and explain the rationale.

Furthermore, the HKMA releases the minutes of the meetings of the currency board governing committee, and currency board accounts data and other statistics are published every month.

Most importantly, the success of Hong Kong's currency board depends on active management – both mechanical and discretionary interventions:

- The mechanical stabiliser involves automatic intervention by the HKMA to sell or buy the Hong Kong dollar when capital inflows or outflows push the exchange rate outside a narrow. These interventions cause the monetary base to expand or contract, putting downward or upward pressure on interbank interest rates, which counteract the original capital flows and ensure that the exchange rate remains stable. In other words, interest rates offset, at least partially, the effects on exchange rates of capital inflows and outflows.

- The HKMA has powers of discretionary intervention, which have been used twice since a reform in 2005 to address rising demand for the Hong Kong dollar ahead of large stock market launches (see here, for example). Furthermore, the HKMA intervenes intermittently in the money markets to stabilise interest rate differentials with the US. The interventions rein in differentials, when needed, by selling exchange fund bills and notes, thus soaking up excess cash, or vice versa.

Lessons for Libra

Hong Kong shows that a complex framework with demanding features, including active management, is needed to maintain consistency between the currency on the liability side and a foreign currency on the asset side in the face of potentially offsetting flows.

Can the Libra Association adopt the tools used in Hong Kong to guarantee the stability of its currency? Will a mechanism, provided by profit-motivated 'authorised resellers', arbitraging between the value of Libra and that of reserves, be robust under all circumstances, like that provided by the HKMA?

As we have discussed, the possibly disruptive effect of expectations is particularly challenging. When the market has doubts about the maintenance of the dollar peg of the Hong Kong currency, in either direction, the central bank intervenes to reassure the market (ie. it indirectly adjusts interest rates and carries out quantitative interventions).

With Libra, no entity has clear responsibility to respond to shocks (such as those generated by changes in expectations). Who will stand ready to defend Libra in the event of a crisis? Even if an entity was given responsibility for managing Libra, it might lack the tools necessary to discharge this task.

Four tools missing so far from Libra are: (i) equity buffers, (ii) interest rates, (iii) transparency and proactive communication and education, and (iv) a legal mandate.

First, it is difficult to see how Libra will accumulate the equity necessary to intervene and offset potential imbalances between its assets and its liabilities (ie. accumulate a greater than 100% reserve). Libra is supposed to invest in liquid and high-credit securities. But these are exactly the securities that have very low and even negative yields now and, looking at forward rates, in the future.

For instance, a composite security made up of GDP-weighted US, German, French, Japanese and UK Treasury bills would have a yield of 0.88% – hardly likely to lead to the accumulation of a protective buffer. Most probably, Libra will rather have problems in breaking even.

Second, the Libra board will not have interest rates as an important stabilising tool. HKMA interventions work by affecting the demand for (or supply of) the Hong Kong dollar through interest rates. But Libra is stuck with a 0% rate, meaning its board would be unequipped to similarly affect the demand for (or supply of) its currency to counter destabilising flows.

Third, stable expectations around currency boards are built on transparency and proactive communication. The extent to which we can expect a profit-driven enterprise to meet the standards of a legally-mandated public institution is very much an open question.

Finally, in the absence of a legal mandate, it is not clear that the necessary stabilisation tools would be effective in the hands of the Libra Association. Availability of the tools could stabilise expectations, but in the face of enticing

profit opportunities (or major losses), might holders not rightly question the Libra Association's commitment to use the stabilising tools?

Regulation might overcome some of the challenges we have discussed, for example, if there were an obligation to create an equity buffer. However, regulating a global currency such as Libra will require deep cross-border coordination and a genuine acceptance of regulation.

Creating a new monetary system, such as Libra, seems a disproportionate and potentially ineffective approach to achieving a safe, stable, cheap, simple and instantaneous global payment system.

Developing and internationalising instant payment systems, such as the European Central Bank's Target Instant Payment Settlement, seems a more fruitful option. ■

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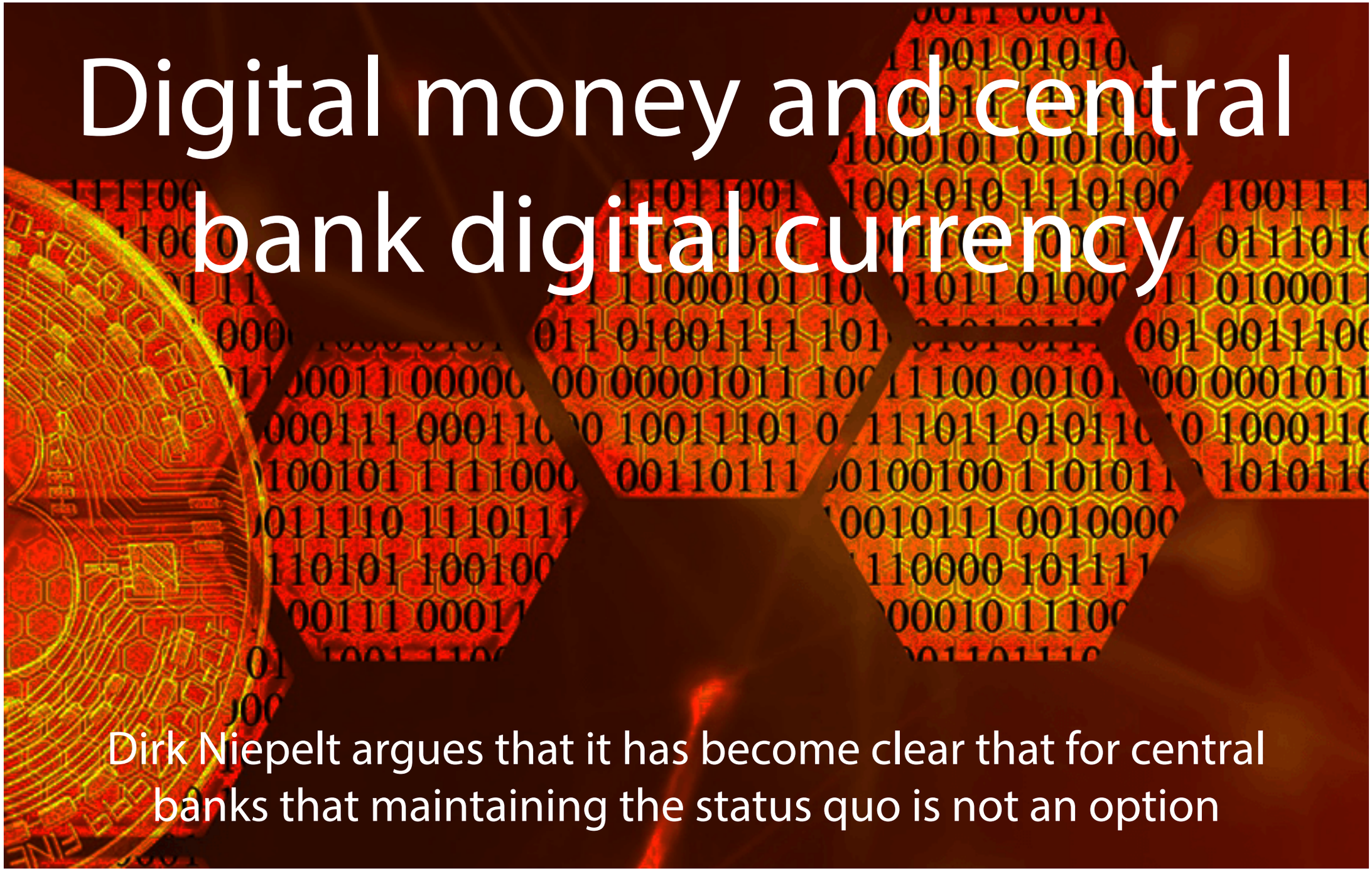
Digital money and central bank digital currency



Dirk Niepelt argues that it has become clear that for central banks that maintaining the status quo is not an option

Central banks already issue digital money, but only to a select group of financial institutions. Central bank digital currency would extend this to households and firms. This column examines the proposal for such currency and assesses the opportunities and risks. It argues that while preparations for the launch of Libra have not proceeded according to plan, it has become clear that for central banks, maintaining the status quo is not an option.

In central banks, finance ministries, and international working groups, discussions about digital money and central bank digital currency (CBDC) have moved to the fore (BIS, 2020). It seems useful to take stock. What are we actually talking about? What do we know? And what should policymakers do?

Finance has been digital forever – what's new about 'digital money'?

'Digital money' is a misnomer. Households and firms have long held digital money balances, in addition to notes and coins. Banks have issued digital money – demand deposits – for decades. And central banks have done likewise, issuing reserves, but only to commercial banks.

What has changed in recent years is the ease with which users can access their money and spend it. Fintech and Big Tech have led the way (and banks have followed) towards more transaction convenience, at the cost of sacrificing personal service and privacy. Moreover, blockchain-based technologies which decentralise the storage of information and its trustworthy transmission increasingly allow to cut out the middleman (Petralia *et al*. 2019).

Initiatives like the EU's Payment Services Directive 2 or Open Banking in the UK promote new business models. Legislators and regulators still learn how to deal with these models when they exploit synergies between finance, data mining, and scraping; and how to codify property and identity in the mobile phone age.

Does the nature of money change?

Payments may change, but the nature of money does not. Most monies in use are liabilities, typically of the central bank or a bank, even though credit card companies, Paypal, or M-Pesa may intermediate between the issuer and the holder. Securities or real assets on the asset side of the issuer's balance sheet are the counterpart to these liabilities; they back the money, at least partly.

In contrast, many 'cryptocurrencies' – most prominently, Bitcoin – are unbacked bubbles. Bubbles derive value from the hope that somebody will stand ready to pay for the bubble in the future.

CBDC would strengthen the monetary policy transmission channel. Changes in central bank policy rates would more directly feed through to the rates faced by households and firms

What is central bank digital currency?

In addition to banknotes and other liabilities, central banks issue digital money – reserves – but only to a select group of financial institutions. The central bank digital currency proposal, which dates back to the 1980s (Tobin, 1985, 1987), is to eliminate this restriction. Households and firms also should have the possibility to acquire reserves.

'CBDC' is a misnomer, again. The innovative part of CBDC is not its digital nature, but broad access. A more fitting name would be 'Reserves for All' (Niepelt 2015).

What is the link between CBDC and the blockchain?

There is no direct connection. CBDC is widely accessible digital central bank money; many technologies may be used to deploy it. Digital central bank money could be stored in accounts (as reserves are), on prepaid cards, or on decentralised database structures, to name just a few options (BIS 2018).

Of course, the choice of technology would have implications for ease of use, liquidity, privacy features, etc.

Would CBDC have macroeconomic effects?

This depends on the central bank. When issuing CBDC (without simultaneously retiring other liabilities), the central bank gains funds. As a matter of accounting these funds are invested, somewhere[1]. By passing the funds to the banking sector, the central bank has the option to insulate bank balance sheets even if households or firms reallocate funds from bank deposits to CBDC.

In fact, it can shield not only banks but the whole economy. The result that CBDC need not have any macroeconomic effects holds under broad conditions (Brunnermeier and Niepelt 2019).

It does not hold if CBDC-based payments require more or less resources than deposit-based payments; or if many transactions require deposits and cannot as easily be made with CBDC. More relevantly, CBDC could change macroeconomic outcomes if the central bank chose not to pass the funds through to commercial banks but to invest them elsewhere, for instance due to political constraints (Niepelt 2020).

Would CBDC foster bank disintermediation and bank runs?

Not if the central bank passes the funds raised by issuing CBDC through to the banking sector, as described above. This pass-through policy renders explicit the implicit guarantees in present-day monetary regimes.

The argument that the introduction of CBDC would expose banks to a funding squeeze disregards the asset side of the central bank's balance sheet. But as a matter of accounting, the central bank must invest funds raised from CBDC issuance somewhere; the decision where to invest is key. Even if central banks were to opt against pass-through policies, it is not clear that the risk of bank runs would rise. Households and firms can swiftly move funds from bank to government accounts already today (in the US, through Treasury Direct). There is little concern that this could trigger bank runs.

Why consider CBDC at all?

CBDC in combination with policies other than the pass-through policy outlined above would likely have macroeconomic consequences, both positive and negative. Moreover, it would have microeconomic effects.

What opportunities does CBDC offer?

CBDC would spur competition in the payment industry. This would also lower transaction costs for international payments where lack of competition (often due to regulation), not technology is the bottleneck.

CBDC would strengthen the monetary policy transmission channel. Changes in central bank policy rates would more directly feed through to the rates faced by households and firms. Currently, deposit rates barely respond to monetary policy (Drechsler *et al*. 2017).

CBDC, if adopted, would reduce the 'too big to fail' problem. One motivation to support struggling banks derives from the fact that bank failure puts strain on the payment system – a key pillar of the economy. Since payment system failure is not an option, so is bank failure.

If many households and firms transacted using CBDC rather than deposits the social cost of bank failure would be lower, and so would be the motivation to provide state support. With less need for state support, regulatory constraints on banks could be relaxed.

CBDC would help maintain monetary sovereignty. It takes a lot for society to abandon the national currency. But if digital payment instruments issued by other monetary authorities (or a private intermediary such as the Libra Association) offer much more convenience or safety, a tipping point will be reached and the local currency will be dumped.

Such 'dollarisation' is a well understood phenomenon in countries with weak monetary institutions (De Nicolo et al. 2005). Countries issuing their 'own' CBDC (without restricting other payment options such as cash transactions) are less prone to suffer from dollarisation and its consequences, in areas ranging from public finances (seigniorage) to national security.

CBDC could reduce the risk of bank runs. With a (partial or full) pass-through policy, the central bank would replace some of the retail depositors that hold bank liabilities. As a large player, it would internalise run externalities and

could better stabilise the supply of bank funding. CBDC would resolve an awkward contradiction in many countries: while the public sector issues the legal tender, legal constraints on cash use effectively prevent households and firms from making larger payments with government issued money.

That is, the state prohibits citizens from using the state's money. With CBDC, households and firms could make all payments with legal tender even if the constraints on cash use remained in place.

Where do the risks lie?

Many risks are political. A longer central bank balance sheet could invite demands from special interest groups (for example, for cheap funding of specific industries). A pass-through policy would also make the distributive effects of the monetary system more transparent. This could strengthen the resistance against bank support. Or, to the contrary, it could lead to stronger support for bank subsidies if they were perceived to relax funding constraints for households and firms.

Other risks are more subtle. Network effects might undermine the user base of cash once CBDC is introduced (Agur *et al*. 2019), and this might weaken the political support for cash. Some see this as a benefit rather than a risk because the abolition of cash would enable the central bank to lower interest rates far into negative territory without triggering cash withdrawals, thereby empowering monetary policy (Bordo and Levin 2017). Others who believe that cash provides a welcome protection against extreme monetary policies will disagree.

Do the opportunities justify the risks?

This varies from country to country. The tipping point at which society could adopt a foreign currency is distant in some countries and nearer, or more threatening, in others. Some monetary authorities would welcome more foreigners holding the national currency (to generate seigniorage), while others would not because of possible

effects on the exchange rate. Lack of competition in the banking sector and limited financial inclusion are important policy problems in some parts of the world, but less pressing in others.

Finally, a private sector 'synthetic CBDC' (Adrian and Mancini-Griffoli 2019) invested in a portfolio of reserves would affect the demand for national currencies very differently, depending on whether they were included in the portfolio or not; accordingly, the fiscal and monetary implications of the synthetic CBDC would differ across countries.

Whether the opportunities justify the risks also depends on one's personal views. CBDC should be more attractive to those who favour a strong central bank and less regulation, at the cost of lengthening the public sector's balance sheet; and to those who reject the notion that central banks should privilege banks.

Do central banks have a choice?

Many central banks may end up with a limited set of options. Although preparations for the launch of Libra have not proceeded according to plan, 2019 has shown that the status quo has ceased to be an option. Central banks and the BIS have understood.

Monetary authorities are keen to maintain control over the payment system as well as the financial sector more broadly and to defend the attractiveness of local currencies. *Nolens volens*, they will try to keep up with developments in the private sector and in other monetary areas; they will introduce 'Reserves for All' or promote synthetic CBDCs of their liking (Niepelt 2019). ■

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1. Unless the central bank hands out CBDC for free, as a 'helicopter drop'.

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Open source – and why it matters in financial services

The financial sector is being transformed by digital technologies. Mark Hermeling considers how open source software is driving the transformation

Open source software is software whose source code is made freely available and may be redistributed and modified according to the requirement of the user. The roots of the approach lie in the individual passion and enthusiasm of groups of software developers and programmers.

Even today, the term is widely associated with the principles of cooperation, collaboration, transparency and community-oriented development, developers enhancing each other's work and exploring new initiatives and innovations together in a positive spirit of partnership.

Yet, at the same time open source has evolved from collaboration at the cutting-edge of computing to firmly establish itself as a mainstream commercial model. Today, we are seeing a rapid and fast-accelerating uptake of the software by businesses.

According to a recent report by research firm, MarketsandMarkets, the global open source services market size is expected to grow from US$11.40 billion in 2017 to US$32.95 billion by 2022, at a Compound Annual Growth Rate (CAGR) of 23.65% during the forecast period (2017–2022).

Historically, financial services has not been at the forefront of this growth but today it is seeing strong growth in open source software take-up. Over the past decade, open source has been widely used to help run back-end servers, in database technologies and in analytics. During the past 12 months, however, adoption has reached a turning point in this sector.

What's driving growth today?

Partly, this is being enabled by a growing focus on digital transformation across the sector. According to a 2019 survey by BDO, 97% of financial services firms are making some sort of inroads on digital transformation - whether

they're in the process of developing a strategy or already implementing one. And 21% list developing a digital transformation strategy as their top digital priority.

Institutions are now using more open source partly to help them reduce costs as they scale. Technological innovation and automation is required to help them to achieve this and open source helps with accelerating the pace of innovation, providing an opportunity to leapfrog legacy technologies. Not taking this approach puts firms at a disadvantage and necessitates them playing catch-up with their industry peer.

In addressing a move to open source, firms should look to leverage the help of curated, open source solution providers

Given the crosswinds still impacting the financial services industry, this will be all but impossible. Competition is high with more industry consolidation to come. At the same time, firms that are essentially fintechs with a banking license, ie. challenger banks and asset managers, compete with traditional firms and have often leapfrogged their high-cost, legacy infrastructure.

However, financial services firms are also moving to open source because they are seeing productivity benefits from the approach that allow them to deliver projects more quickly. An increasingly broad set of community-maintained functionality has become available and there is a growing ecosystem and skill base that both solution providers and internal IT departments can leverage, making it easier for them to attract and retain talent.

As well as helping clients reduce software and infrastructure costs, the increasing adoption of open source is fuelling innovation across the sector and has become increasingly key for firms across financial services. Open source is ideal to use in sandbox environments and laboratory environments, often leap-frogging existing legacy technology stacks.

Open source helps firms prototype and run proof of concepts of new products and services out much more cheaply. In other words, the threshold for sandboxing different approaches has become a lot lower, driving up the propensity to innovate. The psychology of engineers also often fuels further innovation.

Typically, they like to work on cutting-edge projects. They also often appreciate the peer recognition they will get from contributing to open source projects. It is also the case that using the software makes it easier for firms to start small on new projects without having to go through a protracted procurement or tendering process.

This in turn can deliver crucial time to market advantages, accelerate the development process and – through lower cost - quickly build a portfolio of innovative projects. Across the financial services industry generally, we see a host of open source database technologies emerging that help to collect, collate and crunch relevant data.

On the client interaction side, we have seen a lot of work done using open source on visualisation and helping with customer interaction as well as the technology being used in opening up transaction histories to clients.

There are a lot of start-ups in the financial service sector also that sometimes compete with the more established players and sometimes provide components that are used by the banks and asset managers themselves. This latter group in particular, benefit from open source technologies used to underlie the user interface to clients.

We are also seeing significant innovation permeating the risk and financial modelling side of the business. In addition to all this, the use of open source helps firms avoid all the pitfalls and dangers of 'lock-in' associated with proprietary tech.

Another reason why we have reached a tipping point driving the ongoing usage of open source in financial services is the growing acceptability of cloud infrastructures to firms across the sector, especially compared to five years ago. Adopting open source typically means deploying cloud native apps and migrating workloads to public or private cloud built on open source infrastructure.

Open source often provides foundational technology, including programming languages, libraries and database technologies that can provide a rich foundation to quickly develop applications. That, coupled with an increase in the uptake of managed services options, is making open source still more attractive to financial services businesses – and is further driving innovation within these organisations.

The use of open source also helps to enhance systems security, including cyber-security, for financial services firms. That's because if an organisation is using open source technology that is being leveraged by a large community, it is unlikely, statistically speaking, that it will be the first to catch a bug.

Fuelled by the cloud

In addition to the drivers highlighted above, the uptake of open source by financial services firms is also being driven by the growing prevalence of cloud resources. In fact, the two technologies often go hand-in-hand. One of the reasons they are such a good combination is the fact that they came of age together. Open source NoSQL database technologies like MongoDB and Cassandra are highly-scalable, flexible and good for big data storage and processing, all qualities that the use of the cloud can further support.

The two technology areas complement each other really well. Traditional applications, using eg. a commercial RDBMS as a database, can of course be shifted to the cloud but will not necessarily benefit from scale advantages and the more flexible way of provisioning resources that cloud infrastructure brings.

Today, adopting open source typically means deploying cloud native apps and migrating workloads to public or private cloud built on open source infrastructure. Open source often provides foundational technology, including languages, libraries and database technologies that can provide a rich foundation to quickly develop applications.

Firms can maintain cost-effectiveness, while tapping into the expertise of the open source user community. Also, deploying open source in the cloud allows firms to adopt a more agile opex-based model, sourcing capacity when they need it, which in turn leads to lower capital expenditure.

In addition, open source technologies have to be weighed against the increasingly deep and proprietary tech stack offered by the main cloud providers as they can provide some insulation against the problem of vendor lock-in. That, coupled with an increase in the uptake of managed services options, is making open source still more attractive to financial services businesses and further driving innovation within these organisations.

Why managed services matters

A managed services approach can, after all, play a key role in helping financial services firms overcome the challenges they may face today as they migrate over to a cloud-based approach. Firms will, for example, need to ensure they are picking the right open source projects where they will attain optimum value and also ensure they are using the right open source tools.

Just as in the world of commercial software, there will often be a range of competing tools available to them which could potentially be used to tackle a problem and choosing the right one is critical. Some technologies, such as Python, Spark and Cassandra, have caught enormous momentum. Others may have lost it. So it is important that firms do their normal sourcing homework.

Aside from these more general challenges, financial services firms will be likely to have more specific data management issues that they need to address. They may well want to use NoSQL database technology that came out of open source for data management purposes. Cassandra is good for time series data modelling, while Spark is effective as a data processing framework.

As financial services firms look to get more out of their data and source more data, data scientists need to be properly equipped both with the requisite data preparation and data quality solutions as well as with the tools they would need to analyse the data and test their data models.

In addressing a move to open source, firms should look to leverage the help of curated, open source solution providers that both understand the cloud and use open source themselves and therefore benefit from some of the advancements that have been made in order to deliver cost-effective scalable solutions.

It is important in this context to look at the breadth of innovation and of the proposition a provider is offering more generally. To tap into far-reaching data management benefits it is worth seeking out firms and solutions that offer a broad data management proposition encompassing not just core data sourcing and mastering but also exploration and discovery, leveraging the innate benefits of the Cassandra/Spark stack.

Providers can also help with the consultancy element. While many banks and asset managers have caught on quickly to the potential offered by open source, providers can help here by explaining the choices they have made when it comes to the open source components they use.

By partnering with a commercial provider, firms will also be able to access the support they require. In other words, instead of taking on the onus for leveraging the technology alone, the onus will be on the provider to deliver the underlying technology, which will often also involve using various cloud infrastructure providers.

All this will enable financial services organisations to optimise their deployment of open source and get the most they can out of the technology today. ■

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Disruptive technologies such as Artificial Intelligence (AI), Robotic Process Automation (RPA) and Application Programme Interfaces (APIs) are turning the financial services market upside down, freeing them from traditional processes and enabling them to meet the increasing demands of customers today.

Financial services such as banks and insurance providers have never before been faced with such stiff competition and coupled with the introduction of regulations and compliance have had to step up to attract and retain both customers and employees.

PWC states that over a third (37%) of all global financial institutions already have a fintech service for their customers. It is estimated that over $70 billion was invested in 2019 across the sector on fintech. So it is evident that companies and organisations view fintech as part of a strategy to help improve their services and remain ahead of their competitors.

Safe in the cloud

When implementing new and innovative technologies and applications you need to ensure that you have a robust and reliable infrastructure which is why most organisations and companies move to the cloud.

The cloud provides scalability which is essential in financial services as there are more transactions which results in an increased strain on the company infrastructure. It is also more cost-effective as you don't have to invest in hardware and software, and is often presented in a modular model so you can rent the services. The most effective way of moving to the cloud is via a technology partner who can provide a managed service; they will advise on the best technology for your business, design a roadmap and manage it, freeing your team up to focus on other areas and the wider digital transformation journey.

Many companies fear that they won't get a new cloud solution approved but it is not a matter of ripping out your existing infrastructure and technology. Your legacy infrastructure and technology can be protected and utilised so you can adopt a hybrid network via the cloud. Some companies such as HSBC have built out a multi-cloud application network to meet demand where thousands of APIs were deployed across multiple environments using containers to unlock legacy systems and power cloud native application.

It's not about the future, it is about now, and now is the time for the financial services market to embrace and welcome digital transformation

Another advantage of cloud is that it enables technologies and applications to be easily integrated with it. The cloud is the foundation for fintech ecosystems, where you can integrate technology to create a seamless, end to end integrated solution to improve the customer or back and front office services. Providing a secure and resilient platform where third parties can design, build and run applications effectively.

Creating an ecosystem

Financial businesses need to expand their services for customers ensuring that their own platforms and technologies integrate seamlessly with technology from partners; providing them with more choice on how to manage their services.

Capgemini states that the open banking trend may be overtaken as the banking ecosystem partnerships become more accepted and the industry will re-bundle services. The next phase is Open X – a shared marketplace that leverages data extensively and collaborates with other players to provide customers with a seamless experience.

Technology transforming services

Banking and insurance services rely on telecommunications and contact centres so it is imperative that you have the correct unified communications technology in place for internal and external communications to flourish.

Companies need to focus on delivering a seamless customer experience enabling customers to travel through their journey with ease and first-time resolution. It is crucial to offer a range of communication channels for the customers to use including: the telephone, email, web chat and social media which can all be delivered through a multimedia contact centre. No less than 85% (PWC) of people agree to using bank services would agree to pay a regular fee to receive social media notifications from their bank.

A Forrester survey revealed that 64% of the survey respondents said their greatest obstacle is creating a single view of customer data and information when improving CRM capabilities. More than half acknowledged they struggle with creating customer insight to drive decision-making.

When a customer service agent deals with a customer's enquiry they are often faced with several screens, this is cumbersome and difficult to manage. Technology partners integrate a digital assistant into the contact centre so customers and agents are presented with a single user interface where all interactions can be completed on a single screen. This helps to make the customers' journey seamless, and makes the agent's job easier at the same time, enabling them to deliver a better experience.

The personal touch

Now customers want a personalised service, they don't want to be handed over many times to different agents and repeat their personal information. Intelligent call-based routing uses CRM records and intuitive self-service options so customers can connect to the right people and services at the right time. This helps resolve queries quickly and effectively. Inbound automation speeds up low touch interactions and frees up the best skilled contact centre agents to solve complex customer issues and add value to interactions.

Screen pops can enable the agents to see who the customer is, what they have bought in the past, presenting them with their history. This reduces frustration and increases efficiencies with the enquiry, it also makes the customers feel valued as they are experiencing a personalised service.

Other unified communications tools range from video and audio conferencing to remote and working from home solutions, mobile and collaboration solutions such as Microsoft Skype for Business, Mitel UCA and Avaya One-X. These solutions enable you to facilitate voice calls video calls, instant messaging, screen share and joint remote

collaboration on documents. They enable companies to expand their recruitment pool as employees don't need to be based in the office and also to extend the opening hours of a contact centre to deliver a 24/7 customer service.

On the move

Mobile applications free customers to conduct financial services on the move, they can pay bills, make deposits, check balances and get alerts if there is unusual activity. Insurers are rolling out fitness apps, conduct mobile claims filing, micro insurance services and even have smart devices that monitor habits.

Mobile solutions leverage the power of the cloud by keeping services intuitive, personalised and simple for customers. Mobile is most significant change in the financial industry with 53% of 25-34 year olds conducting all banking on their mobile devices.

Automating the customer journey

Technologies such as AI and RPA automate elements of the customer's journey to simplify it for them to reach a resolution faster without the frustration of being passed from one department to another.

The Automation Study by fintech firm Avalog revealed that 55% of banking professionals see AI, automation and robotics as a vital part of the future of financial services and 46% want to improve customer experiences at 46%. Customer experience was important in staying ahead of the competition with 41% saying it was the priority and operational efficiency at 19%.

Implementing an AI virtual digital assistant in your contact centre improves customer service and the productivity of agents. The digital assistant has the ability to self-learn content from your website and or from customer

conversations that take place in webchat. They also have the ability to recognise and pre-empt the needs of customers during similar interactions in the future.

They can be programmed to produce answers to questions and resolve issues by completing web forms during conversations. When the customer wants to speak to a human they can be transferred to a customer service agent when necessary.

It is advisable to make the digital virtual assistant, the first point of contact for website users because often the initial stage is customers' information gathering or requesting answers to basic questions. This enables contact centre agents to focus on complex enquiries handing over information sourcing to the digital assistant.

Increasing productivity

AI and RPA doesn't just vastly improve customer service it also increases efficiencies of staff and productivity. Business cloud research entitled *Taking Automation to the next level* revealed that when asked to look to the next five years 44% stated that to improve productivity would be their primary goal for automation.

Intelligent automation which combines RPA with AI and additional capabilities such as Natural Language Processing is enabling businesses to automate workplace processes in an agile, secure and effective way in both the front and back office.

Real-time reporting

Evaluating and reporting is essential in financial services especially with the vast amount of data. Multimedia solutions enable you to access historical and real time reporting so you can see the entire picture and drill down to individual call and agent level for each communications method from the omni-channel.

You can respond instantly to changing traffic volumes and ensure that the service levels are maintained. With the historical reporting you can measure performance against objectives and key performance indicators, review play by play account of the contact centre and identify new ways to improve business processes.

Andy Marlow, Kelliher Insurance Group's Sales and Service Manager concludes,

> *"The integrated multi-channel contact centre and outbound dialling solution have helped the business to deliver a significant increase in sales. Not only because sales agents can make outbound calls faster now with automatic dialling and dial-in scripts. We can understand the actual volume of customers attempting to contact us outside our working hours. The amount of calls we were missing was astonishing. It led us to review our opening hours and to run a marketing campaign that saw our team call back all those clients who had been unable to get through. It created new sales leads that, previously, we were unaware of."*

Big data analytics is essential in financial service and provides organisation an opportunity to fully understand what each customer wants.

It's all about the integration

The key to digital transformation lies in the integration, technology must be integrated into the front and back office for it to be truly successful. It needs to talk to your existing and new tech and apps to utilise what you have and what you need.

It is important to find a partner that specialises in integration and will work closely with you to discover your objectives and devise a tech strategy. They will need to understand how to utilise your existing technology and what you require, plus the importance of engaging with your employees to discover what tech they think will help

improve their customer service. Enabling you to deliver a comprehensive, integrated digital transformation strategy that will deliver improved comms, business processes and a superior customer service.

Embracing now and the future

CIO's and CTO's need to embrace digital transformation by creating an creative and open culture where employees can work remotely, share data without being restricted by silos, make creative suggestions and not be scared to fail. This will help attract and retain top talent which is and will continue to be a challenge with the digital skills gap.

They will benefit from partnering with a solutions provider who will advise and work closely with them to understand what their objectives are and how technology can help them achieve them within the restriction of compliance and regulations but still make it easy to use and deliver a seamless service.

A common perception is that all technology projects need to be big and overwhelming and therefore take time to deliver ROI and if they don't they are abolished. This is not the case projects can be deconstructed into small and manageable projects that are easier to get approval on and to roll out.

It's not about the future, it is about now, and now is the time for the financial services market to embrace and welcome digital transformation to improve customer services, efficiencies, productivity and revenues. ■

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