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ABSTRACT

The euro crisis was and remains a system problem. The roots of the crisis lie in a series of structural flaws in the architecture of European Monetary Union including in its design, construction and implementation. Notable design flaws include the absence of a centrally run banking union to accompany currency union, the absence of a fiscal mechanism to soften asymmetric shocks, and the absence of a conditional Lender of Last Resort (LOLR) for sovereign borrowers. An LOLR is an institution with the authority and resources to provide funding to otherwise solvent borrowers suffering from liquidity problems. The purpose of an LOLR within a monetary system is to prevent liquidity problems degenerating into solvency crises. Alongside these design flaws was an inadequate system of surveillance and regulatory mechanisms with too narrow a focus on overall price stability at the Eurozone level at the expense of other macroeconomic indicators such as localised credit expansion, financial stability, current account imbalances and economic growth and employment trends. As a result, destabilising credit flows and the build-up of regional imbalances within the currency union were allowed to expand unchecked. In this paper I argue that long-term success and stability for the currency union depends on the implementation of a package of complementary policy reforms to change the union's flawed institutional architecture. Issues considered include the desirability of mandating a conditional LOLR for sovereign borrowers; the need for a banking union with a centralised authority mandated to supervise, regulate, and where appropriate shut down insolvent financial institutions; and the creation of a European deposit insurance corporation. Finally, the potential role for a centralised insurance fund available to member states to smooth out and ameliorate the severity of localised negative economic shocks and recessions is considered.

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Understanding the Euro Crisis: Causes and Fixes

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1. INTRODUCTION

The euro crisis was avoidable and the consequence of systemic policy failures in the way European Monetary Union (EMU) was designed, constructed and implemented. The severity of the crisis was amplified by the misdiagnosis of the euro crisis as a crisis of fiscal discipline, where, Greece apart, it was really a system crisis with its roots in the design flaws of the currency union itself. The collective response to the crisis has, to date, failed to adequately address these design flaws. It appears that policymakers have, in general, failed to learn the lessons of the Great Depression of the 1930s and failed to learn the lessons of previous attempts at establishing and maintaining viable currency unions. What are these lessons and what do they imply for policy?

One lesson for policy relates to one of the most important causes of the euro crisis, namely the lack of an institutionally mandated Lender of Last Resort (LOLR) for sovereign borrowers. When combined with the inability of individual member states to print their own currency this produces the effect that member states can run out of money and become unable to meet their financial obligations. In other words member states are exposed to insolvency risks and a perceived threat of sovereign default will become self-fulfilling if the perceived risk of default, and the associated risk premium, reaches a certain threshold. A stable currency union needs a 'circuit breaker' to counter this phenomenon and extinguish the prospect of sovereign default by any member state that demonstrates a willingness to pursue sustainable fiscal policies. This is an essential component of crisis prevention, resolution and long-term macro stability in the Eurozone. As such, an important and necessary reform is the creation of a *conditional* LOLR for sovereign borrowers. A conditional LOLR would eliminate default risks by preventing self-perpetuating negative feedback loops taking hold in the sovereign debt market. The European Stability Mechanism (ESM) was set up during the crisis to be the Eurozone's bailout mechanism. However, it has an inherently fragile structure and cannot, as currently designed, adequately function as an LOLR for sovereign borrowers.

A variety of mutual debt issuance models have been proposed in response to the sovereign debt crisis. These proposals include various Eurobond models (e.g. Delpla and Weizacker, 2010; Juncker and Tremonti, 2010; Varoufakis and Holland, 2011; Brunnermeier et al., 2011). Eurobond proposals invariably come with substantial moral hazard risks attached and are thus inherently problematic in the absence of full fiscal union. Even so, it is possible to construct a conditional

LOLR model for sovereigns that can reduce moral hazard risks by incentivizing fiscally sustainable policies. How might such a model work?

The ESM is a private financial institution registered in Luxembourg and with the Eurozone member states as its shareholders. Awarding a banking licence to the ESM would give it the right to borrow directly from the European Central Bank (ECB). If the ESM was also allowed to bid for Eurozone sovereign bonds on the primary market using the paid-in capital it receives from Eurozone member states, and with a conditional backstop interest rate determined by transparent rules related to fiscal sustainability and affordability; it could then place these bonds as collateral with the ECB in order to maintain its own capital base. By providing sovereigns with *conditional* liquidity and by maintaining its own liquidity via the ECB, the ESM would de facto function as an LOLR for sovereign borrowers and as the circuit breaker against future sovereign debt crises.

Crucially the conditional backstop interest rate offered by the ESM in advance of each sovereign debt issuance should *not* be the same for each member state. So how should the interest rate be determined? The interest rate would be determined automatically via a transparent formula and thus known in advance of each sovereign debt issuance. By incorporating member states' discretionary fiscal actions into the interest rate formula, for example adherence to the expenditure benchmark and structural balance rules of the preventive arm of the Stability and Growth Pact (SGP), it becomes possible to incentivize sustainable fiscal policy at the member state level and thus to alleviate moral hazard concerns. Such a model has the advantage of keeping fiscal decision making, both in terms of the overall fiscal stance and the precise levels and composition of taxation and public spending, at the democratically elected member state level, while still rewarding countries for pursuing prudent fiscal policies.

A second lesson for policy relates to the absence of a genuine banking union for the Eurozone. The failure to establish a banking union amplified the crisis by generating credit imbalances across the union, by creating the prospect of bank runs and sovereign bailouts of banks and by generating a pernicious 'doom loop' between domestic banks and member state governments that came to threaten the solvency of a number of member states at the height of the crisis. In practice, a banking union would mean common deposit insurance for all financial institutions and would mean that bank supervision, bank regulation, and, where necessary, bank resolution, were all the responsibility of a single central banking authority rather than a host of different national authorities. A genuine banking union would cover all private financial institutions in the Eurozone above a certain size and not just the largest banks. The creation of a banking union would help ensure a level playing field between member states across the Eurozone and would boost pan-Eurozone competition in the banking sector as well as competition within countries. A banking union with deposit insurance would also end the prospect of bank runs and break the solvency

threatening link between domestic banks and member state governments. A centralized and fully resourced banking union should also greatly improve the quality of financial sector surveillance and regulation, diminish the threat of regulatory capture, and protect Eurozone taxpayers from having to fund future bank bailouts.

The ECB is the institution best placed to perform the necessary supervisory functions in the short-run. Yet there are legitimate concerns about the concentration of responsibility and power in a single institution, particularly an unaccountable one. A dedicated European Deposit Insurance Corporation (EDIC) funded initially by the ECB, but increasingly over time by the private credit institutions themselves, could be established in the medium-term to take over responsibility from the ECB. Either way the central banking authority would underwrite the deposits of all Eurozone banks and be assigned complete authority to close down insolvent banks, resolve their winding-up, and transfer deposits to a solvent institution. The central banking authority would provide guaranteed liquidity support for all solvent financial institutions but there should be no further bailouts of insolvent banks by taxpayers. If a financial institution is found to be insolvent by regular mandatory stress tests conducted by the central banking authority, then it should either be wound-up, or where possible, ownership should be transferred to creditors as part of a debt for equity procedure.

A third lesson for policy relates to the absence of any mechanism for dampening the effects of asymmetric shocks across the Eurozone. Full fiscal federalism is not necessary for a viable and thriving monetary union. However, some apparatus that can be employed to dampen the negative effects of asymmetric shocks and economic downturns is a requirement. The best way to operationalize this is through a Centralized Insurance Fund (CIF) for the Eurozone. The CIF could be mandated to automatically provide direct financial support, under strict guidelines, to member state economies operating below their potential output. The CIF would be required to run a surplus over the course of the economic cycle and would act counter cyclically within each member state because the net annual fiscal allocation (positive or negative) would be dependent on the member state's position on the business cycle. The CIF would have to be funded from some hypothecated common Eurozone tax. This could be done through a consumption tax such as a surcharge on VAT, or it could be done through an annual recurrent tax on net wealth. Either way, at a pan-Eurozone level the funding source would need to be reasonably stable across the economic cycle.

A fourth policy lesson relates to a failure of crisis response and policy coordination. There was an overemphasis on short-run discretionary fiscal consolidation, or austerity, at the expense of employment and other domestic priorities (e.g. poverty reduction). The Eurozone-wide push for austerity stemmed from the official diagnosis of the crisis as a crisis of fiscal profligacy. The

consequence of these policies was deepening recession and stagnation in the Eurozone periphery. Yet there was a strong argument for countervailing fiscal expansion in the Eurozone core. A fundamental adjustment problem within the Eurozone is the inability of member states to restore their competitiveness and unwind current account imbalances through currency devaluation. Instead, member states are forced into economically damaging policies of internal devaluation unless the more competitive countries adopt inflationary policies of internal revaluation. Forcing the entire burden of the competitiveness adjustment on the debtor countries made it more difficult to achieve nominal GDP growth in those countries, and made debt sustainability all the more precarious. Mechanisms are needed to ensure better coordination between countries.

An alternative way of preventing or unwinding competitiveness imbalances is to pursue a more nuanced policy of differentiated inflation targeting within the Eurozone. Differentiated inflation targeting makes it possible to reduce competitiveness imbalances in a manner that is consistent with nominal GDP growth in the less competitive economies. Specifically, higher levels of inflation and wage growth in the more competitive economies, enables us to successfully reconcile the twin goals of rebalanced competitiveness and reasonable nominal GDP growth. In practice, differentiated inflation targeting would require the establishment of an expert body at Eurozone level which would be mandated to analyze macroeconomic developments and the build-up of imbalances across the Eurozone and to then propose fiscal and wage policies for individual member states that, if pursued in aggregate, would ensure the Eurozone as a whole operated without deflationary or inflationary bias.

Finally, we must restore the social element to economic policy making in the Eurozone. A reassessment is needed of the relative priorities given to short-run fiscal discipline and price stability, at the expense of employment, equality, poverty reduction and other socioeconomic concerns. In this context the six-pack rules should be expanded and reworked to monitor a wider range of indicators including poverty rates and income distribution, while the rules of the fiscal treaty should be expanded to incorporate growth, development, environment and social justice considerations. In addition, the mandate of the ECB should be changed so that the employment rate, the unemployment rate and the labour force participation rate are given equal status with price changes in determining monetary policy. In addition, the governance of the Eurozone needs to be reformed so that there is greater transparency and democratic accountability in decision making. We can solve the Eurozone's design flaws but it is not enough simply to preserve the euro. It must be worth saving.

The paper proceeds as follows. Section 2 briefly discusses the origins of the euro currency union and considers the major policy dilemmas and trilemmas facing the Eurozone. Section 3 explains the instabilities, fragilities and design flaws underlying the Eurozone while

Section 4 discusses the build-up of imbalances that ultimately caused the euro crisis, describes the official policy responses to the crises and examines the appropriateness and sufficiency of those responses. Section 5 outlines a set of complementary policy proposals intended to transform the currency union from its currently flawed state into a viable and successful monetary union. Section 6 concludes.

2. CURRENCY UNION

European Monetary Union (EMU) was supposed to be a harbinger of growth and stability for its member states. That is not how it has played out. The Eurozone's debt crisis was the continent's worst recession since the Great Depression, rumbling on in a seemingly endless cycle of crises, summits and false dawns. In addition, during its first fifteen years the Eurozone bloc has underperformed in aggregate relative to the United States (US) and relative to the non-Eurozone members of the European Union (EU). This is true whether it is measured in terms of real GDP growth, or in terms of unemployment and employment performance (De Grauwe, 2015). The currency union creaks under the deficiencies of the Eurozone's fundamentally flawed design. Its long-term survival and ability to thrive and prosper depend on policymakers' ability and willingness to fix these design flaws. The stakes are high.

The single currency was introduced initially in electronic form in 1999, and subsequently in physical form in 2002. The project represents arguably the most ambitious experiment in currency union ever undertaken, and was the latest step in the post-war process of European integration. Remarkably, a group of sovereign European states chose to abandon their national currencies and transfer control over monetary policy to a nominally independent institution, the European Central Bank (ECB). This group included some of the largest and most powerful economies in the world. The euro instantly became the second most important currency on the planet, and the Eurozone has since expanded from its original membership of eleven countries to its current membership of nineteen.

According to its proponents, EMU is an indispensable step in the long, slow journey towards integrating the EU economies. The euro was expected to become a global reserve currency which would rival the US dollar and thus deliver all the privileges that many believe result from that status. The single currency was also expected to become a stabilising anchor for its member economies, providing a degree of protection against the instability of large exchange rate fluctuations, and embedding lower and more stable inflation and interest rates. As it transpired the early years of the euro were indeed characterised by lower interest rates and, in aggregate

terms, by relatively stable prices.

Yet the sheer persistence, severity and seemingly systemic nature of the euro's three crises – the real economy crisis, the sovereign debt crisis and the banking or financial sector crisis - has cast doubt on the inherent stability and coherence of EMU. While an underwhelming and often misguided political response to the three crises certainly didn't help, it has become evident that the architecture and internal inconsistencies of EMU, at least as EMU is currently constructed, have actually amplified the crisis. Many of the architectural flaws can be remedied, and ultimately the success or failure of EMU will come down to political will and capacity, alongside an accurate diagnosis of EMU's problems. The euro turned seventeen years old at the start of 2016. Now is the time for reflection and for the Eurozone member states to decide the future of their currency union. Can and will it evolve into a proper monetary union? Must it acquire a limited fiscal dimension? Will it even survive? Where do we want the euro to be in ten years and how can we get it there?

The macroeconomic trilemma

There have been a number of successful monetary unions. Even so, the history books are replete with examples of failed attempts. Experience suggests that having some pre-existing form of centralised political union greatly improves the chances of a currency or monetary union succeeding. Classic examples of resilient monetary unions include the US, the UK and even the former USSR. Yet the normal fate for currency unions has been eventual failure and dissolution. Most such unions are now mere historical footnotes. In Europe, for example, there was a Latin Monetary Union (LMU) based on the French franc, and centred on France, Belgium, Switzerland and Italy. This lasted for most of the late nineteenth century. While the LMU had no single currency, the four main countries all minted their own gold and silver coins that were then considered legal tender in all of the other countries. The union was officially dissolved in 1926, but in practice had failed long before then. The Scandinavian Monetary Union (SMU) between Sweden, Denmark and Norway was a similar venture set up in the 1870s. Both the LMU and the SMU broke apart because there was no central institution to enforce a common monetary policy and because of increasingly divergent fiscal policies. France also attempted to set up a 'universal currency' in 1867. The currency was intended to be centred on the minting of universal gold crowns of equivalent value. As it happened, France was unable to convince the UK or the USA to take part in the scheme and the attempt failed.

Perhaps the most famous example of a *de facto* currency union was the gold standard system. The

gold standard developed internationally from 1870 onwards. It was a system of fixed exchange rates based on convertibility to gold at set prices. The system temporarily broke apart under the pressures of World War I, and came under severe pressure again in the wake of the stock market crash in 1929. The gold standard system finally unravelled in the early 1930s, as virtually all countries abandoned gold convertibility. The turbulent 1930s were characterised by floating currencies and by a long sequence of competitive beggar-thy-neighbour devaluations. These race-to-the-bottom policies were blamed for disrupting trade, increasing instability and prolonging the Great Depression. Yet the gold standard was itself one of the causes of the 1930s crisis. How did it come to cause such economic damage?

Maurice Obstfeld and Alan Taylor (2004) and later Kevin O'Rourke (2012) describe the macroeconomic trilemma that constrains policymakers. As Obstfeld and Taylor put it '….*the chosen macroeconomic policy regime can include at most two elements of the inconsistent trinity of three policy goals*'. The inconsistent trinity of policy goals is:

(1) Full freedom of cross border capital movements

(2) A fixed exchange rate

(3) An independent monetary policy or interest rate oriented towards domestic objectives, for example economic growth and lower levels of unemployment.

Embracing two of these policies means abandoning the third. O'Rourke (2012) explains it as follows:

A. If capital can flow freely internationally it will seek the highest anticipated return, which will be forced into equality internationally

B. The anticipated return to capital depends not only on interest rates, but on anticipated exchange rate movements

C. If exchange rates are fixed then the return depends only on interest rates

D. If exchange rates are fixed then capital mobility will, by equalising returns, also equalise interest rates

E. Thus, if a smaller country wishes to adopt a policy of a fixed exchange rate against a larger economy, and also wishes to allow capital to flow freely, it must cede the power to control its own interest rates

F. If the smaller country reduces its interest rate to achieve some domestic objective, for

example higher growth or increased employment, then capital will flow out of the country seeking the higher returns available elsewhere.

G. The capital flight will deplete the central bank's reserves and the fixed exchange rate will eventually have to be abandoned or capital controls introduced

H. Thus, if the smaller country wishes to retain the fixed exchange rate, for example against gold, the euro or the US dollar, it can either introduce capital controls or, alternatively, it can abandon use of the interest rate as a policy lever and accept the interest rate chosen by the larger country even if it is destructive to domestic objectives.

The classic gold standard system entailed adoption of (1) free movement of capital and (2) a fixed exchange rate, at the expense of (3) an independent monetary policy. In this situation, because the gold standard required countries not devalue their currency, a country faced with a competitiveness crisis or an outflow of capital would have to raise its interest rate to improve the balance of payments and reverse capital outflows. In practice, economically and politically costly policies of rising interest rates and internal devaluation (mainly wage cuts) were used to restore lost competitiveness. This dynamic created a deflationary bias in the global economy along with increasing political instability in the country pursuing the internal devaluation. As it happens, interest rate hikes in the US after 1928 were transmitted globally through the gold standard turning a domestic recession into a global crisis. The economic crisis only started to abate when countries began to abandon the gold standard and the accompanying deflationary policies during the 1930s. The political consequences would take longer to play out.

Post-war developments

In the 1940s there was a movement by the soon-to-be victorious powers of World War II to establish an international monetary system based on the convertibility of certain national currencies into US dollars. The strong motivation was the fear of another 1930s style depression happening again. The outlines of the new system were agreed in July 1944 at Bretton Woods. The US dollar was to be backed by convertibility into gold, effectively meaning all participating currencies were indirectly pegged to gold and therefore to each other. However, a certain amount of flexibility was built into the system. While a key purpose of the system was to provide the stability needed for post-war economic recovery and trade, it was recognised that countries would need the flexibility to devalue their currencies under certain conditions. In addition, because capital controls were in place, it would be possible for governments to more actively pursue domestic policy objectives. Using the framework of the macroeconomic trilemma we can therefore

conceptualise the Bretton Woods system as broadly embracing (2) a fixed exchange rate and (3) an independent monetary policy, at the expense of abandoning (1) full freedom of cross-border capital movements.

After two decades of very strong growth the Bretton Woods system began to fray in the late 1960s, as the US became increasingly unable and unwilling to sustain a dollar exchange rate with gold which US policymakers felt was damaging to its real economy. In addition, capital controls were becoming difficult to maintain in an increasingly globalising economy. Dollar convertibility into gold was eventually terminated by the US in 1971, and the major European economies all broke their links with the US dollar over the course of the following two years. The Bretton Woods era was characterised by sustained economic recovery, by low unemployment, and by strong growth in real economic output. As a result, the Bretton Woods system of pegged currencies became associated with macroeconomic strength in the minds of European policymakers. The post Bretton Woods floating regime that still characterises most of the global economy can, within the framework of the trilemma, be understood to support (1) full freedom of capital movements and (3) independent monetary policy, at the expense of (2) a fixed exchange rate. The prominent exception is for countries within the Eurozone, although, of course, the euro itself floats against the other major global currencies.

The years that followed the collapse of the Bretton Woods system were characterised by the shocks of the two oil crises and by a prolonged period of stagnant economic growth, currency instability and very high inflation. The currency instability of the 1970s motivated a series of attempts to stabilise exchange rates in the then European Economic Community (EEC). Floating currencies and sharp exchange rate movements were seen as particularly problematic in the context of developing a single market for EEC countries. The first attempt to stabilise exchange rates was the 'Snake in the Tunnel' system. The system was intended to peg all of the EEC currencies to one another within narrow bands. However, by the mid-1970s, the Snake had been reduced to a rump zone based around Germany's Deutsche Mark. A renewed attempt at monetary coordination was made in 1979 with the launch of the European Monetary System (EMS). The EMS was based on a system of narrowly fluctuating exchange rates known as the Exchange Rate Mechanism (ERM). This in turn was centred on an artificial currency called the European Currency Unit (ECU). The ECU was calculated based on a basket of European currencies and each national currency had a central rate against the ECU around which the national currency could narrowly fluctuate. The Deutsche Mark quickly became the anchor currency of the EMS.

In its first decade the EMS was characterised by devaluations from many of its member states. The system began to buckle following the shock of German reunification in the early 1990s. The post-reunification German government pursued an expansionary fiscal policy in order to support the rebuilding of the former East Germany. However, this policy combined with an ultra-tight monetary policy, forced other countries to keep their domestic interest rates at extremely high levels to support their currencies and prevent capital outflow to Germany. Increasingly a number of European currencies came under speculative attack and UK sterling's membership of the ERM was spectacularly suspended on 'Black Wednesday', 16 September 1992 as the UK finally abandoned support for its peg. Italy then withdrew from the system on the following day. As with previous failed attempts to fix exchange rates, the EMS was increasingly undermined by the conflicting policy goals of the different countries and by the inability of member countries to harmonise their monetary and fiscal policies with each other.

The ERM was effectively dismantled in 1993 when the fluctuation band for national currencies was extended to 15 per cent. The major European currencies subsequently floated against each other within these bands between 1993 and 1998. The Irish punt was devalued by 10 per cent in 1993 which greatly improved Irish competitiveness. The next few years coincided with the fastest rates of growth in Irish history and with the emergence of the Celtic Tiger. Yet the ability to devalue the currency in order to restore competitiveness was soon to be lost for the countries that chose to enter the Eurozone.

European Monetary Union

Despite these constant setbacks, the process of economic integration continued apace in the 1990s under a group of policies aimed at a European Monetary Union (EMU). The Treaty of Maastricht entered into force on 1 November 1993 establishing the completion of the EMU as a formal objective of the EU. The group of integration policies were intended to establish convergence between the various EU member state economies in areas such as rates of inflation and control of the public finances so as to create the conditions for a viable currency union. The push for currency union was motivated by the belief that unpredictable exchange rate fluctuations were incompatible with a fully open and competitive internal market. At the same time, capital controls were incompatible with EU membership. In other words, within the framework of the macroeconomic trilemma, EMU was understood to require (1) full freedom of capital movements as part of EU membership and (2) a fixed exchange rate seen as important for the functioning of the single market. The consequence of EMU was therefore the need to sacrifice (3) an independent monetary policy responsive to domestic concerns.

Yet one of the main lessons from the experience with ERM, and indeed from previous currency unions, was that systems of fixed exchange rates tend to buckle under the strain of divergences in domestic policies and objectives. A single currency and single monetary policy under the control of an independent central institution was therefore pursued in preference to yet another system of fixed exchange rates. Eleven EU member states were deemed eligible to join the single currency in 1998 and their national currencies were made convertible to the euro at established rates. The euro was officially launched the following year, with monetary policy becoming the responsibility of an independent European Central Bank (ECB).

3. INSTABILITIES AND WEAKNESSES

Most attempts to form a stable currency union have ended in failure. In the last one hundred years alone, we have seen the collapse of the Latin Monetary Union and the Scandinavian Monetary Union in the early twentieth century, the collapse of the Gold Standard in the 1930s, the collapse of the Bretton Woods system and the 'Snake in the Tunnel' in the 1970s, as well as the de facto failure of the EMS in the 1990s. Experience has shown that systems of fixed exchange rates eventually buckle during times of crisis under the strain of divergences between domestic political priorities and the objectives of the union itself. It is uncertain whether the Eurozone experiment will buck the historical trend. Successful and durable monetary unions such as the US and the UK were preceded by, or accompanied, both fiscal and political union. The US and the UK are also characterized by high levels of internal labour mobility, by banking unions with centralized regulation and deposit insurance, by centralized revenue raising powers and by automatic fiscal transfers between regions. Previous attempts to impose fixed currency regimes without these elements in place have invariably failed. The Eurozone lacks each one of these characteristics and the euro crisis has cruelly exposed the limitations and design flaws of the Eurozone.

Instability from asymmetric shocks

The desirability of the euro was hotly contested in academic and policy circles. In particular there was considerable debate about whether the Eurozone economy qualified as an 'Optimum Currency Area' (OCA). Luca Antonio Ricci (2008) provides a useful review of the OCA literature with Robert Mundell (1961) defining an OCA as a region for which the benefits of adopting a single currency or a fixed exchange rate system outweigh the costs of relinquishing the exchange rate as an instrument of internal adjustment within the region itself. To qualify as an OCA, a currency union should ideally have labour and capital mobility across the region as well as a risk-sharing system involving automatic fiscal transfers. It is also desirable that member states have somewhat similar business cycles.

Prior to the creation of EMU Barry Eichengreen (1990) argued that it would prove to be incapable of working well in the long-term unless there was a sufficiently large fiscal apparatus in place. Specifically, EMU needs some centralized fiscal mechanism capable of automatically softening or dampening the effects of what are known as 'asymmetric shocks'. Asymmetric shocks occur when one or more economies within a currency union are disproportionately impacted by an economic shock. A country or region-specific banking crisis is perhaps the classic example of an adverse asymmetric shock. As just one example, consider a negative asymmetric shock for Ireland. A sharp appreciation of the euro against UK sterling will reduce Irish exports disproportionately more than the appreciation will reduce the exports of other Eurozone countries. The reason is that the UK is a proportionately far more important trading partner for Ireland than it is for the Eurozone as a whole. As we have seen countries within a fixed exchange rate regime like the Eurozone cannot respond in kind to this type of negative shock to the economy and are forced to restore competitiveness through a damaging process of internal devaluation which will further reduce demand. Currency unions may therefore be politically unstable unless there are apparatus in place to ameliorate the negative real economy effects of asymmetric shocks.

The ECB's monetary policy stance is determined by looking at the anticipated aggregate Eurozone-level effects of policy and not country specific effects, and there is no fiscal apparatus in place to offset or compensate countries for asymmetric shocks. Yet if there are no mechanisms in place to counter-cyclically ameliorate the effects of these shocks members of a currency or monetary union can become plagued by destabilising and prolonged collapses in demand and persistently high unemployment. Consider what happens when an asymmetric shock such as a hurricane, a localised banking crisis or a region-specific recession hits a monetary union like the US or the UK. The effects of such localised shocks are automatically dampened by transfer payments from the central government because a monetary union such as the US is constructed on a federal political system with federal taxes. In the aftermath of the asymmetric shock, the depressed regional economy pays less in taxes and receives more in transfer payments from the central government. These 'automatic stabilisers' help the affected economies to recover.

This is not how it works in the Eurozone because there are no Eurozone taxes and therefore no reserve fund to access if a member state is hit by an adverse shock. Unlike the US and the UK, the Eurozone has no centralized mechanism to transfer funds between regions as automatic stabilizers to help support recovery in the aftermath of a shock or period of decline. Instead, the reduced levels of tax receipts and increased levels of spending on social protection puts pressure on the member state's public finances and makes difficult the activist use of fiscal policy.

Furthermore, Eurozone member states have also lost the power to adjust to negative asymmetric shocks through currency devaluation or monetary policy because control over these policy instruments has been transferred to the ECB. Unless the member state has built up sufficiently large reserve funds and structural surpluses, it will only be able to adjust to a negative asymmetric shock through austerity and internal devaluations with all the damaging social and economic consequences that these policies entail. Thus, Eurozone member states, when confronted by adverse economic circumstances, can find themselves in a precarious position and with very few policy levers available. This relative powerlessness increases the severity of the crisis and therefore adds to the instability of the overall system. In the absence of external assistance, and with limited control over macroeconomic policy, depressed regions can take years to recover.

The Eurozone's policy making architecture can itself spawn asymmetric shocks as the main policy instruments are not designed to accommodate the nineteen member states' divergent places in the economic cycle. The ECB Governing Council sets the interest rate to suit the Eurozone as a whole, yet the overall needs of the Eurozone as a whole are not necessarily consistent with the needs of individual member states and are extremely unlikely to be appropriate for all member states. For example the different economies are likely to be experiencing a range of very different inflation and growth rates. In this way the single interest rate can itself spawn asymmetric shocks by overheating economies in the good times and by amplifying recessions in the bad times. The property booms in Spain and Ireland were straightforward asset price bubbles, caused, in part, by an interest rate set by the ECB to suit what it believed were the needs of the Eurozone as a whole – but an interest rate that was far too low for the needs of already booming economies. The result was a negative real interest rate in a number of countries which spurred excessive levels of private lending and borrowing and triggered debt-fuelled booms.

The role of domestic policy in fuelling these booms should, of course, not be diminished. For example, in the Irish case, extremely poor or non-existent macro-prudential regulation and oversight, pro-cyclical fiscal policies, and a range of property-related tax breaks all contributed to the boom and bust. Even so, the one-size-fits-all interest rate generated a misallocation of resources that amplified the boom and bust cycle within particular member states. Despite the drawbacks of the single interest rate, it is obviously unfeasible to have separate interest rates for each economy in the Eurozone. This suggests the Eurozone needs additional policy levers to adequately address the asymmetric shock problem.

Instability from negative feedback loops

Individual Eurozone member states lack the ability to finance their debts by issuing currency, and

lack control over a central bank they can lean on as a Lender of Last Resort (LOLR) to flush the domestic banking sector with liquidity and thus ease pressure on sovereign bond prices. The absence of an for sovereign borrowers in the Eurozone represents a second source of instability because it exposes Eurozone member states to the risk of a negative feedback loop of spiralling interest rates and eventual insolvency. Paul De Grauwe and Yuemei Ji (2012) show that markets have a tendency to systematically misprice sovereign risk in a herd-like fashion. This tendency exposes Eurozone member states to multiple equilibria risks in the sovereign debt market. Changing market expectations about sovereign solvency, perhaps triggered by a deteriorating fiscal outlook, can, in turn, trigger a self-fulfilling 'bad equilibrium' of increasingly unsustainable debt prepayments. A liquidity crisis can quickly develop into a solvency crisis. As De Grauwe (2012) puts it: '... *in a monetary union, countries become vulnerable to self-fulfilling movements of distrust that set in motion a devilish interaction between liquidity and solvency crises*'. As the crisis erupted, the weaker member states discovered the risk status of their government bonds was reduced to that of emerging economies with a foreign currency because, unlike countries with control over their own currency, Eurozone member states can run out of money and become unable to pay their creditors.

Following an adverse economic shock a country may come under recurrent speculative pressure from the market as markets recalibrate their collective risk assessment. Such speculative pressure can become self-reinforcing and self-fulfilling if the member state's debt servicing obligations increase too much. The mere possibility of enforced default exposes member states to a bad equilibrium risk. This works as follows:

- If yields (interest rates) rise by too much it can call into question the borrower's solvency. In this instance the lenders' marginal benefits from higher bond yields may become outweighed by the perceived costs associated with an increased likelihood of non-payment by the borrower.

- When this happens demand for the sovereign's debt will actually start to fall as the yield goes up. As the negative feedback loop of rising yields and falling demand takes over the cost of borrowing will start to spiral to unsustainable levels.

- Once this negative feedback loop is understood to have taken hold, the willingness of markets to provide lending at sustainable rates will evaporate and the sovereign debt dynamics will become increasingly untenable. Without a circuit breaker in place the country will be propelled inexorably towards a bad equilibrium of higher and higher interest rates, insolvency and ultimately sovereign default.

- At some point, the country's cost of borrowing become so unmanageable that it finds itself unable to access the international markets at a sustainable price. At this stage, the country becomes dependent on international bailout mechanisms to avoid a default on its obligations. Greece, Ireland, Portugal and Cyprus were all eventually forced to request access to official loan facilities during the crisis while Italy, Belgium and Spain all come under pressure to succumb.

The fundamental issue is that without access to a guaranteed LOLR for sovereigns capable of 'short circuiting' a negative feedback loop of spiralling interest rates, any member state forced to borrow is susceptible to insolvency risks and restricted in its capacity to stabilise employment levels and growth through countercyclical fiscal policy. This dynamic is likely to be particularly pronounced for a country with a substantial current account deficit or that is suffering through the effects of a negative asymmetric shock or recession. Given the potential for real economy damage and potential instability that can arise in a system characterised by multiple equilibria risks, it is imperative that there is some central institution willing and able to act as a circuit breaker to prevent sovereign borrowers from becoming ensnared in a bad equilibrium.

Instabilities from regional imbalances

Setting monetary policy in the Eurozone is a particularly tricky job given the sheer number of heterogeneous economies operating at different points in the business cycle and the absence of offsetting fiscal policy at the Eurozone level. A single interest rate cannot possibly suit all economies. While arguably appropriate for a stuttering German economy, the interest rates set by the ECB governing council were too low for a Eurozone periphery that was, at the time, performing much stronger than Germany. The 'one-size-fits-all' description of the interest rate is perhaps better phrased as 'one-size-fits-none'.

In general terms, the half-decade or so leading up to 2008 can be characterized as a period of massive credit inflows to the Eurozone's Mediterranean periphery (Italy, Spain, Greece, Portugal, Cyprus) as well as to Ireland, from other member states most notably Germany. The credit inflows were fueled by negative real interest rates that were inappropriately low for the Eurozone's periphery given the prevailing levels of economic growth in these countries. With low returns in the Eurozone's core economies, credit sought greater returns elsewhere. The sheer volume of cheap credit from the rest of the Eurozone, in combination with a lack of centralized supervision to identify and reverse credit imbalances within the Eurozone, fueled an explosion of debt-fueled private sector spending in the Eurozone periphery and excessive leveraging by a number of banks in those countries. Spain and Ireland experienced asset price booms centered on property, while Portugal and Greece experienced consumption booms that far outstripped productivity gains in

those countries.

Triggered initially by the US subprime mortgage market crisis of 2007-2008 the inward credit flows to the periphery began to seize up and then reverse. The effect was a freezing of lending and liquidity, a crash in asset prices, insolvent banks, and deep balance sheet recessions. National level bank bailouts were undertaken in a number of countries in an attempt to prevent bank runs and contagion. In some cases the bank bailouts undermined national solvency, most spectacularly in Ireland. Crucially, there was no central regulatory and supervisory body in place in the lead up to the 2008 crash and thus no central body with the authority and capacity to respond to financial imbalances in the Eurozone. An important lesson is that the long-term success of any single currency operating across international borders is contingent on breaking the link between sovereigns and their banks through centralized regulation, enforcement and resolution powers across all participating member states.

In order to prevent regional financial imbalances from running out of control in the future surveillance and regulation of the financial system will need to occur at the Eurozone level. This suggests the need for a full banking union incorporating all Eurozone member states and their financial institutions. The banking union should include transnational deposit insurance mechanisms to safeguard against bank runs, as well as defined and transparent protocols for resolving bank failures. To protect European taxpayers there must be a willingness to allow insolvent banks to fail.

The growth and employment consequences of adjusting to a competitiveness imbalance without access to currency devaluation as a means of adjustment are a further source of instability for the Eurozone. Member states cannot eliminate competitiveness problems and current account imbalances through the traditional method of currency devaluation because they do not control exchange rate policy. As a consequence, when faced with a large current account deficit, as well as by an unwillingness on the part of other member states to engage in more inflationary domestic policies, member states are left powerless to eliminate the competitiveness imbalance other than through a deflationary process of internal devaluation – i.e. the process of reducing relative costs, particularly unit labour costs, in a bid to increase competitiveness relative to your trading partners. While the deflationary process should slowly improve competitiveness and boost exports it is also likely to reduce aggregate demand, employment and growth, at least in the short-term. Adjustment is often a slow process and the short-term damage done to the real economy increases the likelihood of political instability. The lower levels of nominal GDP growth may also interact toxically with debt sustainability particularly when there is no LOLR in place for sovereign debt.

4. CRISIS BUILD-UP AND RESPONSE

The most important proximate causes of the euro crisis were the sudden unwinding of extremely large current account imbalances that had built up within the Eurozone combined with the inability of the Eurozone architecture and policymakers to respond quickly and decisively to the evolving crisis. Richard Baldwin and Francesco Giavazzi (2015) highlight the sheer scale of private and public debt borrowed from abroad, in particular the volume of capital inflows from Eurozone core economies like Germany, Netherlands and Finland to the Eurozone periphery including Spain, Portugal, Greece and Ireland. Portugal's average current account deficit for the first eighth years of the 21st century exceeded 9 per cent of its GDP. The Greek current account deficit averaged in excess of 8 per cent of GDP while Spain's current account deficit averaged 6 per cent of GDP (Table 1). These levels were not sustainable. On the other hand, Germany and particularly the Netherlands and Finland were averaging large current account surpluses during this period.

Table 1 Fiscal and Current Account Imbalances, 2000-2007

	Fiscal Balance 8-year Average		Current Account Balance 8-year Average
Greece	**-6.4%**	**Portugal**	**-9.4%**
Portugal	**-4.4%**	**Greece**	**-8.4%**
Italy	-3.0%	**Spain**	**-6.0%**
France	-2.7%	**Ireland**	**-1.8%**
Germany	-2.4%	Italy	-1.3%
Austria	-2.1%	France	0.4%
Netherlands	-0.6%	Austria	1.6%
Belgium	-0.5%	Belgium	3.0%
Spain	**0.4%**	Germany	3.2%
Ireland	**1.5%**	Netherlands	5.4%
Luxembourg	2.4%	Finland	5.6%
Finland	4.1%	Luxembourg	10.1%

Note: Main crisis countries are highlighted in bold.
Sources: Eurostat (2015a) Government deficit/surplus, ESA 2010; Eurostat (2015b) Current account balance.

While current account deficits are not unsustainable per se, Baldwin and Giavazzi (2015) point out that a major share of the capital inflows was not going to support investments in areas that would enhance the productive capacity of the recipient economies and that would therefore have generated income to enable the debts to be repaid. Instead, a major share of the capital inflows was going towards non-traded sectors of the economy such as housing (Ireland and Spain) and personal consumption (Portugal and Greece). The scale of credit flowing in to the periphery had the additional effect of driving up domestic costs. Ireland, Greece, Spain and Portugal all experienced excess inflation compared to that of the Eurozone average. The driving up of domestic costs worsened the balance of payment gaps within the Eurozone. By the time of the 2008 financial crash and the sudden-stop in international lending, Greece (15.1 per cent of its GDP), Portugal (12.1 per cent) and Spain (9.3 per cent) were all running enormous current account deficits, while Ireland had a very large high current account deficit of 5.8 per cent of its

GDP. Ireland was further exposed because of the scale of domestic bank assets which was almost eight times that of Ireland's GDP in 2008. Much of this lending went to the housing sector and contributed to artificially inflating a house price bubble. As events unfolded it was the countries with the largest current account deficits and excess inflation that ended up being hit worst during the euro crisis and that ended up coming closest to or requiring bailouts.

On the other hand, diagnosis of the euro crisis as a crisis driven by fiscal profligacy does not stand up to the evidence. While Portugal and Greece had large deficits in their public finances in the lead up to the crash Spain and Ireland had cumulative budget surpluses between 1999 and 2007. Indeed Ireland and Spain were two of just four Eurozone countries to run cumulative fiscal surpluses over the period 2000 to 2007 while Germany, France, Austria and even the Netherlands were all running cumulative fiscal deficits. It is also untenable to attribute the crisis to high starting levels of public debt. Ireland and Spain, at close to 40 per cent of GDP, had two of the lowest debt-to-GDP ratios in the Eurozone at the beginning of the crisis while other member states had debt to GDP ratios in excess of 100 per cent of GDP and the Eurozone as a whole had a debt-to-GDP ratio of 69 per cent in 2008. On balance therefore the crisis appears to be best characterized as one of excess private debt rather than one of excess public debt. The euro crisis was, at its core, a balance of payments crisis rather than a fiscal crisis. Nevertheless, it was the revelation of unsustainable levels of Greek government deficits and debt that ultimately propelled the crisis into its most acute stage.

When the financial crisis of 2007-2009 gave rise to a credit freeze in the global economy economies and institutions that had built up large amounts of debt were left exposed. Investors became increasingly reluctant to lend to Eurozone sovereigns in 2009-2010 as uncertainty increased about the potential for defaults. Markets had finally realized that Eurozone member states had no LOLR to lean on and might actually default. This was to manifest in rising bond yields alongside a rapid deterioration in government fiscal balances as growth slowed and then turned sharply negative in 2009. The inability to devalue in order to restore competitiveness made the recessions in the periphery all the more painful as fiscal consolidation (austerity) and internal devaluation combined to slow demand and reduce nominal GDP. Deteriorating budget deficits, increasing debt burdens and rising risk premiums fed off each other in a toxic loop. Greece, Ireland and Portugal all lost market access in 2010-2011 while Spain, Italy and Belgium came close to losing access.

A double digit fiscal deficit was revealed by the Greek government in 2009 and quickly identified as unsustainable over the course of 2009-2010 with the debt-to-GDP ratio rising to 146 per cent in 2010. A bailout was signed with the so called troika of the European Commission (EC), the ECB and the International Monetary Fund (IMF) in 2010 conditional on adoption of a programmeme

of fiscal consolidation and structural reforms. At the same time, the credit freeze generated a funding crisis in Irish banks as house prices, asset values and construction activity collapsed. As the Eurozone had no banking union in place member states were left to individually deal with the problems of their own banking sectors. The Irish government's attempts to save its banks would eventually cause the Irish sovereign to lose market access in late 2010 as the sheer size of the Irish bank bailout relative to the size of its economy was becoming apparent and the evolving Greek crisis was making clear that sovereign write-downs were a real possibility in the Eurozone. The contagion continued to spread and rising bond yields forced Portugal into a bailout in May 2011. The Greek economy contracted by about 5 per cent in both 2009 and 2010 and then by 9 per cent in 2011. A second bailout was signed in early 2012 involving the largest sovereign debt default in history.

An evolving response

In direct response to the deteriorating crisis the Eurozone member states collectively established a special purpose vehicle called the European Financial Stability Facility (EFSF) in May 2010. The express purpose of the EFSF was to preserve the Eurozone's financial stability by providing emergency lending to Eurozone member states shut out of the sovereign bond markets. The EFSF was subsequently replaced by a permanent institution called the European Stability Mechanism (ESM), which became operational in September 2012. The ESM has an authorized capital of €700 billion which includes €80 billion of paid-in capital contributions from the Eurozone member states. Access to funding from either the EFSF or the ESM was made conditional on the negotiation of an agreed programme of structural reform in the recipient country combined with an agreed programme of discretionary fiscal consolidation, commonly called austerity, which was aimed at reducing the member state's primary government deficit. The recipient country was required to negotiate an agreed Memorandum of Understanding (MOU) with the troika. Continued lending was then provided on a quarterly basis conditional on adherence to the terms of the agreed MOU.

The response to the banking crisis was mainly conducted at the level of the member state. This involved recapitalization of the weakest banks in a bid to forestall bank insolvencies, prevent contagion throughout the financial system, and restore lending to the real economy. The recapitalizations were done through national level funding support which, in the case of Ireland, was to undermine the solvency of the government. In addition to the national level bailouts, the ECB acted as the LOLR for private credit institutions and provided cheap liquidity to the financial sector through a number of mechanisms including its Long Term Refinancing Operations (LTROs) which provided a mechanism to enable banks to borrow money at cheap rates. The first LTRO was conducted in December 2011 while LTRO2 was conducted in February 2012. A combined total of just over €1 trillion was made available between the two LTROs. The ECB hoped the banks would use this money to purchase high yield sovereign debt and that this would ease pressure on

Spanish and Italian bond yields. Finally, the capital requirement ratios for financial institutions were raised while bank stress tests were increasingly conducted, although the adequacy and outcome of these tests were not considered sufficient by many market operators. One downside to the higher capital requirements was that they reduced the level of credit available to the real economy and consequently exerted downward pressure on growth.

In addition, the ECB had purchased over €200 billion of sovereign debt under its Securities Market Programme by the middle of 2012 in a bid to ease pressure on sovereign bond yields (Shambaugh, 2012). In July 2012 the ECB announced that it would resume intervening in the Eurozone bond markets under certain conditions. These interventions were termed Outright Monetary Transactions (OMT). The ECB would buy sovereign bonds of one-to-three-year maturity, provided the issuing country had agreed to a fiscal adjustment programme with either the EFSF or the ESM. The OMT instrument was not actually used in its first year but, combined with the June 2012 endorsement of a banking union by Eurozone governments, was nevertheless credited with the fall in government bond spreads in the second half of 2012 because it was seen as a representing a willingness by the ECB to do 'whatever it takes' to preserve the Euro and was seen as an implicit LOLR for sovereign borrowers. The decision to enact OMT operations was controversial and was challenged in the German Federal Constitutional Court. The European Court of Justice declared the conditional OMT programme to be legal in June 2015.

Unfortunately fewer practical measures were taken to address the problems of low or declining growth and high unemployment in the periphery, at least in terms of concrete policy measures. The Eurozone, in aggregate, pursued a highly pro-cyclical fiscal contraction during the crisis and this reduced output and employment in the Eurozone, particularly in the short-term. Research by the IMF (2012) finds that fiscal consolidations are more painful when such adjustments occur simultaneously across many countries. This is in part because not all countries can increase their net exports at the same time. Budget cuts are also found to be more damaging when monetary policy is not in a position to offset them and where there are lending constraints in the financial sector and over indebtedness in the real economy. If interest rates are at or just above zero per cent, then the effect of the fiscal consolidation is found to be more costly in terms of lost output. Finally, debt sustainability is made more difficult over time by the drag on output caused by the underemployment of labour and capital. Weak output growth can undermine national solvency while sluggish growth also weakens the banking sector and its ability to lend to the real economy.

The general thrust of the official response to the buildup of current account and competitiveness imbalances in the Eurozone was to encourage a process of internal devaluation and structural reform in the less competitive member states. Crucially, the attempt to restore competitiveness through internal devaluation was not balanced by complementary measures to stimulate internal

demand and generate internal revaluation in the core countries e.g. by means of policies to inculcate wage and nominal income increases and higher levels of investment. As a consequence the entire burden of the competitiveness adjustment was placed on the shoulders of the weaker economies of the Eurozone periphery. The evidence generally suggests that austerity policies and internal devaluation reduce employment and economic growth (IMF, 2012). The most severe unemployment crises were in Greece and in Spain. By 2012 both countries had unemployment rates in excess of 20 per cent and youth unemployment rates in excess of 50 per cent.

Despite the evidence to the contrary the prevailing narrative of the crisis was to treat it as a problem of fiscal indiscipline in the periphery. This was a major cause of the Eurozone's shift towards pro-cyclical fiscal consolidation. The view may have prevailed because the sovereign debt crisis originally erupted in Greece where fiscal indiscipline certainly was endemic and where official statistics were being distorted. The Greek case undoubtedly had some effect on the subsequent understanding of the crisis, particularly in the core countries. The narrative of fiscal indiscipline motivated the introduction of a package of new measures commonly called 'The Six Pack' and also drove the German inspired intergovernmental Treaty on Stability, Coordination and Governance (TSCG). The Six Pack and the TSCG are both intended to strengthen economic governance within the EU by increasing the fiscal oversight, and broader macroeconomic surveillance, of member states.

The Six Pack was designed to toughen the rules of the Stability and Growth Pact by increasing surveillance, and making it easier to initiate a procedure against a country. The Six Pack also introduced new surveillance and control over a number of other macroeconomic indicators such as asset prices. The point of these measures is to identify the build-up of macroeconomic imbalances well in advance so that preventive steps can be taken. The TSCG or 'fiscal compact' requires national budgets to be in balance or in surplus over the medium term. Specifically, Eurozone member states are now required to keep their structural deficit at or better than 0.5 per cent of GDP over the medium term. The Treaty also provides for greater economic policy coordination and convergence between Eurozone member states.

Many of the policy responses were essential as stopgap measures to prevent the crisis spiraling out of control. For example, the provision of international bailout funds to Greece, Ireland and Portugal prevented a series of disorderly sovereign defaults. Other innovations such as the Six Pack and the TSCG might in theory, through better surveillance and early warning systems, reduce the frequency of future crises. While the ECB has received widespread criticism, not least for its bizarre decision to increase interest rates in 2011, it did, through its various liquidity supports, play a crucial role in preventing the European financial system from completely seizing up. Nevertheless some aspects of the policy response are problematic or incomplete and when taken

as a package the policy response must be considered wholly insufficient.

One highly problematic policy response was the insistence that bank bailouts should be conducted at the national level and that all senior bank bondholders should be paid in full. This deepened the crisis in Ireland and came close to threatening Spain's solvency. The lack of a banking union meant that bailouts at the national level were inevitable. However, the domestic banking system was simply too large relative to the size of the state, at least in Ireland's case, and ended up sucking the sovereign into the so-called doom loop of the co-dependent banking sector and sovereign drowning each other. In addition, debt write-down, particularly in Greece should have occurred earlier and been much more extensive. Finally, the real economy crisis was exacerbated by the simultaneous pursuit of deep austerity and internal devaluation by a majority of Eurozone member states. These policies should have been balanced by countervailing fiscal expansion and revaluation in the stronger economies. In the end the combination of policies chosen made economic recovery and debt sustainability in the periphery all the harder to achieve.

5. PROPOSED REFORMS

The structure of the currency union must be reformed if the currency union is to evolve into a stable and thriving monetary union. In that context a number of policy reforms are suggested in this section.

A guaranteed but conditional lender of last resort

As already discussed Eurozone member states do not have access to a guaranteed Lender of Last Resort (LOLR) capable of short circuiting negative feedback loops of increasing sovereign bond yields and deteriorating debt sustainability. Removing the possibility of unintentional sovereign default has the added advantage of short-circuiting the doom loop between sovereigns and their banks and allows the banking sector to confidently lend again to sovereign borrowers. The banks own positions will be strengthened as the quality and value of their sovereign assets will have increased in line with the reduced risk attached to sovereign bonds. With a strengthened asset book and greater confidence that they can take risks the overall effect should be to increase lending to the real economy. In addition, lower costs for sovereign borrowing will free up extra resources at the national level because debt interest repayments will be less of a fiscal burden over time. This in turn will help promote economic growth and further improve debt sustainability. With a guaranteed but conditional LOLR in place the Eurozone can be strengthened.

The natural institution to act as LOLR for sovereign borrowers is the ECB. However, the ECB is expressly forbidden under European Union law from performing this function. Treaty change would be required to alter the ECB's mandate. Treaty change is a time consuming and uncertain

process. There is also genuine moral hazard issues associated with establishing an unconditional LOLR for sovereign borrowers. According to the moral hazard argument, member states will delay or avoid budgetary reform and discipline unless they are subject to the market pressure of rising market interest rates. Yet as we have seen, although fiscal indiscipline was indeed a cause of the Greek crisis, Spain and Ireland were both running budget surpluses prior to the crisis and had stronger average fiscal balances than Germany over the period 2000 to 2007. Regardless of the credibility one ascribes to the moral hazard argument, it is nonetheless a standard justification used in the creditor countries as a rationale against mandating and resourcing an LOLR. Thus for political reasons the moral hazard concern needs to be acknowledged and assuaged.

The European Stability Mechanism (ESM) has a paid in working capital of €80 billion and further callable shares of €620 billion. Although an important crisis stopgap the ESM does not, in its current form, function as a LOLR. It is not intended or capable of preventing sovereign borrowing costs from spiraling out of control. Instead, the ESM is better understood as a crisis mechanism, and as a Eurozone equivalent of the International Monetary Fund (IMF). In addition, the ESM as currently designed, has its own instabilities. While a single Eurozone country entering an ESM bailout programmeme may credibly be supported by the other eighteen member states, a pair of bailed out countries would have to be supported by the remaining seventeen, while five bailed out countries would effectively be supported by just fourteen member states, and so on. Thus the ESM has an inherently fragile structure. If a country as large as Italy needed to be bailed out, the ESM would be overwhelmed as a bailout fund. The possibility of sovereign default is therefore not removed.

The popularity of Eurobonds as an idea has repeatedly waxed and waned since the onset of the crisis and various proposals in favour of Eurobonds have been advanced. Proposals include the blue bond proposal of Jacques Delpla and Jakob von Weizäcker (2010); the E-bond proposal of Jean-Claude Juncker and Giulio Tremonti (2010), the ECB bond proposal of Yanis Varoufakis and Stuart Holland (2011) and the various European Safe Bonds (ESBies) proposals of Markus Brunnermeier et al (2011) and Giancarlo Corsetti et al (2015). Unconditional Eurobonds have obvious moral hazard concerns and might even increase borrowing costs on the non-Eurobond portion of countriues debt. In addition, it is unclear whether the Eurobond proposals will actually eliminate the multiple equilibria risks that characterize the Eurozone. For example, the blue bond and E-bond proposals would only cover government debt worth up to 60 per cent of GDP and it is unclear why debts beyond that level would not remain susceptible to multiple equilibria risks. Meanwhile the ESBies proposal is a securitization model based on senior and junior tranches of debt and Erber (2012) argues that such a securitization model would have credibility problems in the financial markets. Sovereign insolvency still remains a risk unless access to Eurobonds is unlimited as a percentage of national GDP, yet unlimited unconditional Eurobonds would provoke

substantial moral hazard issues.

An alternative to Eurobonds is to provide the ESM with a banking licence. Daniel Gros and Thomas Mayer (2011) have pointed out that, although the ECB is forbidden from lending directly to member states, it already acts as an LOLR for private credit institutions. The ESM is a private company registered in Luxembourg. If the ESM was to be granted a banking licence and therefore status as a private credit institution there would be nothing in the treaties to prevent the ECB from lending to the ESM. Once registered as a private credit institution the fund would be able to engage in purchases of government bonds on the primary market using its paid-in capital. The ESM could then place these bonds as collateral with the ECB in order to maintain its own capital base. Under this model, by providing conditional liquidity for sovereigns, the ESM would de facto function as an LOLR for sovereign borrowers.

Without appropriate safeguards in place, the ESM banking licence model would clearly be susceptible to the same moral hazard risks as Eurobonds. The best way to deal with the moral hazard issue is to use an automatic mechanism to incentivise sovereigns to act with fiscal prudence. One way to accommodate the moral hazard concerns is to apply a system of differentiated interest rates for different member states. The precise backstop interest rate offered at auction by the ESM would be known in advance and calculated automatically based on the member state's particular context, including the performance of its economy and the sustainability of its debt, as well as on the member state's budgetary actions. For example, a sovereign borrower determined to be closely adhering to its medium term budgetary objective, as negotiated with the European Commission under the revised stability and growth pact, and under the TSCG rules, would qualify at auction for a lower backstop interest rate from the ESM than a member state choosing to ignore these rules. Unlike Eurobonds, the system would reward member states for adopting a fiscally prudent stance regardless of the member state's current debt to GDP ratio. To safeguard against political interference, the system of differentiated interest rates, and the relevant criteria for determining those interest rates, should be agreed upon every second year by the board of the ESM in consultation with other relevant bodies such as the ECB. The agreed formula should be transparent and automatic.

The system could work as follows: In advance of the member state proceeding with its scheduled sovereign bond auction the ESM would publicly announce the backstop interest rate at which it will offer to purchase the bonds being sold. The interest rate would be calculated automatically using the defined criteria and formula agreed by the ESM Board of Governors. The ESM's announcement would effectively create a ceiling for the yield demanded on those bonds in the primary market. The auction would take place as normal, and the portion of the debt issuance not taken up by private investors at lower yields than that demanded by the ESM, would then be taken

up by the ESM itself. The multiple equilibria problem would be eliminated under this framework for any member state showing a willingness to pursue a sustainable fiscal path. The riskiness of sovereign bonds would decline, which in turn would increase the value of sovereign bonds assets, and exert further downward pressure on the cost of borrowing. The overall effect should be to reduce the sovereign's annual debt interest repayments and free up additional resources for growth enhancing measures. Such an outcome would also aid the domestic banking systems by providing a safe haven for lenders.

Establishing a conditional LOLR of the type described would not diminish the reality Greece requires further debt relief to achieve debt sustainability. However, it would at least prevent countries falling into bad equilibriums in the future, and it would therefore enhance Eurozone stability.

A genuine banking union

The response to the banking crisis was highly problematic. For example, the failure to establish transnational bank resolution mechanisms imposed enormous costs on taxpayers through the socialisation of private debt. In addition, funding bank bailouts at the national level, as opposed to the Eurozone level, transformed the banking crisis into a series of full blown sovereign debt crises. The policy of full bank bailouts combined with the absence of a pan-Eurozone resolution regime eliminates market discipline for borrowers and lenders thereby creating extreme moral hazard risks within the Eurozone banking system. Finally, the lack of a pan European deposit insurance scheme generated a series of slow bank runs across the Eurozone periphery because depositors in those countries feared that weakened sovereigns would be unable to cover all of their debt obligations. The mishandling of the Cypriot crisis showed the validity of this concern.

Ongoing differences in borrowing costs and access to credit in different member states make a mockery of the claim of monetary union. Yet these differences will persist until depositors are sufficiently confident their money is equally safe in every Eurozone bank. This will only happen if Eurozone deposits are underwritten by a Eurozone level backstop. The solution to this problem in the US was to create a federal deposit insurance system. The Federal Deposit Insurance Corporation (FDIC) was set up under the Roosevelt administration in the US in 1933 by the Glass-Steagall Act to prevent bank runs and it has proven highly successful. The FDIC provides a good model for the Eurozone to follow. The US was bedevilled by bank runs for well over a century prior to 1933. No depositor has lost insured funds since FDIC insurance was put in place. The FDIC also manages receiverships in failed banks.

A centralised deposit insurance scheme may well be a necessary component of any viable monetary union. It is certainly a necessary component of a monetary union characterised by

massive transnational banks. The key questions are:

A. How such a mechanism should be implemented and,
B. Which institution should have responsibility for managing the scheme

In the short term, responsibility for underwriting Eurozone deposits should be assigned to the ECB, as only the ECB has unlimited resources to draw upon. The mere existence of such a backstop may, in itself, be sufficient to negate the need for its resources ever to be called upon. In the medium-term the responsibility for deposit insurance should be assigned to a dedicated institution - a European Deposit Insurance Corporation (EDIC). Over the medium-term the EDIC should become fully funded by the Eurozone's private credit institutions so that in future the direct consequences of bank failures do not fall on taxpayers.

Centralised supervision and regulation at the European level under a single agency with the authority to close down insolvent banks is the quid pro quo for any pan-Eurozone underwriting of bank deposits and is desirable on its own terms. Legislation and operationalization for a pan-Eurozone special resolution regime for insolvent banks with clearly defined and transparent protocols should have accompanied the introduction of the euro. The Single Supervisory Mechanism (SSM) was endorsed in June 2012 and building on this a complicated Single Resolution Mechanism (SRM) was agreed in March 2014. The SSM creates a new system of financial supervision. The ECB now has a direct supervisory role over 130 or so large and systemic banks in the Eurozone representing 85 per cent of total banking assets in the Eurozone. The SRM covers all banks in the EU and is funded by a European bank levy

Progress towards a full and genuine banking union with centralized supervisory and resolution powers assigned to an independent banking authority should be expedited. While continued liquidity support for solvent banks is critical, such support should not be extended to insolvent credit institutions. Banks should be closed down and allowed to fail where they are shown to be insolvent by mandatory regular stress tests conducted by the supervisor. In such a circumstance the deposits can be moved overnight to other banks.

A policy of differentiated inflation targets

Recovery in the less competitive Eurozone periphery was hampered by the inability of those countries to restore their competitiveness through currency devaluation. Competitiveness within the Eurozone can only be restored through a sustained period of lower wage growth and overall inflation in the less competitive regions. However, low inflation reduces the nominal rate of GDP growth and makes debt burdens harder to bear. There is a tension between public and private debt sustainability and improved competitiveness in the periphery. But restoring competitiveness to the periphery does not necessarily require low inflation and wage growth in the periphery. Because competitiveness is a relative concept, improved competitiveness in the periphery simply

requires lower rates of inflation than those prevailing in the more competitive regions. This suggests that the ECB and other European policymakers should broaden the scope of inflation targeting beyond the headline rate for the Eurozone, and expand the focus to incorporate a system of Differentiated Inflation Targeting (DIT), with each regional economy being assigned its own inflation target.

Table 2 provides a hypothetical illustration of what DIT would imply for policy. Consider a Eurozone 'periphery' that is approximately one third of the overall Eurozone economy and that has significantly lost competitiveness. Table 2 shows indicative inflation targets of the type required to restore competitiveness to this periphery without compromising nominal GDP growth. Clearly higher overall inflation targets for the Eurozone make it easier to reconcile improved competitiveness with debt sustainability through higher nominal GDP growth. Given the high levels of debt in the Eurozone, there is a case for temporarily increasing the ECB's target inflation rate of 2 per cent to 3 or even 4 per cent for a defined period. The obvious difficulty is convincing the more competitive economies to temporarily accept higher levels of inflation. Higher inflation would lead to a devaluation of the euro which would help offset some of the competitiveness losses in the more competitive 'core' economies but in practice DIT would require much greater coordination of wage and income increases as well as fiscal policy. In this context a pan-Eurozone council of economic experts with a mandate to consider employment, price and competitiveness developments could be established as an advisory body on monetary, fiscal and wage policies to balance these goals in aggregate across the Eurozone as well as within countries.

Table 2 Differentiated Inflation Targeting (DIT)

	Target for less competitive economies (weight = 1)	Target for more competitive economies (weight = 2)	Overall target
Inflation (%)	0	3	2
Inflation (%)	1	4	3
Inflation (%)	2	5	4

A limited counter-cyclical fiscal capacity

The Eurozone comprises a number of heterogeneous economies and is almost certainly not an Optimal Currency Area (OCA). Each member state has its own economic structure, its own institutions, and its own set of fiscal policies. Individual member states gave up control of important macroeconomic policy levers such as monetary and exchange rate policy when the Euro was adopted. These key policy levers were not adequately replaced and their absence left individual member states particularly vulnerable to asymmetric shocks and to divergences in competitiveness. But this does not imply that full fiscal federalism is a necessary requirement of a successful monetary union. A commitment to fiscal union is unnecessary. On the other hand some form of Centralised Insurance Fund (CIF) would greatly help to stabilize the currency union by smoothing out the impacts of localised recessions and severe asymmetric shocks. Such a fund

would need to be combined with greater intergovernmental coordination of policies assisted by advice and recommendations from the council of economic experts to prevent competitiveness and fiscal imbalances from growing too large.

An inter-regional insurance scheme to provide fiscal transfers in a counter cyclical manner could be funded by a small and pan-Eurozone tax hypothecated for and paid directly to the Centralised Insurance Fund (CIF). Plausible options for a pan-Eurozone tax include a surcharge on VAT, a net wealth tax or a financial transactions Tax. The fund would be mandated to run a surplus over the economic cycle and could be called upon under strict guidelines to provide direct fiscal support on a temporary basis to countries enduring a recession or a severe asymmetric shock. The financial support provided by the CIF could be ring fenced for public capital investment and other areas of public spending that are closely linked with increases in the economy's long-run potential output (e.g. research and development or education). The fund would effectively operate as an automatic stabilizer and would help reduce the severity of recessions

A clamp-down on tax evasion to fund investment

The Eurozone needs to better coordinate its resources to lift overall demand and long-run productive capacity. There is a need to increase the overall level of public investment across the Eurozone as well as a need for fundamental reform of tax policy. The two issues could be linked. Investment can be funded through a combination of measures to aggressively tackle tax avoidance and tax evasion, and through maximizing the revenue potential from more growth friendly taxes such as recurrent taxes on immovable property, taxes on intergenerational wealth transfer, and taxes on passive income. There is also a strong case for substantially increasing the resources of the European Investment Bank (EIB) as well as making changes to the EIB's lending criteria. Finally, there is a need for more targeted usage of currently unused EU resources to support infrastructure investments in areas such as telecommunications and green energy.

6. CONCLUDING THOUGHTS

The currency union can fail but with the correct institutional architecture in place the Eurozone could also be transformed into a viable structure over the long-term. We must learn the lessons of economic history and economic theory.

The Eurozone crisis was avoidable, largely self-inflicted, and a consequence of failures in the design of EMU. Currency unions and monetary unions need to be supplemented by banking unions including trans-national deposit insurance, as well as by centralized oversight to identify the build-up of imbalances, and by a guaranteed LOLR for sovereigns with safeguards installed against moral hazard. Monetary union without some form of fiscal union is illogical. A centralized fiscal apparatus to help offset regional recessions and asymmetric shocks is a critical element of any

successful monetary union.

The consequence of the design flaws, amplified by the subsequent mismanagement of the crisis, was a chronic sovereign debt crisis, a crisis in the banking sector, and a lingering crisis of growth, unemployment and lack of competitiveness in the Eurozone's periphery. Jay Shambaugh compellingly argued in 2012 that these crises "*...together challenge the viability of the currency union*".

The crises were inextricably interlinked and mutually reinforcing just as the design flaws are interlinked and mutually reinforcing. There is no silver bullet to reforming the Eurozone. Policies focusing on a single aspect of the crisis without considering other aspects of the crisis and elements of the system may have unintended negative consequences. A systemic and multifaceted policy response is therefore required and a successful union is contingent on a package of complementary reforms to the currency union's flawed institutional architecture. Informing that policy response is the goal of this paper and it is argued that adoption of the set of complementary policy reforms to the Eurozone along the lines described in this paper offers the prospect of turning the Eurozone into a viable and potentially successful monetary union.

Finally, we must consider the type of monetary union we want to be part of. We must restore social Europe. Seven years on from the start of the crisis economic growth remains weak and unemployment remains high. Monetary union must not become a straightjacket that preferences narrow inflation and deficit targets at the expense of employment and poverty reduction targets, as well as other public policy goals such as investment in renewables. If it becomes such a straightjacket it will not be worth saving.

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