

The Euro@20

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The Euro@20

A critical assessment

Abstract

To review the strengths, weaknesses and robustness of the Euro system after 20 years is an enormous project. This paper picks out three of the less usually discussed themes, at least in this context. It focuses on the policy lessons and where design improvements are needed. It makes three points. i) the achievements in the single market are palpable and substantial, but they derive more from investment and productivity growth than they do from trade as such. This carries its own dangers: if the markets are allowed to use low real wages to substitute cheap labour for more expensive capital, these gains will be lost. ii) The Euro area needs to reassess its use of monetary policy, and the need to introduce an explicit financial stability mandate. We find that financial stability and traditional monetary objectives can be achieved without one limiting the achievement of the other because the ECB has new policy tools derived from the regulatory metrics introduced to handle the expanded balance sheets of the post-crisis macro-prudential framework. iii) Fiscal governance remains a crucial issue. The North remains divided from the South over how much coordination (possibly loans or transfers) to allow. But, despite the Euro system being based on the separation of monetary and fiscal powers, the economic consequences of using those powers cannot be separated in practice. More active debt management policies offer a better and more robust way to deal with this difficulty.

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EXECUTIVE SUMMARY

Much work has been done since the Great Financial Crisis in 2008-12 to introduce new prudential and surveillance techniques to protect financial markets, financial institutions and the euro-area banking system from the consequences of excessive risk taking, external financial shocks, globalised financial links or internal destabilising behaviour.

The new prudential system includes a variety of different prudential or regulatory metrics which the ECB or other policymakers can use to ensure sufficient liquidity cover their lending and to underpin the stability and safety of the banks; to influence the growth of credit up or down; to limit excessive lending; to steer interest rates; and to stabilise financial markets (including insurance, pensions) and to damp down asset price bubbles

This paper picks out three of the less usually discussed themes, at least in this context. It focuses on the policy lessons to be learned and where design improvements are needed in the post-crisis era. It makes three points.

- i) The achievements in the single market are palpable and substantial. But they derive more from investment and productivity growth than they do from trade as such. This carries its own risks of course. If the markets are allowed to use low real wages to substitute cheap labour for more expensive capital, these gains will be lost. Policy changes are suggested to reduce that risk.
- ii) The Euro area needs to reassess its use of monetary policy, and the need to introduce an explicit financial stability mandate. We find that financial stability and traditional monetary objectives can be achieved without one limiting the achievement of the other because the ECB has new policy tools derived from the regulatory metrics needed to handle the expanded balance sheets of the post-crisis macro-prudential framework.
- iii) Fiscal governance remains a crucial issue because it so nearly brought the Euro to its knees after the financial crisis and could do so again. The North remains divided from the South on what to do; one side wanting more policy coordination and the other separation. However, despite the Eurosystem being based on the separation of monetary and fiscal powers, the economic consequences of using those powers simply cannot be separated out in practice. So, there is no avoiding the issue. More active debt management policies (rather than fixed deficit rules, or deficit management) offer a better, more robust long-term strategy for dealing with this difficulty.

1. INTRODUCTION

To review the strengths, weaknesses and robustness of the Euro system after 20 years is a massive project. This paper picks out three areas where there has been trouble in the past and where there are policy lessons and design improvements that could be made:

- i) The achievements in the single market are palpable and substantial, but they derive more from investment and productivity growth than they do from trade as such. This carries its own risks: if the markets choose to use low real wages to substitute cheap labour for more expensive capital, these gains will be lost.
- ii) The Euro area needs to reassess its use of monetary policy and introduce an explicit financial stability mandate. We find that financial stability and traditional monetary objectives can be achieved without one limiting the achievement of the other, because the ECB has new policy tools derived from the regulatory metrics introduced to handle the expanded balance sheets of the new prudential framework.
- iii) Fiscal governance remains a crucial issue. The North remains divided from the South over how much coordination, or loans and transfers, to allow (if any). However, despite the Euro being based on the separation of monetary and fiscal powers, the economic consequences of using those powers cannot be separated in practice. More active debt management policies offer a better and more robust way to deal with this difficulty.

2. THE GAINS ACHIEVED THROUGH THE SINGLE MARKET

The title supplied for this paper does not define “the Euro project”. It could be taken to mean the achievements of the Eurozone’s single market together with the single currency designed to support it; or the achievements of the Euro currency system alone. Logically these two components are quite separate - it is quite possible for one to exist without the other¹. In fact, the single market construct is concerned with the real side of the economy (growth, job creation, competitiveness, trade balances); the single currency per se is concerned with the nominal side (inflation, the external exchange rate, financial stability and financing flows).

That said, the two components are obviously very closely related via competitiveness, trade creation/diversion and financing flows if nothing else. Consequently, few estimates have been made that attempt to disentangle the economic gains/achievements due to one component from those due to the other. Hence, for the purposes of this paper, I will take both together in this section and the next – recognising that some of those gains may be due to the trading arrangements rather than the single currency itself. Then in Section 4 onwards the focus will be on the strengths and weaknesses of the Euro currency system, and for financial stability.

2.1. The Gains in Trade from the Single Market, with the UK as an example

Estimates have been made of the impact of Brexit on the UK, but few for regional economies such as Scotland. They produce UK losses of about 1% to 2% of GDP. These losses are about the same as reversing the *gains* estimated for membership of the single market when it was first set up. The Cecchini report estimated gains of 5% in GDP over 5 years in 1992. The EU’s post-mortem study completed in 2000 showed GDP gains of 1% by the time the Euro arrived. Later estimates put the figure at 2.15% of GDP in 2006, or 2.13% of GDP in 2014. For Scotland, the Fraser of Allender Institute has estimated the costs of Brexit (gains lost) at about 2.8% of GDP or 80000 jobs. These gains will not have been distributed evenly of course. So, the corresponding gains in the single market (or losses under Brexit) will hit some sectors, such as manufacturing, and some countries much harder than others depending on their industrial structures and trade patterns.

For the UK, the UK Treasury now estimates (rather late in the day) that UK GDP will be lower by 3.9% after 15 years of Brexit (an average of ¼% lower each year) if the UK government’s preferred plan is used; but 9.3% lower (or 0.62% each year) under no deal at all². This is costly in terms of losses, given that it does not also account for the potential investment or productivity increases foregone. Interestingly, these calculations do not evaluate any of the compromise models available³.

Scottish government figures for Scotland alone suggest losses of 7.4% after 12 years, or 0.62% per year. This lies half way between the UK government’s proposal and the “no deal at all” solution. So Scotland would appear to be made worse off than the rest of the UK (rUK); although that damage could be less, on UK Treasury figures, with any of the compromise arrangements that are currently ruled out (5% under a free trade association with the EU, 1% in a Norway type deal). Interestingly, the Treasury’s

¹ For example, the EU itself has countries that participate in the single market, but not in the single currency. Equally, many countries share a currency with others without sharing a single market regime (Montenegro, Ecuador, Panama, Zimbabwe, the Francophone African countries among others).

² Figures are UK government estimates calculated as of 2018 [see BBC (2018)]. The Scottish figures that follow are taken from Scottish Government (2018). It may seem odd to include the impact of Brexit on a specific region. But those costs (or gains) are of importance in this context because they may well persuade that region to reconsider or change its relationship with the national economy, especially if the government in question has made an unfortunate or damaging choice in pursuing its interests within the EU (Scotland vs. UK, or Catalonia vs. Spain for example)

³ The Norwegian free trade model; the Swiss sectoral free trade, or the Canadian rules of origin models.

argument is that the smaller losses would arise because Scotland is partly sheltered by the energy sector. I am not aware that London has announced any plans to devolve oil or gas revenues to provide such financial sheltering so it is not clear where this result is coming from. Nevertheless, the argument itself is of interest because it shows how easily the economic outcomes can shift with relatively small changes in the rules governing trade in any new association with the EU.

On these results, by 2030, the loss of productivity improvements explains 60% of the losses between no deal and continued EU membership, restricted migration 26%, but new trade barriers and tariffs only 14% [Scottish Government (2018)]. Clearly the loss of investment and productivity gains are the major driving factors here, with restrictions on EU migration a distant second. Comparable figures for the UK as a whole are not available. Finally, restricting net migration to zero is said to reduce incomes by 5.4% per capita in the long term.

The reason why the trade impacts are not larger is that EU tariffs against outsiders average 2%-3%. Since the pound has depreciated 15% since the leave vote, the cost of UK exports to the EU has fallen. As a result, UK firms are now reporting increased business. But imports also cost more (around 23% more so far) – raising the prospect of inflation. Since UK inflation is still within its 2%-3% target range, this is not a problem. Hence, reversing the argument across the EU as a whole, there will have been some downward pressure on prices as a result of the Euro project, but rather small.

These estimates from a negative experiment (the loss of the single market) therefore give a pretty good idea of the contributions of the single market component to the Euro project. That said, the estimates so far report the estimated trade effects **only**. They do not look at the impact of lost investment and consequent losses in output and productivity growth. Hence there is a great deal more to add to these estimates of Brexit costs.

2.2. The Collective Gains to Single Market Membership: the EU View

To evaluate the gains from the single market that accrue directly to an individual country is one thing. But equally important are the collective gains, identifiable at the Euro level, which accrue to individual member countries indirectly. We identify some of the most important ones in this section using the same negative experiment of Brexit, but viewed from the perspective of the collective benefits potentially lost by the EU as a whole.

First, there are strong incentives for the UK to delay negotiating: the longer the delay, the more the pressure on the EU to compromise builds up. One can see these pressures in the German employers' proposals for a single market type arrangement with work permits; in the worries that the Brexit slowdown puts the stability of Italian banks at risk; the anticipated movement to short time working in German manufacturing plants; and in the worries that the Dutch do not have the personnel, expertise or resources to set up a new customs system for their largest EU trading partner under a "no deal" scenario. In fact, the OECD estimates that the Netherlands will probably lose about 17% of its exports that way [OECD (2018)].

Second, the complexity of negotiating a replacement trade association (where London also lacks expertise, and the EU lacks focus) means that it almost certainly cannot be done in the 2 transition years remaining. From their point of view, better to delay the Article 50 process till a good part of the design work on the agreement to follow has been done.

There are also good incentives on the EU side to dilute the pressures triggered by Brexit, to make space to create agreements on the future form of the EU from within, and to allow financial pressures created by the UK's withdrawal to subside. The extra costs generated by the *Markets in Financial Instruments and Derivatives Initiative-2* is one example; more expensive financial services/financing imposed by

breaking up the existing financial markets is another. Fragmented liquidity, reduced access to financing, shallower or narrower financial markets, and a loss in the ability to pool financing and currency risks, is a third. These issues impose costs on everyone (consumers and businesses alike) in the EU or UK, but mostly on the EU side given the depth and greater scope of the UK financial markets. It is estimated that the EU would need additional margins of €77bn to underwrite the same volume of trades as are undertaken today. Disengagement really is a two-way street. It is not surprising, then, that the EU side has from time to time indicated a desire for some degree of compromise. But, again, no firm proposals have materialised – perhaps because the EU is still unclear what it wants to achieve with a new association agreement, aside from limiting damage to the European integration movement.

3. THE KEY ROLE OF INVESTMENT IN THE EURO PROJECT

3.1. How important has investment spending been to the Euro project?

Investment spending plays three key roles. First it builds capacity: the ability to produce competitively in the future. The specific quantity spent therefore has a magnified effect on output and employment going forward; and investment lost through Brexit would have a likewise magnified effect in lost output/growth. We can build up an example from a region within an existing monetary union. It is hard to put numbers on the investment gains since we often lack comprehensive investment data. But, in the Scottish case, we can make estimates: grossing up the figures for public investment in the same proportion as the UK shows that **new** investment runs at around 3.3% of GDP annually, a little over half the UK rate (6%). On these numbers, a region such as Scotland could ill afford further losses in investment from Brexit, whether due to a slowdown or to lost passporting. But they also show the investment gains are almost certainly larger than the trade gains in the Euro project.

Second, an inability to passport your services/goods into the EU could be very damaging to investment spending. For obvious reasons we have no data on how much investment in Scotland is made to facilitate passporting. But given that 15.3% of Scottish exports go to the EU (ex-UK), and 63.8% to rUK (surveys say 70% is passported on), the loss of passporting rights directly or via the UK would mean a loss of more than 16% in investment. Scottish government figures are more sanguine (7.7% or between 6.3% and 9% lost over 12 years), the difference being that the loss of passporting exports through rUK is not included.⁴

Third, and most important, investment is the way productivity growth enters into the economy. In fact, productivity growth is the only source for *permanent* increases in growth and employment (Scotland's working population is static or shrinking). Hence lost investment for Brexit reasons would inflict greater long-run damage to the Scottish economy than the current weak investment performance because the capacity to incorporate new productivity gains would shrink. Again, this example shows how important investment will have been to the Euro project participants.

3.2. The link to productivity growth

Continuing the same example: Scotland has labour productivity which is 3% lower than the UK. Yet wages are roughly 6% lower. This implies that unit labour costs are 3% lower in Scotland. However, per unit production costs are not lower since otherwise the Scottish economy would have grown faster. It has not. Growth has been consistently slower by ½%-1% per year than in the UK. Hence total factor productivity (meaning the way in which the inputs to production are combined) must be lower in Scotland. Scots work harder than their counterparts, but to less effect because cheaper labour has been substituted for capital and productivity increases. Hence the sustained pressures to keep real wages low. In that case, a sensible policy would be to adopt a two-pronged approach: a general drive to increase total factor productivity with improved technology, capital deepening, better work practices; plus policies that shift the industry mix towards the high productivity activities and those with specialised services, skills, and (internal or external) economies of scale. In short, we need more investment in order to exploit trade and national comparative advantages; not less as would happen if the single market underpinned by the Euro were not there.

⁴ The Scottish government figures are more likely to be correct. Given growth rates 1% slower than in rUK, and an incremental capital-output ratio of 2.5, we should expect an investment loss of 7¼%.

3.3. Investing in productivity growth

Digging deeper, Scotland ranks highly on R&D and innovation in the public sector – notably in the higher education sector – but does less well in business and industry. In fact, business R&D spending runs at half the UK rate. And most of it is done by US, Scottish and EU owned firms: very little by UK owned firms, a clear “branch office” problem. This must be a weakness for smaller economies in the Euro area too. In figures, 53% is done by US firms, 25% by Scottish owned firms, 16% by EU firms and 3% by UK owned firms. At the same time, 8% of firms in Scotland by value added are US owned, 31% are non-UK and 61% are UK owned. Taken together, this means that UK based firms undertake just 5% of the R&D or innovation spending, per unit value added, relative to non-UK firms. This argument generalises to the UK as a whole. The simplest strategy would then be to find ways to bring high productivity activities to the local economy by investing in productivity growth and by encouraging foreign trade and ownership in order to make UK markets and UK firms more contestable (raising competitive pressures). Again, the opposite of what Brexit would bring. Instead, it appears that (by 2030) 60% of the loss of output/jobs under no deal vs. EU membership would be due to an emerging productivity gap; 26% from the loss of migration, but only 14% from trade barriers and market access issues that have taken up so much of the negotiators’ time.

3.4. The costs of a productivity slowdown

There is very little work in the existing literature that would allow us to estimate the impact of the loss in productivity growth that one might expect in the absence of the Euro project. This is because the only estimates available typically measure the impact of productivity losses arbitrarily imposed from the outside, rather than from losses that we would expect to be induced (endogenously) by the Euro process itself; **and** because those productivity losses have been imposed on labour productivity when, in view of sections 3.2 and 3.3 above, they should have been obtained from the effects on investment and total factor productivity. Nevertheless, imposing an arbitrary 5% loss in productivity (a standard assumption), leads to a large negative shock on top of any trade losses such as those in Section 2. That confirms the general argument of the last two sections.

4. FINANCIAL STABILITY: CENTRAL BANK ASSETS AND THE SUPPLY OF LIQUIDITY IN THE EURO SYSTEM⁵

Central banks can increase/decrease an economy's money supply and hence reserve balances, by acquiring or shedding assets. This creates/destroys central bank money by expanding or shrinking both sides of their balance sheets. The obvious policy questions are then how large the balance sheet should be, and the best composition of balance sheet (which assets should be held). Different operational parameters and choices about the assets held can yield the same level of monetary supply and interest rates, but may have quite different impacts on the regulatory metrics and hence on financial stability. The argument here is that, in the "new normal", these effects need to be recognised and the choices made pro-actively – preferably under some transparent financial stability remit, currently missing from the statutes of some of the world's leading central banks: in particular, at the ECB (Mersch 2018).

4.1. The optimal size of central bank balance sheets

The choice of the optimal size of the balance sheet is not a purely hypothetical issue: as of mid-2018, the US Federal Reserve, the ECB, the Bank of England (BoE) and the Bank of Japan (BoJ) were all contemplating how much, and how quickly, to reduce their asset holdings (BoE, 2018). Their public announcements implied that monetary policy should determine how much QE (Quantitative Easing) is unwound. What is certainly required is that reserves need to be held at levels consistent with policy interest rates: in theory, the money supply should be kept precisely in line with the demand for reserves at any given level of interest rates.

Pre-crisis the size of the central bank balance sheet was seldom debated. Interest rates were set to target the price level and, at that rate, the level of notes that would be demanded and supplied. But given both outcomes, a level of reserves would be supplied consistent with the policy rate. If need be, that level of reserves could be forced by the use of reserve targets and penalty interest rates.

The optimal size of a central bank balance sheet could therefore be calculated by adding the demand for cash and the demand for reserves (together with some other autonomous factors that are generally small). But in practice it is often difficult to do that successfully because the interest elasticities of the demand for both cash and reserves are seldom well determined. Econometric estimates for money demand equations have an unfortunate habit of breaking down as soon as one tries to rely on them for policy making (Goodhart's Law). And estimating such demand equations in the new normal would be even harder for the following reasons:

- i. structural breaks in the demand for cash, reflecting new technology developments,
- ii. structural breaks in the demand for reserves, reflecting new prudential regulations; and
- iii. changing trends in the reserves data as a result of QE.

Consequently, it is likely, for the reasons given, that the level of reserve balances and optimal balance sheet size will remain higher than pre-2008 levels for some time, even if the demand for cash by the public falls somewhat.

Second, it is also possible that, in the new normal, the precise quantity of narrow money no longer matters so much for setting monetary policy. In principle, any excess money balances ought to be inflationary. But very large expansions of the narrow money supply over the past 10 years, in many large developed economies simultaneously, did not result in high inflation (even if they reduced the

⁵ This section and the next follow the analysis in Hughes Hallett and Fisher (2018).

threat of deflation). We can partly explain why that would be the case – the extent to which the bank lending channel of QE was offset, first via the financial crisis itself and then by higher liquidity requirements. But there are two further points to make.

i) QE puts base money into circulation in place of purchased assets. This is a powerful mechanism in a liquidity crisis when markets are dysfunctional: liquidity is precious and asset prices would otherwise be at a discount. In such circumstances it may not be possible, or even cheap to obtain base money in the market itself even when offering to repo out the most liquid securities such as US Treasury bills. To make the point, the sustained peaks of dysfunction were in 2008-9 after the collapse of Lehman Brothers and AIG, and again in 2011-12 as the Euro-area crisis unfolded.⁶ These, of course, were the periods when the Federal Reserve and BoE were undertaking most of their QE operations. In the US, some markets also had to adapt to the negative impact of the Dodd-Frank regulations on market-making liquidity.

As market conditions have stabilised again, it is likely that this impact of QE on financial markets has diminished considerably – although no reliable or precise quantification is available to prove it. It is also possible that the continuing stretches of QE in the US and Euro area have become increasingly ineffective as market functioning has improved.⁷ These improvements in market functioning, albeit not back to unsustainable pre-crisis conditions, gives a prima facie reason to suppose that the sale/maturing of QE assets will not have an equal and opposite effect to their purchase during the crisis period.

ii) The reason that the monetary policy imperatives have weakened in the new normal is the assertion that monetary policy will only have short run or second-order effects on real outcomes. However, it is likely that real interest rates today are in fact driven by real factors, in particular by sluggish productivity growth in the developed world, and less by monetary policy. If QE unwinds slowly, perhaps by allowing assets to roll off as they mature⁸, then that process is not likely to have a large impact on real interest rates.

Overall, one might reasonably argue that a wide range of reserves balances is now consistent with any particular policy interest rate. As a result, the financial stability implications of balance sheet size have become relatively more important: the supply of narrow money affects the ease with which banks acquire the high-quality liquidity asset (HQLA) quotas needed to meet their liquidity cover ratio (LCR) requirements.

The challenge here, of course, is that the actual size of central bank balance sheets in this regime need to be determined by trial (and possibly error). If QE is unwound and banks see their HQLA ratios shrinking too far or too fast, one can expect strong signals back from the market as the price of liquidity starts to rise – being bid up for deposits for example. To the extent that this is consistent with the intentions of monetary policy, it would not be a problem. But if the monetary base is reduced too far then it could lead to volatile and excessive changes in market interest rates as banks struggle to meet their regulatory requirements.

4.2. Excess cash or shortage, and the ability to influence market rates

A generic decision for a central bank, in the new normal or in crisis, is whether to operate with an ante excess of liquidity or to allow a shortage. At the margin, moving from one to the other simply

⁶ Fisher (2011).

⁷ The QE fatigue argument in Hughes Hallett (2017). That paper details reasons why we should expect QE fatigue.

⁸ This is the publicly stated policy for a number of the purchase operations undertaken by the ECB; one reason being that selling large quantities of less liquid assets would likely cause severe disruption to those markets.

requires a slightly larger or smaller balance sheet. The main consequence is whether the central bank ends up supplying or draining liquidity in order to adjust to the 'right' level.

Direct asset purchases have long been part of the tool kit used to adjust the size of a central bank's balance sheet. Conventional open market operations can take the form of either outright purchases/sales or collateralised lending/deposit facilities. Pre-crisis, it was common for the major central banks to operate their balance sheets in such a way as to maintain a general but small ex ante shortage of base money on a regular basis – which they then offset by routine lending to meet the demand for reserves exactly.⁹ These short-term operations were generally undertaken at the policy rate so that market rates would be set, or strongly influenced by the policy rate.

Under this shortage approach, to force a precise quantity for reserves, commercial banks might be required to meet target levels for their reserve accounts, at least during a 'reserve main-tenance period' (typically between rate-setting meetings). Once the target level for reserves is known, any shortage can be estimated and supplied by routine lending, subject to a few small 'autonomous factors' – usually other banking flows across the central bank balance sheet. A wide variety of related operating procedures is then possible. For example, some central banks operate in the markets every day (e.g. Sweden) and others once a week (e.g. BoE, ECB).

It is also possible to operate with a small amount of excess liquidity. This would be appropriate, for example, where the level of foreign exchange earnings is high and an exchange rate target is maintained as a nominal anchor. If those foreign currency earnings are converted into domestic currency there will be an excess supply of domestic liquidity. To prevent the risk that this excess liquidity becomes inflationary, the central bank will need to drain that liquidity through a deposit facility in a way that also allows the central bank to set a base interest rate. In effect, this is short-term sterilisation, managed internally without the risks or complications of buying and selling in the markets for short-term bonds.

A hybrid approach, combining an ex ante excess supply within a system designed for a shortage, is also possible. When operating with a shortage, it is normal for the central bank to offer only as much liquidity as is needed for the system as a whole and for banks to bid for their share. The banks can then trade among themselves so that each and every firm's requirements are met. But in a crisis, when the inter-bank market may not function well, this approach is problematic. An unlimited amount needs to be offered by the central bank with 'full allotment' (every bidder gets exactly the cash they need at a pre-determined rate). This was the approach taken by the ECB in 2007 when the first signs of crisis appeared, but it contains its own risks of lax monetary conditions or inflationary tendencies.

4.3. Implementation: A corridor or floor system for interest rates?

Although central banks can set a policy rate to influence market interest rates, in a market-based economy they can never be sure that market rates will follow the policy rate precisely, even at short-term rates. So arrangements are made to try to guide market interest rates to stay close to the policy rate (Fisher, 2011). Maximum and minimum rates can then be set to define a 'corridor' around the policy rate to limit volatility. These rates can be set by offering special facilities for commercial banks to borrow or deposit overnight, such that there is never an incentive for commercial banks to operate at rates above or below the corridor bounds.

⁹ Alternatively, one could operate by buying short-term bills at close to the policy rate, rather than making short term loans. This is not a significant distinction for this paper.

Under QE, where excess base money is created by the authorities, most central banks elected to switch to a 'floor' system for rates, rather than a corridor. At the ECB, the marginal deposit rate *de facto* became the policy rate, displacing the higher refinancing rate at which the ECB offers to lend reserves. In the new normal, central banks can decide which of these operating systems they prefer. If the demand for reserves remains high because of liquidity requirements, then short rates need to stay close to the policy rate because the regulatory requirements set a minimum level of cover. For tactical reasons most firms would hold an excess of HQLA over that required by their LCRs to avoid the regulatory consequences of falling below it. Commercial banks would then not be constrained to go into the market immediately to borrow when faced with an unanticipated outflow. Nor would commercial banks lend in the market at less than the policy rate, if they can earn the policy rate without limit on their reserve balances.

4.4. Access to the central bank's balance sheet

If central banks allow LCRs to be met principally by reserves, possibly with a default to *ex ante* excess, then their balance sheets will **remain** expanded; in which case complicated rate-setting systems would neither be necessary, nor attractive. To continue to operate with excess base money and a floor system for interest rates, will probably work well to guide market rates close to the policy rate.

A simple floor system does raise other challenges however. If procedures are chosen that require a central bank to be precise about the quantity of reserves, then it has to take account of any autonomous factors which wash over its balance sheet on a daily basis: e.g. deposits by non-banks such as government entities. Under a shortage system, any fluctuations in domestic currency need to be tightly monitored and controlled so that the shortages are precisely known. Access to the central bank's balance sheet – including by government accounts – is then a potential disturbance and, as such, access needs to be curtailed.

Second, a floor system relaxes the technical necessity for the central bank to set a target value for the precise aggregate amount of reserves they wish to see held by banks. Instead the market can be left to decide. The central bank can discover whether it has supplied approximately the right amount of reserves by observing the market rates that emerge. If it wishes, it could even vary its balance sheet to see how sensitive demand really was.

A corollary of this arrangement, possibly unwelcome, is that central banks may find themselves under pressure to take deposits from, or lend to, a wider variety of institutions. Given a context in which non-banks have become more influential in providing intermediary services or have become a systemic risk, this could become an important consideration. No longer would an appeal to 'monetary policy' allow a central bank to deny such proposals, and the pressure for change could become uncomfortable. A new policy approach could be needed to determine exactly what systemic risks the central bank balance sheet could and should be asked to mitigate, or what economic benefits an active use of the balance sheet could bring. Answering such questions would then determine what size the balance sheet should be.

4.5. The composition of balance sheet assets

We have argued that, even if monetary policy remains the principal determinant of the size of the balance sheet, that choice will affect financial stability. A large balance sheet would facilitate the HQLA requirements being met by reserves. A smaller balance sheet might force commercial banks to buy more HQLA in the market. But the size of the balance sheet is not the only factor affecting the outcome for liquid asset holdings and funding ratios. *Asset composition* may be even more important.

To illustrate the point, we take the BoE as an example. As of now, it could continue to hold a large portfolio of gilts to maintain reserves at a high level.¹⁰ Gilts are HQLA. If the BoE sold some of its gilts, reducing the reserves supplied and hence its balance sheet, the total quantity of HQLA in the market would be unchanged. But if commercial banks then end up holding large portfolios of gilts or other long-dated liquid assets instead of reserve balances, that would increase the market risk held on their balance sheets. And that could add to the risk of financial instability. That is unlikely to be desirable for either the ECB or firms. Alternatively, commercial banks could optimise risk vs. return across all the HQLA available which would likely make them want to hold credit assets (loans), or other short-term liquid securities, rather than gilts. So simply swapping gilts for cash is unlikely to have much effect in practice. But other choices certainly could.

One alternative for the ECB is to keep the size of its balance sheet unchanged, but alter the composition of the assets purchased. Suppose that the ECB replaced its gilts with a portfolio of purchased illiquid assets which were non-HQLA, leading to portfolios of loans (**credit easing** rather than just monetary easing). Since they were on the balance sheet of the ECB, this would be equivalent to an injection of HQLA – hence liquidity - into the system: a powerful policy tool.

There are other options. Suppose the ECB sold all its QE assets and carried out direct large-scale lending instead. That would maintain its balance sheet and reserve balances, and hence HQLA, at a similar level. But relying on short-term funding on a large scale from the central bank could represent a significant replacement risk to the individual institutions; they would have to continually rebid for their needs even while market conditions were changing. The funding that commercial banks receive indirectly from central bank asset purchases is in practice likely to change slowly and be more predictable.

However, there are also risks associated with the purchase of large quantities of assets. Buying government bonds can be thought of as a credit risk-free strategy for a central bank; but it does not leave the central bank completely free of risk. First it ties the central bank to uncertain fiscal outcomes which may affect future borrowing conditions. And if a serious possibility of government default does emerge then the central bank puts its independence at risk. Moreover, buying government bonds implies a one-off monetary financing of government expenditure – ruled out for the ECB under the Lisbon Treaty. The obvious solution, to get government indemnities for its asset purchases, may be ruled out under the Lisbon Treaty on similar grounds (although it would actually represent government funding for monetary purchases).

In sum, buying private sector assets outright or making private loans in the new normal is not an attractive proposition – especially for the ECB where political constraints and absence of a fiscal union in the EU make it harder to get agreement or set up the necessary support mechanisms.

4.6. Collateral policy

To the extent that a central bank chooses to use lending or draining operations, the immediate question becomes what collateral it should accept or offer. By changing the eligibility of less liquid collateral, a central bank can influence commercial banks' liquidity metrics. Such a policy of 'Eligibility Easing', a variant of credit easing, has been suggested by Huertas (2018). It reflects what some central banks actually did in the crisis.

If the central bank takes non-HQLA as collateral, as the ECB appears to do at the margin, then it offers a powerful liquidity transformation that would directly impact the LCR measures. Most central banks

¹⁰ Technically the BoE's QE gilts are held off balance sheet in a special purpose vehicle (SPV). On the balance sheet is a loan to the SPV to finance those purchases.

would be wary of doing that for two reasons: First because it increases contingent credit risk and interest rate risk in the markets. The use of appropriate haircuts could equalize the risk to the central bank to a large degree, although the haircuts may become both large and difficult to calculate correctly given the uncertainty of future financial events.

A downside of large haircuts for very illiquid collateral is that the larger the haircut, the more conservative it needs to be to ensure protection and the less support is offered. Against that, collateral which is completely illiquid in the market has virtually no opportunity cost for the commercial bank. So haircuts will not deter commercial banks from trying to use as much illiquid but eligible collateral as they can in order to get more HQLA in return.

A second consequence of a very broad definition of collateral eligibility (in normal times) is that commercial banks would be less independently liquid and less resilient than they appeared. It is also likely to distort markets by reducing illiquidity premia, and hence price differentials between assets that were both eligible and traded, whilst increasing demand for and supply of them. The central bank would then be encouraging growth in markets that only exist on account of their own collateral policy. Some might argue that this would be a positive outcome. But unless done to offset some other externality, it carries risk and increases market distortions.

The distortions can be offset by introducing rules for lending against illiquid collateral, in which three different collateral sets are defined with varying liquidity characteristics against which different quantities and prices can be lent. Index-Linked Term Repo operations are conducted in which any of the three collateral sets can be used, with different bid prices allowed in each case. Greater quantities are offered automatically for less liquid collateral as commercial banks bid up prices to be allowed to use it. This was based on a design by Klemperer (2008). It is technically complex to implement but has functioned reasonably well in the BoE since 2010.

In contrast, the ECB is currently offering to lend “full allotments” against a very broad collateral set, including some non-HQLA (where the risks are born by the National Central Banks). The ECB’s collateral policy was originally determined by the need to treat all euro-area countries equally (Mercier and Papadia 2011). To make that work led to a very broad eligibility regime, much which was relatively illiquid (or was so; a degree of liquidity being endogenized by central bank acceptability). Since then, emergency measures have expanded the eligibility definition even further. Given the risks involved, this may not be the safest way to operate.

Now that more normal conditions have returned, the ECB needs to review whether it wishes to retain such a broad collateral set in the future. The pressure to use less liquid collateral in ECB operations will inevitably increase when the ECB reduces its supply of reserves.

4.7. A Summary

In summary, there are a number of things that the ECB should take into account to improve the performance of monetary policy, and reduce the risks in those policies going forward:

- i) Adopt a clear mandate for safeguarding financial stability. The Banking union does some of that, but is incomplete in respect to requiring macro-prudential oversight and regulation.
- ii) Given the wide range of conventional policy settings consistent with the same objectives for monetary policies, and the range of unconventional policies that could be applied, the twin goals of monetary policy and of financial stability can be achieved without one damaging the other.
- iii) Monetary policies will need to operate with expanded balance sheets, not revert to their pre-crisis status quo ante levels

- iv) To support more careful regulation in a world of greater volatility, the ECB should operate a corridor, or at least an interest rate floor when setting monetary policy. It also has a choice of operating with a default position of an ex-ante shortage or excess liquidity, but **not** a mix of the two. Excess liquidity seems more suitable for the Euro area.
- v) The ECB could usefully review its policy on obtaining government indemnities in the loan programmes it operates (they are not really a target of the Lisbon Treaty).
- vi) It should likewise review its policy on collateral eligibility for such loans.

5. DEBT MANAGEMENT

Commitment may induce some implicit coordination between monetary and fiscal authority, preserving their independence. But how to commit fiscal policies to a consistent set of objectives in such an environment remains a difficult question. It is important because, as Dixit and Lambertini (2003) point out, monetary policy cannot be committed with credibility if fiscal policies cannot be committed at the same time.

Persson et al. (2006) provide a theoretical answer to this problem. Optimal fiscal to monetary consistency can be achieved together if each government arranges to leave the economy with a debt maturity structure that exactly matches the marginal benefits of surprise inflation with its marginal cost. That suggests fiscal restraints based on debt targets would be the answer: the key elements being *the stock of debt* and its structure. That is a quite different proposition from placing strict limits on the *size of deficit*, as Europe's Fiscal Compact does. We need to make sure that fiscal leadership, with debt targets or the equivalent, will provide the dominant regime.

The literature that analyses such regimes starts with Dixit and Lambertini (2003) and Hughes Hallett and Weymark (2007) who allow policymakers to have conflicting objectives, state contingent rules, uncommitted policies, and the possibility of leadership by one player. They provide welfare and performance comparisons based on numerical simulations. Fiscal leadership is usually superior – although that result depends on how expectations are formed; on the degree of fiscal commitment; and the degree of conservatism at the central bank.

The question is, do these results also hold in general? It is important to demonstrate if they do because fiscal leadership provides a practical way of pre-committing fiscal policy, given a committed monetary policy: and because fiscal commitment allows a degree of implicit coordination between fiscal and monetary policies, even under conflicting goals.

5.1. Fiscal leadership

Normally we draw a distinction between managed long-run policies and short-run policies based on automatic stabilizers. This necessarily gives fiscal policy a leadership role in the sense that it sets the long-run perspective, which will be the one in place when the short-run policies (fiscal or monetary) act. That in turn allows fiscal and monetary policies to be better coordinated, without either losing their ability to act independently.

Formally, we arrive at a Stackelberg game whose solution lies between the discretionary, but Pareto superior, cooperative solution, and the fully independent but non-cooperative outcomes (Figure 5.1); these two cases in fact contrast the mandates of the Fed and ECB respectively). In this fiscal leadership/Stackelberg view of the economy, fiscal policy is designed to achieve certain long-term objectives: low debt, adequate public services, social equity, economic efficiency, and sustainable public finances in the long term. The income stabilizing aspects are left passive, to act through the automatic stabilizers. Monetary policy can then be used to take care of any emerging inflation or stabilization problems that remain.

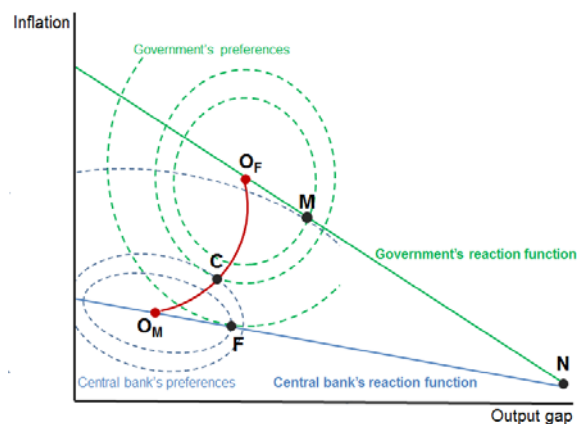
In reality, fiscal and monetary authorities have to balance long- and short-term goals. Although they share some of them, they typically apply different priorities because they have different institutional responsibilities. Moreover, they act independently and at different times (asynchronously).

We now distinguish: i) Discretion/no cooperation; ii) Fiscal leadership; iii) Monetary leadership; iv) Full Coordination. In addition, we assume that stabilisation is costly for both fiscal and monetary policymakers since it implies a deviation from the long-term targets; that markets cannot immediately

adjust to unexpected disturbances because prices are sticky; that the central bank is inflation averse, but the government more deflation averse.

Given these assumptions, possible interactions are illustrated in Figure 1, where policy outcomes are defined in inflation–deflation space (more deflation, an increasingly negative output gap, is a move to the right; but more inflation an upward movement).

Figure 1: Policy outcomes under different institutions in inflation-deflation space



Clearly, the leadership equilibria (**M** and **F**) allow fiscal and monetary policies to be better coordinated – but without either losing the ability to act independently – between the cooperative solution (**C**) and the independent but non-cooperative outcomes (**N**).

The advantages of leadership over the Nash solution are clear from the figure. The rationale is that leadership implies a sort of implicit coordination between the two policy makers. The outcome is that **F** is superior to **M** (justified below). This is the kind of fiscal regime recommended by Taylor (2000). By forcing the focus onto long-run objectives, a measure of pre-commitment is imposed on fiscal policy (and thus a potential for electoral punishment if the policies should fail) because governments naturally wish to see their own goals achieved. But the regime remains non-cooperative. There is no incentive to renege on earlier plans, in the absence of any changes in information, since the expectations of future behaviour are generated on the basis of what each agency would do best in their own interest – not as a result of announcements imposed by either player. In short, expectations are generated internally. Hence, these policies will be sustained by the government of the day.¹¹

Of course, either policy might be chosen to lead. But fiscal policy leading produces better outcomes: first because its goals are long term, second because monetary response are already committed. This is evident from Figure 5.1, and for the following reasons.

First, the two reaction functions in Figure 5.1 form an acute angle as shown. This depends only on the slopes of the aggregate demand and supply functions underlying the diagram. An obtuse angle would imply that increasing deflation would cause one of the players to perversely increase inflation.

Second, because the central bank is the more inflation averse player, its preferences have to lie to the left and lower in the diagram. That means the bank's monetary reaction function is necessarily lower,

¹¹ Stackelberg games, with fiscal policy leading, imply subgame perfection (hence time consistency: Başar 1989) since the leader knows the follower will retaliate according to the follower's preferences if the leader were to deviate. Commitment is therefore assured by the independence of the monetary authority in a repeated game.

and the fiscal leadership Stackelberg point closer to the (Pareto optimal) contract curve than the monetary leadership point. Hence fiscal leadership and long-run objectives, such as debt targets, are the mechanism to provide long-run commitment.

5.2. Debt targets as a commitment device

Why would debt targeting be the best way to implement this approach? The crucial point is that debt, unlike a deficit, is a stock not a flow. That introduces persistence in the target variable, especially in countries with high levels of public debt. Debt targets can therefore be used to anchor fiscal policies to a path that ensures sustainable public finances.

A debt ceiling, with a debt target set lower, and a fiscal adjustment rule around that target value, therefore has several advantages.

First, it introduces flexibility in policymaking: the pro-cyclicality of hard targets that must be achieved on an annual basis is removed, together with the tendency of rigid targets to block structural reforms when the latter have short run fiscal costs that violate the limits on deficit imbalances or solvency.

Second, because a debt target is a stock and persistent, a debt rule gives the policymakers an incentive to obey the rule: *first*, to preserve some freedom of manoeuvre in the future; *second*, to save at the top of the cycle (saving for a rainy day) and remain below the ceiling in future periods; *third* because persistence in the target gives policy makers the space (where the temptation to follow a more relaxed path is clearly present) to create the reputation, credibility and commitment to future policies that we need.

5.3. Fiscal Rules, debt targets and sustainable public finances

Economic research has examined how benevolent policymakers might use fiscal policy to respond to economic shocks that affect government debt levels, directly and indirectly, while restoring the main macroeconomic balances. It highlights the fact that policymakers must trade off the short-run costs and benefits of fiscal austerity or expansion vs. the long-run benefits of lower, more stable debt.

The striking result is that this balance is rather fine. It is optimal to use fiscal policy to stabilize the economy and debt at a certain target level following a shock, but returning debt to its pre-shock level should be undertaken gradually and carefully. However, this result describes policies that depend on a benevolent policymaker who is able to make credible promises for future behaviour. In the real world, fiscal policy is implemented by governments who face the constraints of the political process.¹² This has resulted in “deficit biases” which account for rising government debt levels in many economies.

Recognizing the costs of such biases, many politicians have sought to tie their own hands by adopting fiscal rules which typically requires fiscal consolidations in the short time. However, since such rules violate the need for gradual adjustments, they often get violated as soon as they start to bite. The result is that these rules have little credibility.

The most common rule is a balanced budget rule such as the European Union’s fiscal compact and stability pact, which can be applied to nominal or structural deficits. However fiscal deficits and debt are endogenous; they are driven by the state of the economy as well as by policy decisions. Governments only have imperfect control. This has consequences. Strict deficit rules are often violated,

¹² Leith and Wren-Lewis (2013) show that the costs to society of *not* being able to promise to stabilize debt levels gradually can be large; Demertzis et al. (2004) show that political constraints will typically bias fiscal deficits up and worsen the other performance indicators, biases that become all the more severe when voters react to the state of the economy.

even in the absence of irresponsibility or indiscipline by policymakers, and especially if a full correction is required in each year.

To get around this by monitoring structural deficits instead (deficits averaged across the cycle) has its own problems given the difficulty of measuring potential output accurately (necessary to measure cyclical budget deviations). In fact, given delays, errors and revisions in the underlying data, to do so in real time (necessary if monitoring is to be useful) introduces so many errors that there are likely to be as many false alarms (*false positives*) and missed alarms (*false negatives*) as there are correct signals. Again, rules of this type will have little credibility.

However, there is an alternative that preserves the principle of gradual adjustment. The steady state level of debt from a rule designed to maximize the rate of economic growth (say) gives us an optimal debt target. It depends on the marginal product of public capital.¹³ Sustainability can be secured by applying a primary surplus rule (before interest) in which the average primary surplus or deficit is set *above* the growth-adjusted level of interest payments. The degree to which that primary surplus/deficit exceeds this threshold determines the speed at which we return to the debt target, and hence the debt ceiling that can be tolerated before collapse. Because the target is a stock not a flow, this produces a *structural* balance rule without calculating accurate cyclically adjusted deficit figures. The space between the debt target and the highest permitted value will then allow debt ratios to rise in the bad years, but promote an automatic return in good years.

To be specific, an economy's debt burden will evolve according to the usual dynamics:

$$[5.1] \quad \Delta d = p_d + (r - g)d - \Delta m$$

where d represents the public debt-to-GDP ratio at t (Δd denotes its change per unit of time); p_d is the primary deficit (a deficit when positive); r the average real rate of interest charged over the different maturities making up the debt burden; g the real rate of growth; and Δm the change in the money stock to GDP ratio at t .

If debt reduction is not to result in inflation, the central bank must rule out undue expansions of the money supply: $\Delta m = 0$. If that is done, the debt ratio will stabilize ($\Delta d = 0$) when:

$$[5.2] \quad p_b = (r - g)d$$

where $p_b = -p_d = (T - G)/Y > 0$ is the primary *surplus*, G is government spending net of interest payments, and T the total government revenues.

Thus, if the average rate of interest on the debt burden is greater than the rate of growth ($r > g$), the government must run a primary surplus to stop the debt burden rising and a larger one than that to reduce the debt. Second, these primary surpluses need to be bigger, the larger is $r > g$ or the greater is the initial value of d . But if $r < g$, the government may run a primary deficit as long as it is not larger than the term on the right of [5.2].

Notice that the European Union's Fiscal Compact does not automatically satisfy [5.2] because it imposes a fixed numerical limit on the gross deficit in each period; and because it implies limits on the net budget (p_b).

Hence, the EU's balanced budget rule is neither necessary nor sufficient to stabilize the debt ratio. In good times ($g > 0$) a balanced budget rule will appear to be too tight; debt reductions require only a gross budget above a certain threshold. In bad times ($g < 0$), it will be too loose; debt will rise despite

¹³ For a fully articulated proof and estimates for the OECD, see Checherita et al. (2014).

the discipline and austerity applied. Hence if we have been able to define and identify an optimal level of debt d^* to maximize growth, the best strategy would be to create a set of fiscal policy reactions that permit the primary surplus to be lower than the right of [5.2] if current debt is below its optimal value ($d < d^*$); but force a primary surplus above the right-hand side of equation [5.2] if $d > d^*$.¹⁴

5.4. Temporally separated objectives and asynchronous games

Do the results in this section still survive when policies are no longer enacted simultaneously? Monetary policy usually offers more and more frequent opportunities to intervene because there are shorter design and recognition lags (the decisions do not have to be debated and voted on by national parliaments), and there are notably fewer data revisions – meaning fewer errors to be corrected from real time decision making. Fiscal policy, by contrast, does have to be approved by national parliaments and, with longer policy horizons, data errors in real time decisions have to be corrected. There are therefore clear incentives to smooth spending and tax revenues to support that spending over time. Equation [5.2] only shows the single period correction case; the multi-period solution with spending/tax smoothing is more complicated but produces similar looking results¹⁵.

Suppose we have two players, both on fixed but different decision periods. One can intervene only once every five periods, the other once every three periods. If they both start together, the cycle of interventions will be repeated every 15 periods. If there were no cost to intervening, no discounting of future outcomes, and if the gains to being in the best state at the end of each cycle are large compared to other periods, then the short-term player (the follower) will discipline the player with long-range objectives because the follower can always intervene one last time (without retaliation) before the current intervention cycle ends and is repeated. Knowing this, the leader will not try to deviate even at the start of the game.

It is easy to see that this discipline result will still hold if the costs of conflict in the interval, plus the victory gains from the follower's last intervention, exceed the losses incurred if the follower were to surrender from the start.¹⁶ However, there must be a minimum period for which the follower is able to impose his gains to make this inequality hold. If that minimum is reached, the leader will not deviate even in the first period. Likewise, there is a reverse calculation to show the maximum period for which the leader can dominate the follower.

Fortunately, with an infinitely lived independent central bank, and day-to-day government responsibility for debt management, we are above the minimum for the bank and below fiscal policy's maximum.

¹⁴ This represents the fiscal space proposition put into action: see Checherita et al (2014), Figure 1.

¹⁵ See Cerniglia et al (2018) for a formal presentation.

¹⁶ The formal proof for this case is given in Hughes Hallett et al. (2014).

6. CONCLUSIONS

The Euro project has made a lot of progress over the past 20 years of its existence, and for much of that time against a background of as an unpromising set of economic circumstances as we have seen in a century. This, in itself, implies a certain resilience or robustness. But in the new era where new rules of behaviour apply, there is still some easy design work to be done to ensure that the project moves from being a “fair weather” system to an “all weather” regime – particularly with respect to financial stability.

- a) The single market part of the project has shown solid, if not spectacular, gains. But, for a stronger underlying performance, more attention needs to be paid to designing policies that would boost investment, (TFP) productivity in particular, and real wages.
- b) To ensure a free and stable flow of financing and investment funds, the ECB needs to adopt a mandate for financial stability and the prudential policies that go with it. These policies would act to support conventional monetary policies, not as a substitute for them.
- c) Stabilising public finances is crucial to further progress in the Euro-zone. The way to deal with that is to pay greater attention to debt management. Several suggestions are made for how that can be done, but the shift of emphasis from deficit to debt management in the recent Italian budget negotiations is a useful, if small step forward.

REFERENCES

- Bank of England (2018), 'The Bank of England's future balance sheet and framework for controlling interest rates', Bank of England Discussion Paper, August 2018. Available at <https://www.bankofengland.co.uk/paper/2018/boe-future-balance-sheet-and-framework-for-controlling-interest-rates>.
- Bařar, T. (1989), "Time consistency and robustness of equilibria in non-cooperative dynamic games" in F. van der Ploeg and A. de Zeeuw (eds.) *Dynamic policy games in economics*: 9–54, Amsterdam: North-Holland.
- BBC (2018), quoting the UK Treasury's estimates of the costs of Brexit: available at www.bbc.com/news/UK-politics-46366162 (28 November).
- Cerniglia F., E. Dia and A. Hughes Hallett (2018), "Tax vs. Debt Management under Entitlement Spending: a multi-country study", *Open Economies Review*, forthcoming in 2019.
- Checherita C., A. Hughes Hallett and P. Rother (2014), "Fiscal sustainability using growth-maximising debt targets." *Applied Economics*, 46: 638–647.
- Demertzis, M., A. Hughes Hallett and N. Viegi (2004), "An independent central bank faced with elected governments." *European Journal of Political Economy*, 20: 907–922.
- Dixit, A. and L. Lambertini (2003), "Interactions of commitment and discretion in monetary and fiscal issues." *American Economic Review*, 93: 1522–1542.
- Fisher, P.G. (2011), 'Recent developments in the sterling monetary framework'. Bank of England speech given at the University of Manchester University, March 30, available at: <https://www.bis.org/review/r110401a.pdf>.
- Her Majesty's Treasury (2018), 'Financial Relationship between HM Treasury and Bank of England: memorandum of understanding'. At: <https://www.gov.uk/government/publications/financial-relationship-between-the-treasury-and-the-bank-of-england>.
- Huertas, T (2018), 'Are banks still special?', *The Journal of Financial Perspectives*, EY Global Financial Services Institute, Vol 5, No 1, February. pp 1-15.
- Hughes Hallett, A (2017). In 'Extending Quantitative Easing: Additional Risks for Financial Stability? Compilation of Notes'. pp7-28. Luxembourg: Publications Office of the European Union. Monetary Dialogue, DOI: 10.2861/36569.
- Hughes Hallett, A. and D. N. Weymark (2007). "Fiscal Leadership and Central Bank Design". *Canadian Journal of Economics*, 40 (2), pp. 607-27.
- Hughes Hallett A, and Paul Fisher (2018). ECB nonstandard monetary measures, collateral constraints and potential risks for monetary policy, *European Parliament, Brussels* <http://www.europarl.europa.eu/committees/en/econ/monetary-dialogue.html>.
- Hughes Hallett, A., J. Libich and P. Stehlik (2014), "Monetary and fiscal policy interaction with various degrees of commitment" *Czech Journal of Economics and Finance*, 64: 2–29.
- Klemperer, P (2008) 'Product-mix auctions', *Journal of the European Economic Association*, 2010, 8, pp526-36 at: <https://www.nuff.ox.ac.uk/users/klemperer/productmix.pdf>.
- Leith, C. and S. Wren–Lewis (2013), "Fiscal sustainability in a New Keynesian model" *Journal of Money, Credit and Banking*, 45: 1477–1516.

- Mercier, P and F Papadia (eds) (2011), *'The Concrete Euro'*. Oxford University Press.
- Mersch, Y (2018), *'Financial stability and the European Central Bank'*. Speech at the ESCB Legal Conference, Frankfurt/Main, 6 September 2018; <https://www.bis.org/review/r180906a.htm>.
- OECD (2018), "The Potential Economic Impact of Brexit on the Netherlands", Economics Department, Working paper 1518, OECD, Paris.
- Persson, M., T. Persson and L. E. O. Svensson (2006), "Time consistency of fiscal and monetary policy" *Econometrica*, 74: 193–212.
- Scottish Government (2018), "Scotland's Place in Europe: People, Jobs and Investment", The Scottish Government, Edinburgh, ISBN 978178855467 (15 January).
- Taylor, J. B. (2000), "Remarks for the panel discussion on recent changes in trend and cycle" Federal Reserve Bank of San Francisco Conference on "Structural change and monetary policy."

To review the strengths, weaknesses and robustness of the Euro system after 20 years is an enormous project. This paper picks out three of the less usually discussed themes, at least in this context. It focuses on the policy lessons and where design improvements are needed. It makes three points. i) the achievements in the single market are palpable and substantial, but they derive more from investment and productivity growth than they do from trade as such. This carries its own dangers: if the markets are allowed to use low real wages to substitute cheap labour for more expensive capital, these gains will be lost. ii) The Euro area needs to reassess its use of monetary policy, and the need to introduce an explicit financial stability mandate. We find that financial stability and traditional monetary objectives can be achieved without one limiting the achievement of the other because the ECB has new policy tools derived from the regulatory metrics introduced to handle the expanded balance sheets of the post-crisis macro-prudential framework. iii) Fiscal governance remains a crucial issue. The North remains divided from the South over how much coordination (possibly loans or transfers) to allow. But, despite the Euro system being based on the separation of monetary and fiscal powers, the economic consequences of using those powers cannot be separated in practice. More active debt management policies offer a better and more robust way to deal with this difficulty.

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