ECN320 SRP for session 10. Background on the Euro Crisis

PRE-CRISIS SHORTCOMINGS AND INSTITUTIONAL WEAKNESSES

Europe's creation of a single currency was both a futuristic concept and a venture weighted with history. Volker Wieland, an economist at Goethe University in Frankfurt, said that the euro was the first venture on such a scale in Europe since Charlemagne created a single currency in his empire in 794. In more recent history central banks have capped political unions—such as when the Reichsbank was founded in 1876 in the aftermath of Bismarck's unification of Germany through "blood and iron" [1].

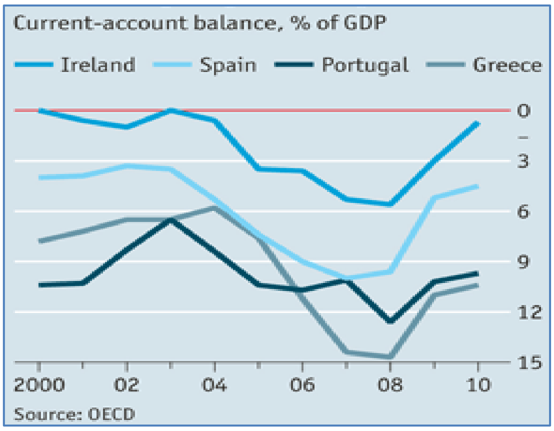
The European Central Bank (ECB), by contrast, is a supranational institution, although it emerged from an old-fashioned Franco-German deal. The French wanted to fetter German power—in particular the dominance of the German central bank in European monetary policy—after its second unification, in 1990, following the fall of the Berlin Wall. The Germans believed the ECB could be their Bundesbank writ large. Along with these political objectives, the single currency was expected to produce economic gains by eliminating the nuisance and cost of having to change money within Europe, removing exchange-rate uncertainty within the euro area and enhancing price stability. The mantra of its proponents was "one market, one money". The single currency would reinforce the single market, emerging from reforms in the late 1980s and the early 1990s to open national economies to Europe-wide competition [1].

A stand-alone monetary union without the usual fiscal and political foundations was conceived at the momentous Maastricht summit in December 1991. The treaty set "convergence" criteria, such as low enough inflation and long-term interest rates, to check whether countries were economically fit enough to join the single currency. This included fiscal criteria, notably ceilings for budget deficits of 3% of GDP and for public debt of 60%. The treaty stipulated that there would be no bail-out of a country that got into fiscal trouble [1].

The rules were less strictly applied. Belgium and Italy were allowed to join the euro at the outset, even though their debt exceeded not 60% but 100% of GDP—because that debt was falling. As for the fiscal tests, what was to stop countries from misbehaving once they had joined? The answer, tacked on in the late 1990s to the Maastricht criteria, was a "stability and growth pact" to reinforce responsible public finances within the euro area. This too was watered down in 2005, largely at the insistence of France and Germany, after they themselves faced possible sanctions for breaching the budget-deficit limit. Economic convergence at one point in time also proved misleading. What determines whether a country can survive, let alone thrive, in a monetary union is flexibility in both labour and product markets, since it cannot realign its costs through devaluation [1].

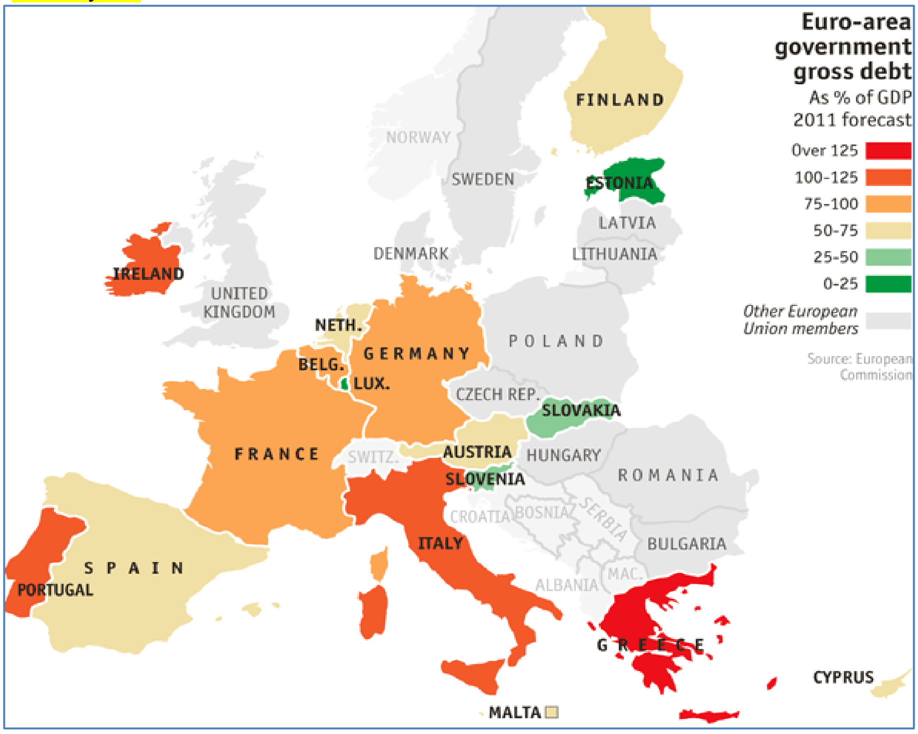
None of this seemed to matter during the first few years of the monetary union. While Germany went through a weak patch, the peripheral economies (Portugal the exception) flourished, thanks to the low interest rates that euro membership brought them. The elimination of exchange-rate risk unleashed cross-border lending, which built up large exposures among the banks in the lending countries while debt piled up in the borrowing countries [1].

The lending was on lax terms. Credit markets paid no heed to the risks that were building up from sustained big current-account deficits, which would have caused alarm in emerging economies (see chart, current-account balance). They smiled on Ireland's property boom, overlooked Portugal's slack growth and forgave Greece its poor public finances. Spain also benefited from dirt-cheap money even though it shared many of the same weaknesses, notably a housing-market bubble and a huge current-account deficit [1].



In German eyes, initially at least, the euro crisis was all about profligacy. Greece set the tone when it lied about its macroeconomic circumstances and lived beyond its means (see chart, euro-area government debt) [2]. So, in hindsight it was no surprise that the debt crisis started in Greece, which failed to join the euro area when it was set up in 1999 because it did not meet the economic or fiscal criteria for membership. Revisions to its budgetary figures showed that it shouldn't have been allowed in when it did join, in 2001. When its debt crisis flared up in 2010 European leaders hoped to contain it at the Greek border, providing a bail-out worth €110 billion ($158 billion) over three years, of which €80 billion came from other euro-area members and €30 billion from the IMF [1].

Europe's attempt to grapple with the sovereign-debt crisis would become more nailbiting by the day. Any hope of containment was shattered when Ireland's banking difficulties forced a second euro-zone rescue in November 2010. After that a third bail-out became inevitable, for Portugal, as the cost of its government borrowing shot up and Portuguese banks were shut



off from normal funding, having to rely on the ECB. What caused consternation was a new shock—from Greece, again—that the first package was insufficient and that the country needed more money for longer [1].

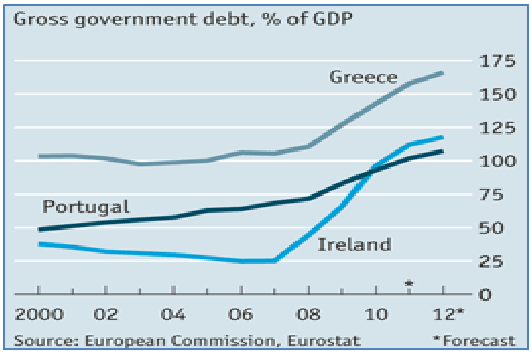
There was no disputing Greek excesses, nor the fact that the Eurozone's troubled members, which also included Portugal, Ireland, Spain and Italy, had a heavy price to pay for the bail-outs. However, those other troubled countries were not exactly profligate. Before the crisis the governments of both Ireland and Spain ran budget surpluses. Both meticulously kept within the limits for deficits and debts set down by the stability and growth pact—unlike Germany, which flouted the rules for four years from 2003 (and avoided punishment). Nor did Italy lurch into extravagance [2].

Nevertheless, for weeks European leaders feuded over what to do about Greece, which clearly needed more help with its precarious public finances. A second rescue package was offered in July 2011, adding even more funding to the original bail-out in May 2010 (amounting to €85 bn stretched out to 2014), but which would not be forthcoming unless the Greek parliament endorsed the extra doses of painful austerity in its budget, together with a big programme to privatise state assets worth €50 billion (20% of GDP). This was in doubt politically in Greece, sending tremors through financial markets and causing stockmarkets to fall around the world. The debt crisis proved intractable, partly because leading policymakers disagreed about the way forward and at times seemed lost themselves [1].

Apart from Greece, however, debt in these countries became a burden not because of government profligacy but because each enjoyed a decade of low interest rates and were then hit by the financial crisis. That is, the problem was not of profligacy, but of financial excesses, private debt, bubbles culminating with a banking crisis that turned into sovereign debt defaults. Easy credit-fuelled debt in households and the financial sector. The ECB oversaw a binge of cross-border lending. In the crisis, unemployment and hardship deepened, increasing the bill for welfare. Some countries, such as Ireland and Spain, needed to find money to prop up their banks. These new expenses fell on the state just when tax receipts collapsed—catastrophically in countries that had seen a property boom [2].

The flood of easy money disguised the hard truth that the competitiveness of the peripheral economies, gauged by measures like unit labour costs, had steadily worsened after joining the euro. As one senior negotiator in the bail-out talks lamented, Greece was part of the single-currency area even though it had effectively managed to stay out of the single market. With the lowest export-to-GDP ratio in the euro area, membership became a way to import cheap goods, rather than a means to foster higher productivity. Ireland, with exports roughly equal to GDP, was quite different, but Portugal also had a lowish exports-to-GDP ratio for a small economy within a market. With the lowest exports-to-GDP ratio in the euro area, membership became a way to import cheap goods rather than a single-currency zone and, like Greece, had insulated much of its economy from the single market [1].

Once the credit machine went into reverse as the financial crisis broke in the summer of 2007, the underlying weaknesses of the peripheral economies were exposed. The debt that had piled up in the good years became oppressive once lenders scented trouble. Spreads on government bonds over safe German Bunds, which had earlier narrowed to wafer-thin margins, ballooned. Ireland had what looked like impeccable public finances, with government debt as low as 25% of GDP in 2007, but these were flattered by swollen property-market taxes and then swamped by the costs of propping up banks that had gone on a bender, the bill for which was reckoned at 42% of national output. As a result, the debt burden reached 112% in 2011, according to a European Commission forecast. Portugal's, too, would vault above 100% of GDP, while Greece's would rise to almost 160% (see chart, debt as % GDP) [1].



Regulators of financial institutions made mistakes long before the Lehman bankruptcy, most notably by tolerating global current-account imbalances and the housing bubbles that they helped to inflate. Central bankers had long expressed concerns about the big US deficit and the offsetting capital inflows from Asia's excess savings. Ben Bernanke highlighted the savings glut in early 2005, a year before he took over as chairman of the Fed from Alan Greenspan. But the focus on net capital flows from Asia left a blind spot for the much bigger gross capital flows from European banks. They bought lots of dodgy US securities, financing their purchases in large part by borrowing from US money-market funds [3].

In other words, although Europeans claimed to be innocent victims of Anglo-Saxon excess, their banks were actually in the thick of things. The creation of the euro prompted an extraordinary expansion of the financial sector both within the euro area and in nearby banking hubs such as London and Switzerland. Research by Hyun Song Shin, an economist at Princeton University, focused on the European role in fomenting the crisis. The glut that caused the US's loose credit conditions before the crisis, he argues, was in global banking rather than in world savings [3].

Moreover, even where troubled euro-zone countries had not been profligate, they ran unsustainable current-account deficits. Low interest rates fuelled domestic spending and spurred inflation in wages and goods, which in turn made their exports more expensive and left imports relatively cheaper. Europe's own internal imbalances proved just as significant as those between the US and China. Southern European economies racked up huge current-account deficits in the first decade of the euro while countries in northern Europe ran offsetting surpluses. Germany, whose economy is remarkable in many ways, was as unbalanced as the euro-zone's peripheral economies. Its surpluses from its export machine were recycled, financing southern European consumption and overheated the housing markets of countries like Spain and Ireland. The euro crisis, in this respect, was a continuation of the financial crisis by other means, as markets agonised over the weaknesses of European banks loaded with bad debts following property busts [2] [3].

Central banks could have done more to address all this. The Fed made no attempt to stem the housing bubble. The European Central Bank did nothing to restrain the credit surge on the periphery, believing (wrongly) that current-account imbalances did not matter in a monetary union. The Bank of England, having lost control over banking supervision when it was made independent in 1997, took a mistakenly narrow view of its responsibility to maintain financial stability [3].

Political options to resolve Greek debt crisis

The "Vienna initiative" was a plan, drawn up in 2009, that halted the rot of financial contagion that had been spreading through central and eastern Europe. Foreign banks pledged not to cut their exposures to the region and run. In 2011, it was discussed as a possible model for resolving Greece's sovereign-debt crisis.

The need to come up with a new plan for Greece had mounted. In May 2011, Fitch, a ratings agency, cut the country's debt rating by three notches. Yields on Greek ten-year bonds reached 16.8%, more than twice what they had been a year before. With the markets shying away, the country was unable to borrow afresh, as had originally been hoped when the country was first bailed out in May 2010.

The Greek government played what few cards it still had. It announced plans to speed up the sale of state-owned assets, including its telephone company, post office and ports. Under pressure from its neighbours and the fund it hoped to raise €50 billion ($70.8 billion) from privatisations. Asset sales are an attractive way of cleaning up the public balance-sheet without doing anything that further chokes demand. There were, however, doubts that Greece could realise its ambitions, partly because the absence of a land registry meant that the government might not have clear legal title to all of the things it wanted to sell, partly because it was not clear what price they could fetch, and partly because privatisation aroused political opposition at home. In any case, sell-offs could not happen quickly enough to bridge the financing gap in 2012.

That left Europe facing a range of unpalatable options (see table, options to solve Greece's debt crisis). No European policymaker seemed willing to countenance a serious haircut on Greek debt yet, for fear that it undermined confidence elsewhere. And no European politician wanted to be seen giving more taxpayers' money to the Greeks without getting something back.

Another option was a "reprofiling", whereby creditors agreed to a voluntary extension of the maturity of their bonds. That would not have sorted out Greece's finances—it might have reduced the net present value of Greek debt by up to 20-25%—but it was a way to keep the country away from the markets for a while. But the ratings agencies said that such a "soft restructuring", or even the buyback and cancellation of outstanding bonds (which Moody's called a "restructuring by stealth"), would count as a default and lead to further cuts in Greece's rating. That made it unacceptable to the European Central Bank (ECB), whose opposition to any form of debt restructuring bordered on the pathological.

Hence, the interest in a second Vienna initiative, whereby Greece's existing creditors would band together and agree to roll over their exposures to Greek debt when they came due. The idea was that it would give Greece more time to fix its finances, might keep the ratings agencies at bay, and perhaps even satisfy the ECB. But it would do nothing to reduce Greece's debt burden and would be hugely difficult to co-ordinate.

"Europe's debt crisis: World's worst menu", *Economist*, 26 May 2011.

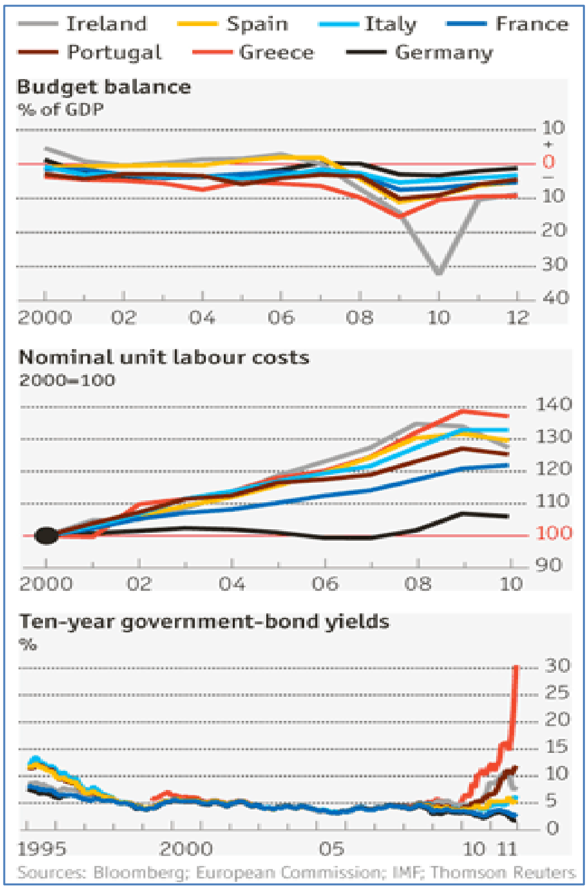
Options to solve Greece's debt crisis

Options	What it means	Pros	Cons
Fiscal transfers	Euro-area members give Greece money	Brings down Greece's debt burden. The ECB will not oppose it.	Impossible to sell openly to voters. May encourage profligacy.
Bail-out loans	Euro-zone members and IMF lend Greece more money	Buys Greece more time. The ECB will not oppose it.	Does not address solvency issue. New loan conditions may throttle growth. Official creditors gradually replace private creditors. Hard to sell to voters.
"Vienna initiative"	Banks "volunteer" to roll over holdings of Greek debts	Buys Greece time; does not leave taxpayers to pick up the bill; less likely to trigger ratings downgrade	Does not address solvency issue. Difficult to co-ordinate.
"Soft" restructuring or reprofiling	Creditors "volunteer" to extend maturities of existing debt	Buys Greece time; does not leave taxpayers to pick up the bill; may not be a credit event for CDSs	Does not fix solvency issue. Probably still means a ratings downgrade. The ECB doesn't like it.
"Hard" restructuring	Serious haircut on the the value of Greek debt	Brings down Greece's debt burden. Imposes immediate losses on private creditors.	Hurts Greek banks and risks wider contagion. Reduces reform pressure on Greeks. The ECB absolutely hates it.

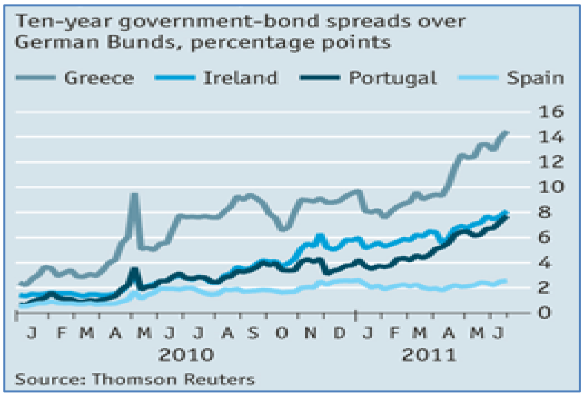
Source: *The Economist*

Interest rates surged. Before the crisis, investors assumed no euro-zone government would default on its debt. Then, as Peter Boone and Simon Johnson of the Peterson Institute in Washington, DC, explained, Germany signalled that defaults could happen and that investors should have to bear a share of the losses—a reasonable demand, but a hard one to introduce in the middle of a crisis. Blazing rows erupted between Jean-Claude Trichet, then the French president of the ECB, and Wolfgang Schäuble, Germany's redoubtable finance minister, over German demands to inflict some of the pain on private holders of Greek bonds and the central bank's resistance to anything that could be construed as a default [1] [2].

Some investors asked to be rewarded for the extra risk and others, unwilling to start paying for credit research, just walked away, setting off a spiral of falling bond prices, weakening banks and slowing growth. The charts (budget balance and 10-year bonds) show that from a point of relative convergence in 2000, budget deficits only seriously deviated from the ceiling after 2007 (except in Greece where it happened earlier). Interest rates, measured as 10-year government bond rates, diverged in 2010, implying the ECB was losing control over its monetary policy (one interest rate over the whole euro-zone) [2].



How much was to have come from taxpayers? The answer hinged on how far private creditors who lent to the Greek government could be made to "participate", a euphemism for picking up some of the bill. The Germans pressed hard for debt maturities to be extended; the ECB was adamantly opposed to such a policy, although it would accept a promise by bondholders to buy new bonds when the existing ones matured. Worries about a possible restructuring led Standard & Poor's to downgrade Greek government debt from B to CCC, making it the credit-rating agency's lowest-rated sovereign debt in the world (see chart, 10-year bond spreads) [1] [2].



To end the crisis, euro-zone members agreed to write down half of the Greek debt owned by the private sector, recapitalise Europe's banks and boost the fund created as a firewall to protect solvent euro-zone governments. It was an ambitious plan, but Greece would need even more help and the firewall did not look strong enough to withstand a bout of contagion [2]. The risk of contagion to other countries through banking losses, which prompted the original rescue, remained acute, not least since the markets would immediately fret about Ireland and Portugal falling in turn. Worries rekindled, too, about Spain, which had, to that point, managed to avoid a bail-out [1].

Inherently, there were two conflicting economic tensions in the rescue packages. The first was that the austerity programmes needed to cut deficits were killing the growth needed to make debt bearable. The other inherent tension was that steps needed to improve competitiveness within the euro area required prices and wages to be held down, making it even harder to cope with debt. Then, there were also conflicting political forces within both the borrowing and lending countries [1].

These disagreements meant that one solution to the debt crisis was a non-starter. Sharing budgetary resources, either through direct transfers or through the issue of "E-bonds" underwritten by the euro area's taxpayers, was anathema in Germany, where the notion of a "transfer union" in which the better-off subsidise the worse-off was political poison, not least because of the vast transfers from western to eastern Germany since reunification [1].

An alternative course would be to try to make a "no bail-out" model work. Jordi Galí, an economist at Pompeu Fabra University in Barcelona, would ban collective rescues and stop trying to patrol euro-area states through debt and deficit limits. Instead he would leave the job of policing their public finances to investors. This would require recapitalisation of European banks so that they could withstand sovereign defaults, but that was not the only snag. Investors knew that when a banking crisis looms, European governments would flinch and extend taxpayer support [1].

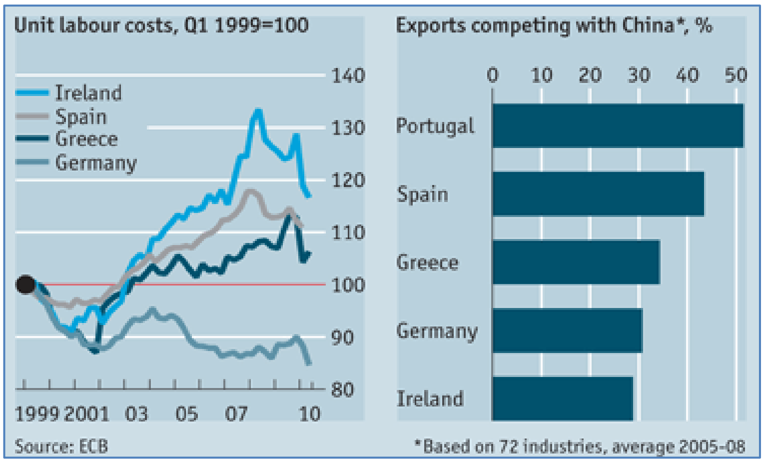
Both these courses of action at least offered clear paths forward. By contrast, the long-term reforms set out by European leaders early in 2011fell short of the comprehensive solution they purported to provide. Under a "pact for the euro" there would need to be economic and fiscal workouts that would allow countries to cope better with the rigours of monetary union—including, for example, greater wage flexibility. They would have to put into law their determination to get a grip on public finances. The temporary support measures would have to be turned into a permanent "stability mechanism" with an effective lending capacity of €500 billion that would be available to countries only if their debt were deemed sustainable. Private bondholders were served notice that they would be at risk from mid-2013 when the new regime came into force [1].

In effect the reforms formalised the bail-out strategy, but tried also to ensure it would not have to be used again and would leave open the possibility of restructuring. One objection was that the pressure remained on deficit countries within the euro area to put their houses in order, whereas none was brought to bear on surplus countries such as Germany. But, the biggest worry was that the reforms would be overtaken by events [1].

Repaying debt and maintaining competitiveness under a single currency

In the decade and a half before the financial crisis hit the euro-zone, Greece, Ireland, Portugal and Spain lost a lot of competitiveness. Low interest rates led to a surge in domestic demand. That, coupled with rigid labour markets in some places, led to sharp rises in nominal wages. At the same time productivity growth was not vigorous enough to compensate. By contrast, for a decade after its reunification boom turned sour in the mid-1990s, Germany took bitter medicine, holding wages down and boosting productivity. The result was a steady erosion of the peripheral countries' competitiveness, especially relative to Germany (see left chart, labour costs) [4].

The peripheral economies had to reverse this trend. Reform packages were designed in part to improve productivity: Greece, for example, tried to cut red tape and break its monopolies. But much of the task was in reducing wages and prices. In Ireland, labour costs fell for two years and inflation was negative for more than one. Public-sector pay packets were cut by up 15% and would be lighter still after budget tightening.



In Greece, wages headed down, but other costs did not fall. The country's inflation rate, at 5%, was above Germany's, although part of that differential was due to increases in value-added tax. Spain and Portugal, meanwhile, only slowly woke up to the severity of their competitiveness problems [4].

Would shock therapy help to restore their competitiveness? There were three big hurdles. First was the fixed exchange regime. Under the gold standard, countries used price and wage deflation as a means of adjusting to trade deficits. A World Bank study[1] suggested reasons for pessimism. The experiences of 183 countries between 1980 and 2008 did not find many episodes of sustained deflation. Argentina provided a telling example. Like the peripheral euro-area countries, it lost competitiveness during the ten years after 1991 when the peso was fixed to the dollar. It endured three years of deflation before its economy and dollar peg collapsed in 2001 [4].

A more encouraging conclusion could be drawn from Estonia, Latvia and Lithuania whose economies had a peg to the euro in the 2000s: they enjoyed booms, then lost competitiveness and were hit by the crisis in 2008. Output collapsed but the pegs were maintained and austere policies introduced. Recovery came through exports. Anders Aslund[2] of the Peterson Institute reckoned that their resolve reflected the fear among the public and officials that the newly independent countries’ sovereignty was threatened. It also helped that their economies were so open, forcing them to respond quickly, as Ireland had done [4].

The second reason to be wary was that the chances of reviving exports also depended on the type and quality of goods a country makes and who its competitors are. Not all can be a Germany, excelling at selling capital equipment and luxury cars, not least to booming emerging economies: Mercedes said its sales in China in the first 11 months of 2010 were more than double those in same period in 2009. This market position is extremely hard to replicate. For peripheral countries that specialised in lower-tech industries, China was less an export opportunity and more a competitive threat (see right chart, exports competing with China). The worry was that such countries depend on selling commoditised products of which they may never be the cheapest producers [4].

The last problem for peripheral countries trying to deflate their way to competitiveness was the biggest: debt. The more wages and prices fell, the bigger debt burdens would become in real terms. If the economy shrank—nominal GDP dropped by about 30% in Latvia and by 20% in Ireland—there would be less money to service debts. This was the trap that the peripheral countries were in. They had to become more competitive to export, grow and ease their debt burden. The more they lowered wages and prices, the harder that burden was to bear. As Irving Fisher noted almost 80 years ago, the struggle to reduce debts can sometimes increase indebtedness [4].

In 2012, four years into the financial crisis, the euro-zone remained an incomplete monetary union. The problems during the crisis period gave recognition that Europe’s monetary union lacked sufficient institutional support. Disagreement raised debates over whether ‘an ever closer union’ required stronger structures and more political solidarity. Politicians seemed to regard a banking union as an easier option than moving towards fiscal union. The logic was clear – produce a common pot of money to insure deposits and deal with banks that collapse. It required preventing credit bubbles, forcing banks to hold more capital, “bailing in” bondholders if they ran out of equity and restructuring lenders so it was easy to close them down, if necessary. (Herman Van Rompuy, then president of the European Council, published proposals for such a system) [5].

The EU and euro-zone countries in particular needed to deal with short-term and long-term fixes to the problem. Bank stabilization required both short- and long-term measures taken. Short-term fixes were only able to be dealt with by the ECB, an existing institution whose mandate and tools could take direct action. However, not all member states were in agreement that the ECB was charged with anything other than monetary policy, i.e., it was not charged with acting as the lender of last resort. Any such actions would require treaty changes and were therefore longer-term measures. Nevertheless, the EU was generally agreed that what was needed was a banking union and a fiscal union.

Firstly, the central bank needed to work out how it is going to stop bubbles. In a new supervisory role, it would have to have "macroprudential" powers, allowing the ECB to tell national authorities to do things like increase banks' capital ratios if it fears credit were growing too strongly. Secondly, it needed the authority to require all banks to hold a minimum amount of bail-in debt so that taxpayers would not have to ride to the rescue. This could be done without a banking union. There was also the matter of avoiding situations in which banks were deemed too important to fail because their bankruptcy would cause havoc for the whole system – and so again have to be rescued. Part of the solution was to require lenders to draw up "resolution plans" that spell out exactly how they can be packed off to the slaughterhouse without too much contagion. Again, a banking union was not required. But as a result of it, the ECB would be responsible for vetting euro-zone banks' resolution plans [6].

A CHRONOLOGY OF THE EU’S RESPONSE TO THE EURO CRISIS

The US stabilized its financial system relatively quickly after the collapse of Lehman Brothers, an investment bank, in 2008. The euro-zone’s banks remained fragile. Why did it take longer to address the banking crisis in Europe? This was partly because banks in Europe are treated as national champions – large in relation to national GDP, and European companies rely more on banks for finance than do US firms [7]. More important, in a corporatist political culture, small banks were often tools of political patronage and source of influence for local politicians, e.g., Spain’s unlisted regional savings banks, ‘*cajas*’, or Germany’s *landesbanken*, reflected the lobbying and political positions taken in the run up to resolving the euro-zone’s difficulties [8] [7]. Spain’s cajas, for example, increased their share of the financial system, measured in terms of assets, rose

[1] "Sovereign debt and the financial crisis: Will this time be different?", C. Primo Braga and G. Vincelette, Nov. 2010.

[2] A. Aslund, "The last shall be the first: The East European financial crisis", Oct 2010.

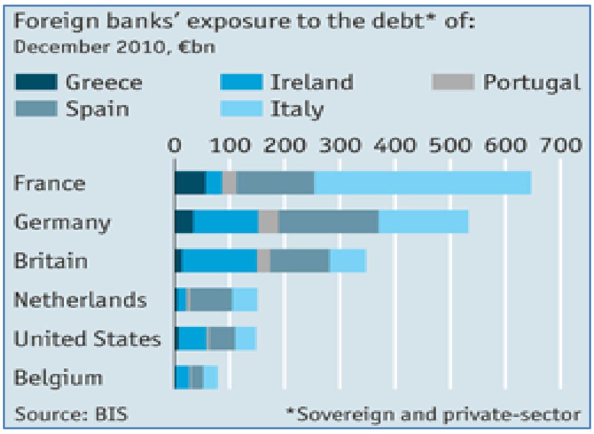
from about 10% in the 1960s to nearly half by 2010, increasingly lending outside their region of origin [8].

Second, because Europe viewed the problem as one of government profligacy, the euro-zone was woefully late in trying to stabilize its banks and ensuring that taxpayers did not have to pay when they failed. Perhaps the biggest reason for the neglect was that the first euro explosion took place in Greece, caused by profligacy (rather than bank failure). For Germany, in particular, the cure was to enforce fiscal discipline. EU leaders during 2008-2012 designed new rules and penalties to curb budget deficits and debt reduction. Ireland, with its banking crash, was treated as an outlier, a victim of unregulated "Anglo-Saxon" capitalism. The mood changed once the crisis hit Spain, a country that previously had a budget surplus, low debt and an admired national banking regulator. Its deficits and debt were the consequence of the property bubble bursting, not the cause [7].

Thus, the area's most troubled countries suffered a slow run of two sorts: depositors pulled money out of banks, and investors withdrew from sovereign bonds. Each panic reinforced the other. Some argued that what started as a banking crisis mutated into a debt and then an economic crisis. Europe's banking woes never went away: they were just ignored or hidden by national regulators, not least to avoid intrusion by the EC's competition watchdog, which demands restructuring of banks that receive state aid [7]. The EU-wide supervisor, the European Banking Authority (EBA), overestimated assets, and it came under criticism in 2011 for its handling of the stress tests that gave a clean bill of health to troubled banks in Belgium, Spain and Cyprus. The delay is one reason the euro crisis worsened. The difficulty of banks was evidence in this regard. Hence, within the EU and for the euro-zone in particular there was a need for a "banking union", i.e., supra-national institutions that can perform various functions to stabilize the European banking system (e.g., banking supervision, enforcement of regulations, recapitalization, etc.) [7].

National bank supervision, national bank resolution and national deposit-insurance funds did not work because they joined banks and governments at the hip, so that problems afflicting one was transmitted swiftly to the other. The complication was that national banks rather than being too big to fail became too big to save. Banking systems in many EU countries dwarfed their national economies [5]. With assets and liabilities several times larger than GDP, even relatively strong European economies such as France, Germany or the Netherlands could struggle to stand behind their banking systems were they to get into serious trouble, as Ireland found to its cost in 2008 (see chart, financial institutions liabilities) [17]. A contamination of national balance-sheets by troubled banks was at the heart of the crisis in Spain. Banking liabilities in the UK, Switzerland and Denmark were four to five times larger than their national economies [5].

Another problem was the exposure to the debt of the periphery countries. Failure to set up some system created market worries about the balance sheets in banks in northern countries (see chart, foreign bank's exposure to debt). The troubles of Spain's *cajas* and Germany's *landesbanken* showed that small banks posed as much of a "systemic" threat as big cross-border ones [7]. However, banks and governments alike struggled to give up control to a distant banking regulator that might, for instance, tell national champions to reduce their exposures to domestic housing markets or make fewer loans to small business to cut risk [5].



Hence, nearly four years after the collapse of Lehman Brothers did the commission issue a proposal for an EU-wide system of restructuring and winding up failing banks, to take effect in 2018 [7]. Nevertheless, such moves came long after the ECB was put into the awkward position of having to act as lender of last resort and applying quantitative easing (QE)-type measures while arguing that purchases of indebted government's debt was a means of ensuring that monetary policy was applied throughout the euro-zone.

Thus, it was apparent early on that the only existing institution capable of acting (and responding to a banking crisis) was the ECB. Other institutions and mechanisms would be required, but those would either require treaty changes or political agreement over any new structures – either avenue implied a longer-term response. In the absence of other alternatives, the ECB took the lead, working with EU institutions and the IMF.

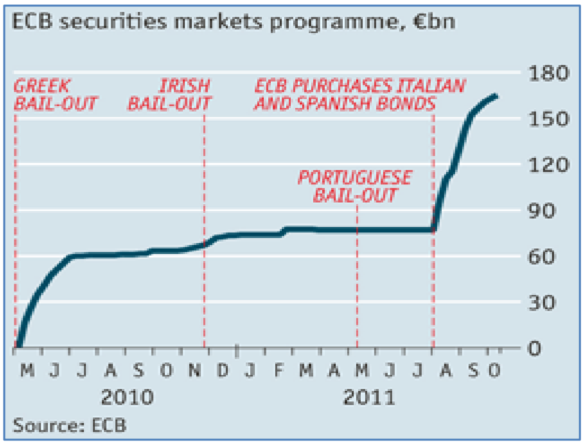
Since its creation in 1999 and before the financial crisis, the ECB maintained control over monetary policy, keeping inflation at 2% a year in line with its target, over an expanded euro area as it increased from 11 to 17 members. However, the ECB was not equipped with the tools or the legal authority to handle the debt crisis [23]. A large share of the blame for the euro-area crisis rests with Europe's politicians, who repeatedly failed to get ahead of the curve in combating market fears. The vacuum forced the ECB, the only institution in the euro area capable of intervening promptly and decisively, into territory far outside its custom and practice. In August 2007, the ECB provided liquidity, moving beyond the standard tools aimed at price stability. The ECB bought covered bonds (bank debt backed by loans) to ease banks' funding difficulties, although the purchases were far smaller than the QE programs in the US and UK. The ECB is credited with its handling of the 2007-08 financial crisis and the ensuing recession; however, the idea of a stateless central bank running a currency beyond the bounds of a state never looked stranger or harder to sustain in the height of the euro crisis [23].

The sovereign debt crisis erupted in late 2009 with the discovery that Greece had misrepresented the condition of its public finances [45]. In May 2010 the EU and IMF agreed to a first bail-out package of €110bn for Greece, and created the temporary crisis resolution mechanism European Financial Stability Facility (EFSF) in June to disburse temporary emergency funds for euro-area (peripheral) Member states in financial distress. The EFSF was a private company whose aim was to preserve financial stability in the monetary union by issuing debt to raise the funds needed to extend loans to struggling euro-zone countries; intervene in primary or secondary debt markets; and finance recapitalization of financial institutions through loans to governments [23] [34] [35].

The EFSF would shore up faltering euro-zone banks and prevent runs on sovereign bonds of some of Europe's largest economies [31]. The EFSF's funds were worth €750bn, including €60bn in EC funds guaranteed by the EU budget, €440bn in EU guarantee commitments and €250bn from the IMF [34] [35].

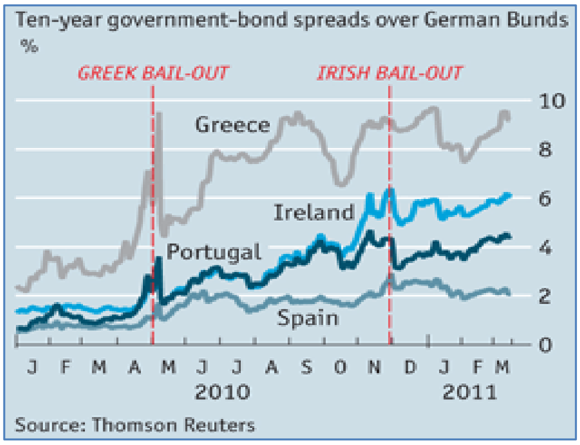
So, while in 2009 the Federal Reserve and the Bank of England slashed interest rates towards zero and started QE (buying government bonds with central-bank money) to inject life into the economy, the ECB was reluctant to cut its main rate below 1% and avoided buying government bonds directly. To provide liquidity, the ECB offered unlimited loans to commercial banks for up to a year against a broad range of collateral. This had the effect of QE as the banks used much of the cash to buy government bonds, driving down long-term interest rates [29].

In May 2010 the governing council of the ECB announced the establishment of a temporary securities market program, SMP, (see chart, ECB securities markets programme) [23]. The SMP allowed the ECB to purchase national debt instruments (issued either by euro-area governments or public entities) on the secondary market, and debt instruments issued by private entities, incorporated in the euro area, on primary and secondary markets SMP purchases started with Greece in May 2010 and were extended to Ireland and Portugal, totaling around €75bn in the spring of 2011 [23] [24].



From the outset of the crisis the ECB conducted a discreet slow-motion rescue of banks in ailing economies like Greece and Ireland, which were rocked by capital flight and became more and more reliant on liquidity from the ECB. The ECB used the power that such support gave it over the banks to push reluctant governments in Ireland and Portugal to accept the inevitable: bail-outs from euro-area creditors in conjunction with the IMF. The rescues exposed the ECB balance-sheet to bigger risks, accepting as collateral even dodgier government debt offered by troubled banks (accepting Greek debt that some argued was not solvent). This, it was argued, led the ECB into fiscal rather than monetary territory. It had to justify acceptance of junk-rated Greek debt by invoking the official but untenable view that the country was still solvent. The ECB argued that it began buying bonds, "not to bail out governments", but to help the "transmission" of interest rates to the market. i.e., to reduce divergence in rates (see chart, 10-year bond spreads) [23] [24].

In November 2010, EFSF funds were provided as a €85bn bail-out loan to Ireland which was to be used for macroeconomic adjustments. Ireland allocated €35bn to stabilize its banking



sector. The other funds were to restore fiscal sustainability to cover budget deficits through 2014, and implementation of growth-enhancing reforms [34] [35].

In May 2011, the EU agreed on a €78 bn bail-out for Portugal. The funds were equally divided from the EFSF and the IMF. The funds were to be used to restore fiscal sustainability correcting budget deficits by 2013, implementation of growth and competitiveness-enhancing reforms, and for assistance to the financial sector. Privatization and structural adjustment programs were required [34] [35].

In mid-2011, EU leaders admitted Greece needed additional assistance and recognized that Italy had come under attack by bond vigilantes. They agreed that the EFSF needed a boost to its lending capacity and its role; to allow it to buy bonds on the primary market; acquire sovereign debt at a discount on the secondary market; to finance the recapitalization of banks; and to extend pre-emptive credit lines to countries that were under pressure in debt markets [45] [46]. Germany and others demanded private-sector involvement, i.e., an insistence that private bondholders would have to shoulder part of the burden of any new rescue package. The legality of the EFSF struggled through national parliaments, but contagion was spreading to Italy and Spain and it became obvious that the EFSF resources were insufficient [46]. The ECB intervened to steady Italian and Spanish bonds [34].

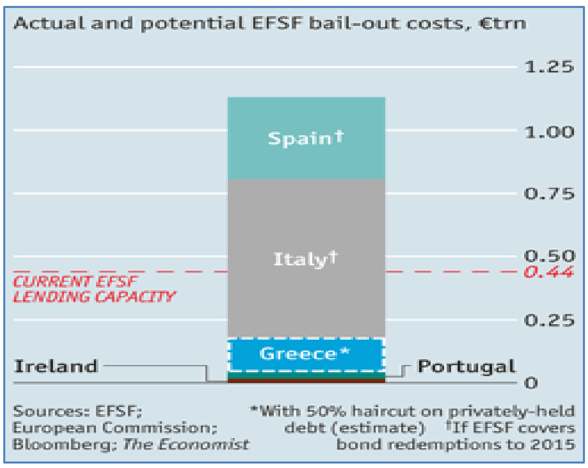
An essential part of shoring up EU banks involved restoring faith in government bonds, e.g., Spanish and Italian bonds, countries that were solvent but which had lost the confidence of bond investors. This was where the limitation of the EFSF was evident. The EFSF was designed to protect smaller peripheral states, lowering borrowing costs but limiting its capacity. It was too small to shield the bigger economies. Commitments to Ireland, Portugal and Greece, meant there was about €200bn for additional contingencies. However, through 2014 Italy and Spain had about €1tn worth of bonds to refinance, not counting additional borrowing to finance their deficits [37].

The financial tensions within the euro area were hampering the transmission of monetary policy oriented towards price stability in the medium term. So, while it was argued on monetary policy grounds to bring interest rates in line throughout the euro area, it failed to convince those who saw the purpose as simply lowering yields for countries that had lost the confidence of investors. In August 2011 the ECB took a more dramatic step of buying Italian and Spanish government debt. For many ECB policymakers, these bond purchases blurred the distinction between monetary and fiscal policy on which the central bank's credibility as an inflation-fighter depended [19]. The ECB made clear that this round of purchases was a stopgap measure until the EFSF assumed responsibility. The EFSF did not have sufficient resources at €440bn (of which only around €280bn remained, given its commitments to Greece, Ireland and Portugal). The EFSF's lending capacity was trillions short of what would be needed if Italy needed support. The EFSF could borrow from the ECB, but this action would be illegal under a strict reading of the Maastricht treaty [23] [24].

Given the difficulties within the euro area at that time, i.e., the ECB was put into the position of having to buy sovereign debt and making loans to banks in Portugal, Ireland, Italy, Greece and Spain (the PIIGS), much of which was secured against collateral of dubious quality. This made it harder for the ECB to preserve its legally enshrined independence from political pressure, a foundation stone of the EU's MU, because it amounted to monetizing the debt, a function taken on by finance ministries and not independent central banks. On a purely technical level, it did not really matter whether a Eurobond was created, or whether the ECB bought all the debt. The ECB's liabilities were a hidden Eurobond despite the ECB's SMP only amounting to about €150bn, a non-macroeconomic relevant value. On a practical level, if the value reached, €1,000bn, then the ECB shall have crossed a line into undertaking a fiscal operation [25].

From a German perspective, the ECB by buying Spanish and Italian debt had taken a political decision to arrange for the whole euro area to lend to troubled countries within it. This was the ECB doing exactly what it was not supposed to do. The drafters of the Maastricht treaty on economic and monetary union went out of their way to build a firewall between the ECB and government finances. The ECB was dragged into the fiscal arena and was a combined monetary and fiscal agent [26]. However, the ECB, to restore stability, declared that it had to stand behind all solvent countries' sovereign debts and commit to use unlimited resources to ward off market panic. So long as the governments were solvent and the bank sold the bonds back to the market after the crisis, this did not amount to monetizing government debt. It was argued that the ECB could buy several trillion euros worth of bonds without unleashing inflation. German officials at the ECB resigned in protest at the limited bond-buying undertaken in 2011 [27].

It took almost three months for the 17 euro-zone parliaments to ratify changes in October 2011: boosting the EFSF fund from €250bn to €440 bn; a freer hand to protect solvent but illiquid economies (Spain) and other vulnerable economies (Italy); and the private-sector involvement. Despite the lending power of the EFSF increasing to €440bn by Oct 2011, analysts argued that the sum would be insufficient to launch financial rescues for Italy and Spain (see chart, actual and potential EFSF bail-out costs) [37] [46]. The EFSF could probably have supported Spain or perhaps even Italy, but not both. To halt the upward pressure on Italian and Spanish bond yields, the EFSF would need to be equipped with firepower amounting to €1,500bn or more [45].



Of the €109bn in official loans for Greece's second rescue (Mar 2012), €34bn was in the form of tradition rescue funds, i.e., loans for day-to-day government funding needs. The rest, €75bn in loans from the euro-zone's bail-out fund and the IMF – were put under an elaborate plan to induce private bondholders to participate ("voluntary" contributions), or repair damage of bondholder programmes [47]. There was €20bn in loans to buy back Greek bonds on the open market, cutting €13bn off of €350bn in debt. Another €35bn was lent to Greece in a programme of bond swaps and rollovers to delay an estimated €54bn in bond payments during the 3-year bail-out program and €135bn in debt for as much as 30 years [34][45]. All three plans meant that bondholders were paid less than they were promised, 21% less value on the debt held by investors in the case of the swaps and rollovers [45] [47].

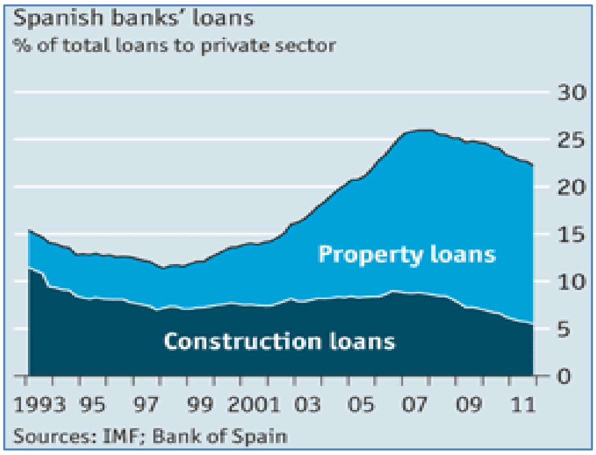
Despite ratification of the changes, the plight of Greece worsened. The "troika" of the IMF, EC and ECB took another look at its imploding economy and exploding debt. Greece needed an additional official financing of not €109bn, but of €252bn. The persistent trouble was that in the years until 2014, Greece would need €164bn to cover day-to-day operations, rather than the €109bn envisaged in July; and instead of being able to fend for itself in the second half of the decade, it would need €89bn of bail-out money. That would leave only around €100bn available to the EFSF [46] [34].

An insurance plan under the EFSF to bolster it funds rested on leveraging the funds through a first-loss insurance on 20% on new bonds issued. Such a scheme would magnify the funds fivefold, allowing €250bn of resources to buttress €1.25tn of borrowing by Italy and Spain. This would save the ECB from having to buy bonds as the ECB did. However, if the starting point was a fund of only €100bn, then the leverage of the effective firepower would only be €500 - far less than the trillion-sum needed to convince the markets [46].

In March 2012, there was a Greek sovereign debt default. Investors holding more than three-quarters of Greece's private debt agreed to participate in the country's €206bn debt restructuring, allowing Athens to proceed with the world's largest ever sovereign default. The Greek government announced that holders of almost 80% of the country's privately held debt had agreed to accept new bonds worth less than half their original holdings. Athens expected to trigger "collective action clauses", which gave it the power to impose a 53.5% loss on all holders of bonds issued under Greek law. To be able to use the clause, Athens needed an agreement with investors holding two-thirds of all bonds. The trigger implied that a cash payment equivalent to 15% of the investors' original holding would be paid, and they would be issued new Greek debt worth 31.5% of their old bonds. The two measures would wipe out about €100bn from Greece's €350bn in debt. The ECB also began to reaccept Greek bonds as collateral from banks seeking cheap loans to run their day-to-day operations [38].

In June 2012, there was an EU agreement to give Spain up to €100bn of euro-zone loans to recapitalize its banks. Euro-zone countries recapitalized Spain's banks with a pledge of €100bn. Spain had a plausible plan to recapitalize its banks even though the new money did little to solve the Spanish economy's other fundamental problems. (This money did not even reach the real economy.) The Spanish government insisted it was not a "bail-out" or a rescue, just a loan with very favorable conditions. The money came with no strings in terms of new, more austere government policies, only conditions for the banks. Nevertheless, the troika of lenders for bail-outs noted that they would scrutinize and regularly review. [8].

Spain was an exceptional case. It was seen as too big to fail, but there was not enough money to rescue both Spain and Italy. However, Spain's crisis was not like those of Greece and Portugal. Its case was really all about the banks and their exposure to the property bubble. When the financial crisis hit in 2008, Spain's banks were hit, but they had not invested in the toxic off-balance-sheet products that sank banks elsewhere. Spain's banks had, as regulators required, made thrifty countercyclical provisions, but they were parties to an ungodly property bubble (see chart, Spanish bank loans) [8].



After the property bubble popped in 2008, banks began to acquire properties from developers before the loans that supported them went sour. As the economy entered recession, foreclosures mounted. As a result, Spain's banks may now own a fifth of the total stock of empty homes. So, the €100bn loan from the euro zone head off the sort of panic that could have led to bank runs while enabling the banks to purge their balance sheets of bad loans. The loan put more debt on taxpayers' shoulders because the loan counted as sovereign debt, adding nearly 10% GDP to Spain's debt burden [8].

The problem is that the bail-out did not break the loop through which Spain and its banks made things worse for each other. With foreign investors shying away from Spain, Spanish banks stepped in to buy even more government bonds, with the help of the ECB's cheap 3-year loan program. The more foreign investors left the market, the less sustainable this became [8].

In earlier EU summits, the EU agreed to a permanent rescue mechanism to replace the EFSF, the European Stability Mechanism (ESM). The date to bring it into force was moved up from 2013 to July 2012 (with operations starting in Oct). As initially designed, the ESM would have a lending capacity of €500bn and a total subscribed capital of €700bn, of which €80bn would be paid up and €620 in callable capital and guarantees. Because this structure would involve a firm, up-front commitment of funds, it gave the ESM a more secure triple A rating than the EFSF. [To ensure the lowest interest rates, a bond's rating required a triple A rating.] If the EFSF's lending capacity was to expand to cover Italy and Spain, France's total contingent liabilities would rise to €245bn, or 12.7% of GDP. This would cause France to lose its triple A rating (which it later did). The pressure on Germany, as the EFSF's financial backstop of last resort, would grow accordingly. Hence, the need for the ESM with a greater capital resource base [45].

The EFSF remained in place beyond June 2013 until all its outstanding claims had been repaid. Any tranches of existing loan facilities that remained undisbursed and unfunded at the time of entry into force of the ESM in July 2013 was paid out under the new facility. To limit the potential liability of euro-area countries during this transition period, total consolidated EFSF and ESM lending could not exceed €500 billion. The provision stated: "The Member States whose currency is the euro may establish a stability mechanism to be activated if indispensable to safeguard the stability of the euro area as a whole. The granting of any required financial assistance under the mechanism would be made subject to strict conditionality." The wording of this paragraph reflected some important preconditions for the establishment of a permanent stability mechanism. In particular, the condition that the ESM could only be activated "if indispensable to safeguard the stability of the euro area as a whole" and the strict conditionality attached to assistance were necessary to limit the moral hazard implicit in a crisis management mechanism and to ensure that the existence of the ESM did not weaken incentives for sound fiscal and macroeconomic policies in euro-area countries [38].

What opened the door to the bond purchases was the promise of accelerated austerity measures and growth-enhancing economic reforms from the governments in Rome and Madrid. "No reforms, no bond purchases" was the ECB's firm message, a similar message that the ECB, EC and IMF used towards, Greece, Ireland and Portugal when they applied for aid. The trouble was that, having started to buy Italian and Spanish debt, the ECB would find it difficult to stop without puncturing market sentiment, i.e., changing investors' expectations. Future purchases of such debt would have to be commensurate with the size of Spain and Italy's markets [45].

In the face of renewed recession, a bank-funding crisis and investor revulsion against holding all but the safest euro-zone government bonds, the ECB introduced a follow-up mechanism by which cash could be injected into banks, the long-term refinancing operations (LTRO). The first of two phases of LTRO injections occurred in December 2011, when the ECB provided unlimited funds in 3-year loans to banks at its main interest rate (which it cut to 1%) [29,30]. To access the ECB's loan facility, lenders had to pledge more of their assets at a time when the proportion of collateral being pledged by banks in so-called collateral swaps, covered bonds – a form of ultra-safe debt – and repo transactions had risen significantly [31]. A total of €489 bn was issued through the 523 banks that were involved in the bidding for funds. However, of this total value only €210 bn was a net injection of liquidity, i.e., net new money that was not used to roll over banks existing borrowing at the central bank [30].

In February 2012, a second phase LTRO involved 800 banks amounting to another €530 bn injection. The net injection of liquidity was €310 bn. Most of the loans were from "core" euro-zone countries led by Germany but not the peripheral nations where funding problems were presumed to be the most acute. Italian and Spanish banks dominated the take-up of funds, but half of the 800 banks involved were German, though they accounted for less than €100 bn of the funds. There was greater participation by smaller banks, including carmakers' financing arms, in the second phase because they were invited by the ECB, which relaxed requirements on collateral compared with the first phase. Smaller banks were often those with the closest relationships to the continent's host of small and medium-sized companies and the idea was to improve the supply of credit to the "real" economy, easing the fear of a credit crunch for businesses [32]. Italian banks took about €260 bn from not just the LTRO but other liquidity schemes from euro-zone central banks. Spanish banks took €250 bn and French banks €150 bn [33].

ECB officials insisted the LTRO was necessary to relieve market tensions, especially about the possibility that one or more euro-zone banks could collapse because of funding difficulties. The injection were also to boost investor sentiment and lift markets, enabling banks to issue bonds [30]. Another reason for the LTRO was to ease doubts about the vulnerability of banks and the risk of a catastrophic failure. The fear was of a "disorderly deleveraging" – an asset fire sale by some banks that could spread weaknesses to other bank balance sheets.

However, it was also argued that LTRO had a dark side. While the injection of funds was intended to ease funding strains on banks, there was little sign that it filtered down to the real economy in the form of easier loan conditions or more credit available for smaller companies or consumers. Part of the injection of funds was expected to be recycled by banks to buy higher-yielding government debt in a "carry trade". This allowed a bank to take a loan of 1% interest and make the most of the spread between its 1% cost and the rates on say Italian government bonds of as much as 5%. The critics argued that the LTRO was "back-door QE" aimed at reducing the risk of a euro break-up or a sovereign default. The concern was that it would prolong troubled banks, lessen the pressure on banks by backstopping their finances and making them dependent on artificially cheap funding, and raised fears about the structure of their balance sheets. The exercise did nothing to plug the remaining capital deficits at a selection of banks, particularly in Spain and Italy. Credit conditions remained tight in Spain, Italy and Eastern Europe [30,33]. The cheapness of the funds could also prompt banks to go on another credit-fuelled binge, similar to what preceded the global financial crisis but this time snapping up the debt of their own governments. There were also concerns that it reduced the pressure on sovereign borrowers by supporting demand for their debt, and delayed fiscal and structural reform. In some respects it could actually worsen the intricate and nepotistic relationship between banks in troubled countries, exacerbating the euro crisis and unwittingly sowing the seeds for the next escalation of the crisis. [33].

The actions did raise some long-term questions: What was the exit strategy? What would happen in three years when the money that had been injected (in Dec 2011 and Feb 2012) needed to be refinanced? If the loans were for southern European countries to rekindle economic growth, what would happen if did not work? What would happen in three years when all this bank debt came due at the same time [33]?

The ECB was never given the task of serving as lender of last resort and was only appointed as the single bank supervisor for the euro-zone in 2014. The ECB had to operate its monetary policy for general macroeconomic objectives of the euro area, in addition to purchasing sovereign debt. Thus, the ECB performed the role of lender of last resort in a timid way, making it clear that it was unwilling (or unable by law) to continue doing so. European leaders tried to solve this problem by creating the EFSF/ESM (European Stability Mechanism, the predecessor to the EFSF), the chief emergency lending instrument of the euro-zone. The ECB would clearly have liked to transfer responsibility for bond purchases to the EFSF/ESM, but its capacity to lend was insufficient and these institutions never had the necessary credibility to stop the forces of contagion – precisely because they could not actually print money. It depended on its resources on member countries of the MU, and these were limited. EFSF/ESM could not guarantee that the cash would always be available to pay out sovereign bond holders even if its resources were doubled or tripled [28].

To restore calm, European leaders embarked on a "banking union" in 2012. As with most deals in the EU, the idea of banking union started as a trade-off. It was agreed in June 2012 that there should be shared responsibility for rescuing European banks, but at a price: supervision of European banks should be taken out of the hands of national authorities. This bargain fit Germany's mantra that more solidarity required more control [9].

The results of the July 2012 summit were that EU politicians agreed to create a Europe-wide bank supervisor (involving the ECB) by Dec 2012. There was agreement to accepting that bail-out funds could go straight to banks. This was a big shift, on Germany's part, which argued that help could only go to governments with tough conditions attached. The German logic that shared financial liability must imply shared oversight still remained. Jointly-financed bank recapitalization meant that Germany accepted a broader notion of risk-sharing. This was still a long way from the partial debt mutualisation that the euro zone needed, but it marked a step forward from Germany's exclusive obsession with fiscal austerity. EU politicians had not yet committed to a banking union. There was no agreement to euro-wide deposit insurance or to a common bank-resolution scheme. And although the summit agreed that euro-zone rescue funds could be injected directly into banks, this depended on the single supervisor being in place first [38].

Banking Union

The case for a euro-zone banking union was strong. Weak banks in Spain and Ireland wrecked their countries' public finances; governments in Italy and Greece with shaky finances leaned on their banks to buy government bonds. The best way to sever this dangerous link between banks and governments was to wrest responsibility for supervising and, if need be, resolving banks away from national governments [6]. A true banking union requires three pillars: (1) a single supervisor; (2) a single resolution authority, with access to common backstop funds; and (3) a joint deposit-insurance scheme. The French-German plan was to use one-and-half-pillars and pray the edifice held (see chart, fully-fledged banking union) [5] [10].

Fully-fledged banking union

Single supervisory Mechanism (SSM)	Single Resolution Mechanism (SRM)	Single Deposit Guarantee Scheme
* Homogenous supervisory standards across the euro area * ECB directly supervises 128 biggest banks, 85% of toal euro-area bank assets * Comprehensive assessment of banks (stress tests)	* Single authority responsible for resolution of euro area banks * Resolution financed by shareholders and creditors (bail-in = 8% of toal liability (pre-defined liability * Bank levies (at the national level) to raise funds	* No single deposit scheme created * Harmonized deposit guarantee scheme as set out in Single Rule Book * Deposit guaranteed to to €100,000 everywhere in EU * Funds from deposits collected from banks over 10-yr period

Based on EU-wide rules for banks, the Single Rule Book, e.g, Dir. On Capital Requirements (Basel III) since 2014, Bank Recovery and Resolution and Deposit Guarantee Scheme (DGS) starting in 2015.

Banks no longer "European in life, but national in death". Bail-in should become the rule, bail-outs the exception.

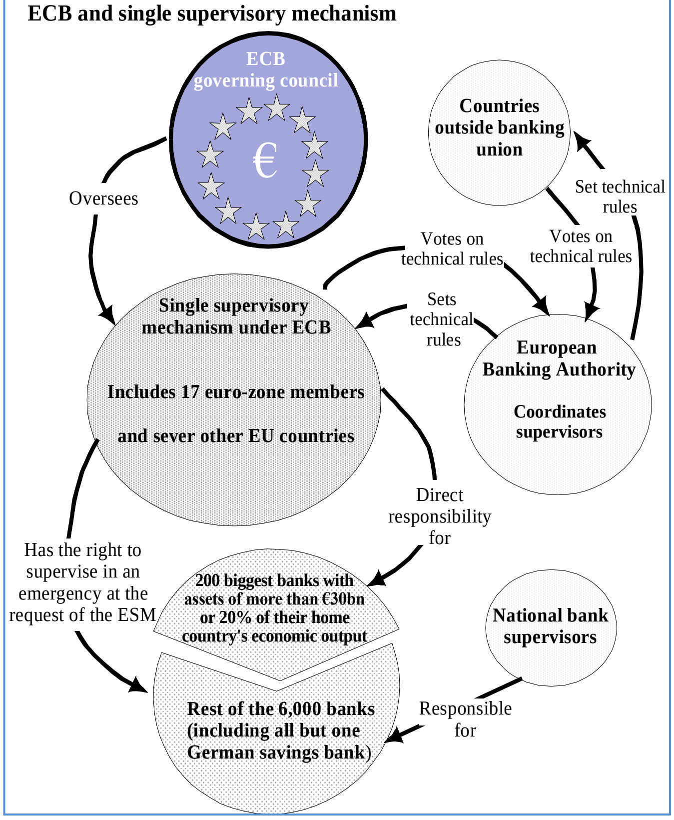
The essential first step in July 2012 was the EU's resolve to appoint the ECB as the single bank supervisor for the euro zone in 2014, taking direct charge of oversight of the euro-zone's largest banks [9]. The ECB retained the ultimate responsibility to oversee any bank, but the common banking regulator for the 28 EU states remained the EBA and left national supervisory bodies to deal with the 6,000 smaller lenders as before [11] [9]. Those within the euro-zone came under the ECB in what the commission called the Single (European) Supervisory Mechanism (ESM) [11].

The central bank was best-placed to assess the health of Europe's lenders and to rise above national interests. If its remit covered all banks in Europe, then in principle it would be a step forward. The reform required governments to surrender jealously guarded control over national banks [12]. By taking on oversight of the euro-zone bank supervision, the ECB at least could prevent situations arising in which a bank needed to be bailed out, or the cosseting of banks, and its depositors repaid. That gave assurance to Germany (or another country which might have contributed to a bail-out) that small banks in Spain or Italy would not be allowed to load up on dud assets [6]. The ECB would be allowed to use the euro's rescue funds to inject cash directly into ailing banks (to alleviate the burden on Spain and maybe Ireland as well). The direct recapitalization through rescue funds would be a big step towards risk-sharing [7]. However, mutualization of risk needed to encompass a euro-zone bank resolution fund as well as a joint deposit-insurance scheme.

Mario Draghi, president of the ECB, made clear in December 2012 that it should have oversight of all 6,200 or so euro-zone banks to unify supervision under the banking union. Germany argued that the ECB should supervise only the big cross-border banks (about 200 banks in the EU). Its coyness had much to do with its fear of what supervisors might say about its own *Landesbanken*, wholesale banks with a history of duff judgments [6]. Germany's powerful network of savings banks, Sparkassen, also lobbied against any supranational supervision, arguing that they were not to blame for the financial crisis and should not bear the cost of additional supervision [12]. Germany also argued that the ECB could not properly supervise so many banks and should supervise only a handful of big cross-border banks [6]. Better to do a more thorough job on a smaller number of key institutions. The commission countered that risks come not only from big "systemic" cross-border banks but from smaller ones as well [12]. It was also feared that supervisory powers under the ECB might conflict with its monetary policy mandate.

The result was that the ECB would have direct responsibility for banks with assets of more than €30 bn, or representing more than a fifth of a state's national output (see chart, ECB and the single supervisory mechanism) [13]. However, it might not actually have the power to order failing banks to raise capital or to shut them down [12]. With such ill-defined powers the ECB may have to use brinkmanship to enforce its writ. "If a local supervisor shows them two fingers there isn't much they can do," said one senior regulatory lawyer. "There is only really one sanction…If the ECB cuts off access to euro liquidity then the bank is dead." That is a similar position to the one it was in before. However, because the ECB's decisions could impose costs on governments, some of which may be in no position to assume them, the ECB may be reluctant to use these extreme powers [6]. Nevertheless, the ECB retained the power to intervene in any bank and deliver instructions to national supervisors. EU officials insisted the system was built around a single line of authority, with the ECB setting the day-to-day operating procedures for all supervisors [12]. Finally, a clause inserted into the text would allow the ECB to take over supervision of a lender at the request of the ESM, the euro-zone bailout fund, paving the way for an emergency injection of capital when unanimous approval was obtained [12].

ECB and single supervisory mechanism



The steps toward the next two pillars, involving solidarity, were harder. The big issue was trying to raise money for the bank-resolution funds and the common deposit-insurance [5]. As a supranational bank supervisor, the ECB would have to have the central resolution authority to restructure or wind up failed banks (if necessary by bailing in creditors). This requires access to joint resolution funds and deposit guarantees (financed at least in part by the industry itself) and some kind of European fiscal backstop (equivalent to the US Federal Deposit Insurance Corporation) [9]. Imposing losses on creditors of bust banks is the right thing to do, but there was a risk to stability if it was seen as the only way to fill holes of capital during a crisis, because it could encourage short-term creditors to pull their money out of banks [14]. The plan, as it was, neither provided for a common "resolution fund" to mop up after failed banks, nor a shared deposit-insurance fund to prevent bank runs. Even if paid for initially by the banks, these would have had to be backed by taxpayers, notwithstanding German qualms. A pre-financed resolution fund big enough to clean up the mess from the failure of even a single medium-sized bank would probably have had to be €100bn. The cost of dealing with a systemic crisis would be far bigger. Sweden's taxpayers ended up paying about 3.6% of GDP to clean up their banking system after its crisis in the early 1990s, which as a proportion of euro-zone GDP would have been €340 billion [6].

However, the trade-off – shifting the financial burden for winding down or recapitalizing failing banks – has proven more fraught. The single resolution fund would not be "single" at all at the start. Instead, it would comprise separate pots of national money under an EU umbrella [15]. After 10 years, those national pots, which were funded through bank levies, would be gradually mutualised into a European fund [9,15]. This would amount to €60 bn euro when it became operational in 2026. The bank collapse that set off the Irish crisis alone cost more than €30 bn, though it was under the old rules where senior creditors were not forced to accept losses [15].

The wrangle over a single euro-zone-wide deposit-insurance system, the third pillar, was no less intense than the one over resolution funding [6]. An insurance fund would have to have covered €11tn in deposits [5]. Even a modest prefunded deposit-insurance pot would have had to raise more than €100bn ($127 bn) from an already creaking banking system [6]. In November 2012, Mario Draghi told German bankers that banking union need not "imply the pooling of deposit guarantee schemes", saying these could remain national. Officials in Brussels looked for a backdoor by proposing rules that could force national funds to "lend" money to one another. A related proposal would oblige national deposit-guarantee schemes to insure deposits gathered by foreign banks in the schemes' countries. That would only widen the gap between the power to supervise a bank and responsibility for paying for its failure [6].

Thus, the French-German banking union plan in June 2013 pulled both the common resolution fund and the single deposit insurance off the agenda because the sums of money involved were simply too big. "If these were pushed it would blow up the whole discussion [about banking union] because it would scare creditor countries" [14,6]. Any deposit-insurance scheme needed the recourse to government backing which the Germans opposed [14]. These shortcuts fudged questions of accountability and dodged genuine pooling of risk, making matters even worse [6,14]. Another complication was that cross-border banks operated not only in euro-zone countries but in other EU countries, notably the UK, making euro-zone institutions unable to deal with broader EU-wide banking issues [14].

By 2014, there were six ways the financial sector was changed – or was supposed to have change [16]:

1 Governments were no longer sole masters of their banks
Europe's banking union was a project to pool power and money unmatched since the euro's creation. Euro-zone governments centralised the right to police banks and to decide when and how banks die. In return the costs of failure would be shared through a €60bn fund. Critics said it was underfunded, too complex and riddled with ways for ministers to protect national champions. However, of all the reforms since the 2008 financial crisis, up to 2014, it was, in the words of Nicolas Véron of the Peterson Institute, only "half a banking union – but it was regime change for the European financial system".

2 Taxpayers were no longer first in line to bail out banks
Vast amounts of public money were devoted to propping up European banks, some €473bn in capital alone. Much of it went to institutions that were bailed out because the alternative was worse. Regulators' big idea was shifting that bailout risk from taxpayers to creditors. A common EU rule book for bank failures would mean that shareholders and bondholders would be hit first when a bank is in trouble. It was a sea change, if it stood the test of a big crisis. There were also potential bailout loopholes that some ministers could find too tempting to resist.

3 Better-funded banks, with less leeway on paying bonuses
Banks made great strides in addressing the woefully inadequate capital buffers seen during the financial boom. The EU law broadly followed the Basel III international accord, which would require big improvements in the quality and quantity of capital, as well as the easy-to-sell assets banks must retain. Yet the EU gave Basel its own twists. One was the addition of a bonus cap, which appears to have triggered a big rise in bankers' fixed pay. A second was in the form of capital tweaks to help particular banking models in France, Italy and Germany – tweaks that meant Europe was likely to be one of the few jurisdictions found in breach of Basel III.

4 Bank-dominated markets moved out of the shadows
Sprawling and opaque markets such as fixed income and over-the-counter swaps were dragged into the light. More trades would move to electronic venues such as exchanges, which show prices to a bigger audience and leave audit trails for regulators. Complex laws underpinned how capital markets would operate. Banks faced fresh curbs on share trading and the uninsured bets they can take in the vast, $700tn OTC derivatives market. The law caught up with technology and tried to rein in high-frequency trading. Most important, perhaps, was the requirement for investors to post collateral, or insurance, to backstop those derivatives trades – sometimes for the first time – and offset the risk by sending them through clearing houses, a collection of unobtrusive, utility-like institutions that guarantee deals when one party defaults.

5 Regulators left no financial frontier untouched
One overriding message from EU policy makers was that no corner of the financial system would be left unregulated. For primarily political reasons, it started with placing a regulatory bridle on hedge funds and private equity for the first time. But Brussels was gradually moving into the far reaches of the financial world to tackle new sectors and practices: credit-rating agencies, the audit business, short selling and – in the future – benchmarks, pension funds and shadow banking.

6 The regulatory game moved to the technicians
The legislating was finished but the lobbying battle had only begun. The laws were punctuated with political compromises that were deliberately ambiguous. Around 400 extra technical standards and guidelines were in the pipeline to put the laws into force, ranging from how bonuses should be paid to what specific curbs are placed on high-frequency traders. It was a mammoth task to be led by the three EU-wide financial watchdogs and parliament. There was the unenviable job of giving a "technical" answer to a political fix [16].

"How the euro zone deals with failing banks", *Economist*, 23 Jun 2017

Almost a decade after the global financial crisis, aftershocks rumble on. This month Banco Popular, Spain's sixth-biggest bank by assets, was bought for a symbolic €1 ($1.10) by Santander, the largest, in a takeover organised by European authorities. The "resolution" of Popular was the first of a failing euro-area bank under new procedures that came into effect in 2015. How did the system fare?

Popular had been suffering since the collapse of Spain's national property bubble in 2008. Like other European countries, Spain was slow at first to deal with the crisis. It borrowed €41bn from European funds in 2012 to bail out its banking system—pouring a good portion of that into Bankia, a big savings bank. But its banking system is now much the healthier for a consolidation co-ordinated by the state, in which several local lenders were rolled into stronger institutions. A total of 55 banks has been reduced to a dozen or so, and more mergers may follow. Faster economic growth—just now, the fastest of any large economy in the euro zone—helps the banks too. Yet problems remained, notably at poor Popular. It did not share in the bail-out, instead raising equity from shareholders three times between 2012 and 2016. That strategy failed.

When the end came Popular was hoping to find a buyer. But depositors were withdrawing money fast and its share price fell by half within four days. On the evening of June 6th, seeing Popular's liquidity draining away, the European Central Bank (ECB), which supervises banks in the euro area, declared that the lender was "failing or likely to fail". A separate body, the Single Resolution Board (SRB), then took charge. Seeing no alternative, the next morning the SRB announced the Santander deal. Popular's shareholders were wiped out. So were some bondholders, including owners of "contingent convertible" ("coco") debt, which is turned into equity if catastrophe strikes.

The Spanish and European authorities, and Santander, declared the resolution a success, and probably rightly. Technically, it went like clockwork, despite the apparently cumbersome division of labour between the ECB and the SRB: Popular changed hands overnight. No taxpayers' money was needed. The coco bonds, a post-crisis creation, worked as they were supposed to: swapped for equity and written down if need be. Owners of coco (and other) bonds now know, if they did not already, that the threat of a total loss is real. Prices of subordinated debt in two smaller Spanish banks tumbled after Popular's failure; short-selling of the shares in one of them was banned. Not everyone, it is true, is convinced. Investors may wonder why regulators failed to spot the depth of Popular's troubles sooner. Reports say some bondholders, believing that the ECB and SRB were too hasty, are contemplating whether to sue. The resolution is not, so to speak, wholly popular.

Fiscal Union
Fiscal union implied an even greater degree of integration and loss of sovereignty by euro-zone member states. First, what is meant by fiscal union must be clarified. In addition to the harmonized monetary policy at the European level through the ECB, there was a need for stronger institutions to oversee the implementation of a commonly agreed finance policy. Obviously, stronger community institutions or structures and rules to ensure that countries that shared the same currency

implemented the fiscal policies that they have agreed on together did not imply harmonization of domestic taxes or the total loss of national budgetary sovereignty [18].

The growing consensus was that the stability and viability of MU demanded changes to EU treaties. A new structure had to win the confidence of voters and investors alike, and needed to acknowledge the real monetary risks of the ECB being coerced into acting as a sovereign lender of last resort over the euro zone. The structure had to be based on clearly delineated responsibilities for monetary, fiscal and funding policy.

The creation of an EU fiscal union was to be founded upon a three-pillar plan for existing and new institutions that addressed:

(1) the monetary policy instruments to be used by the ECB and defining its role as lender of last resort;
(2) the creation of euro-zone debt agency for joint responsibility for public debt; and
(3) a mechanism of enforcement of fiscal and funding concerns, i.e., economic governance over fiscal policy [19].

The three pillars would be buttressed by the ECB; a European Debt Agency (EDA), an institution that had to be created, which would be the sole issuer of euro-zone sovereign debt; and a European monetary fund which would be responsible for safeguarding medium-term debt sustainability and would oversee the fiscal union by assessing member states' economic and fiscal performance, providing support programs and policing reform and adjustment programs [20].

There were four broad steps taken toward erecting the three pillars of EU fiscal union. These steps included the measures in use then and the more far-reaching actions (including treaty changes) required in the future:

(1) a change of the ECB's current actions as the *de facto* lender of last resort and its future legally defined role;
(2) the current and future actions of the European Financial Stabilization Fund (EFSF) and European Stabilization Mechanism (ESM);
(3) the creation of a Eurobond and its institutional support structures; and
(4) the measures taken over fiscal control on the current troubled countries and the development of euro-area supra-national economic governance over fiscal policy over all Member states in future [19,20,47].

Naturally, there was disagreement over the order, direction, and size or degree of each step. For example, Germany made it clear that any first step towards fiscal union should first involve, for example, a reinforcement of the Stability and Growth Pact with automatic sanctions, and that more ambitious steps must be enshrined in treaty before moving forward (e.g., ECB's role and the issuance of commonly backed Eurobonds). Moreover, introducing eurobonds or urging the ECB to intervene massively in sovereign bond markets as a short-term financial solution would not solve the fundamental problem of excessive debt in the euro-zone that had undermined the trust of investors. Fiscal union first required closer coordination and direct supervision of national economic and budgetary policies. New procedures required governments to submit budget outlines to Brussels before submitted for final approval to national parliaments. European institutions would monitor fiscal and macroeconomic imbalances and demand remedies if and when thresholds were breeched [21]. Debt and deficit limits had to be enforceable (in the European Court of Justice, preferably) and institutions needed the powers to demand changes in national budgets if they broke the rules, and to impose automatic penalties if they did not fall into line [22].

Opponents of this view argued that while EU treaty changes were needed to finish constructing the foundation, there were interim actions that must be taken. EU treaty changes take time and the debt problem needed immediate attention. Hence, the short-term introduction of Eurobonds was a necessary first step, and the ECB could fund the EFSF/ESM directly until the EDA was established. Once the EDA was established, the sovereign bonds acquired in the process of funding the EFSF and ESM would be passed on to the EDA so that the ECB could return to its purely monetary policy role.

Whatever the order or process the EU eventually would take toward fiscal union, the three-pillar structure should have produced tangible benefits. Member states would have time to implement fiscal and economic reform and adjustment programs; the EU banking system would be provided with stable collateral and more time to prepare for the restructuring of debt; and the euro-zone area would be provided a uniform, low and stable cost of capital, a necessary element for economic growth during a period of fiscal adjustment and austerity [19]. If the euro area were able to borrow as a whole, it too should benefit from low borrowing costs, helped by the liquidity advantage of creating what could become a vast government-bond market. This supposed that the framework would not weaken budgetary discipline, reducing the incentive for weaker states to get their finances in order first [20].

The actions taken in regard to the four steps toward fiscal union are summarized under the points below. The first two steps, the ECB acting as the de facto lender through its modest efforts to inject liquidity in 2007 and the creation of the EFSF/ESM in 2010, were already advanced.

1. ECB's tightrope to stay within treaty limits and its role as *de facto* lender of last resort

2. European Financial Stability Facility (EFSF) and European Stability Mechanism (ESM)

The extent of the problems stretched both the ECB and the EFSF/ESM, requiring agreement over the additional steps, creation of a Eurobond and institutional structures for improved economic governance over fiscal policy, essentially banking and fiscal union.

3. Creation of a Eurobond

The EFSF/ESM's limitation was its value in comparison with the money needed to backstop PIIGS countries. The next step would be to mutualize the debt such that all euro member countries governments would back the bonds issued by national governments, i.e., sovereigns [39]. The only long-term solution for providing a backstop for Italy or Spain was a Eurobond. There was no way Germany could guarantee Italy or France could guarantee Spain. The problem became so big that the only credible guarantees were joint.

"Eurobonds", shorthand for euro-area sovereign debts that were jointly guaranteed by the 17 member countries, could provide a solution. In aggregate, the public finances of the currency block compared favourably with the US which could borrow at dirt-cheap rates (2011's euro-wide budget deficit was 4.1% of GDP, less than half the US's 9.6%). But replacing all national government bonds with collectively underwritten debt was a non-starter. A fully mutualised euro-zone debt market would be enormous—at €8 trillion ($10.5 trillion), not far short of the US's—and thus very liquid. That would have lowered average borrowing costs a bit, but the big gains through lower yields would go to the block's fiscal sinners (the Signori), while the good guys (the Herrs) would be charged more to tap the markets than they were then. Such a move risked undermining the euro area's public finances in the long run by taking pressure off renegades. To prevent that, national budgets would have to be tightly controlled at a euro-zone level, entailing much deeper political integration than was conceivable [40].

Proponents argued that the most convincing message that could be sent to the markets about the determination of euro-area governments to stand by the euro would be the introduction of common euro-zone bonds, or Eurobonds. Initial ideas offered could be the set up of a European Debt Agency that would replace the EFSF/ESM [45]. Unfortunately, the euro-zone bond was something that required new institutions and would have to be a multistep process as was the introduction of the euro itself during the 1990s because it would require a change in European treaties and required changes in various national constitutions.

Some member states argued that such a step would require a fiscal union, others have made a fully-fledged political union a prerequisite for a Eurobond. Ms. Merkel argued it was wrong to suggest that "collectivisation of the debt would allow us to overcome the currency union's structural flaws" – a concern echoed by the Netherlands and Finland, two other triple A-rated euro-zone members [41]. Germany and other countries with a record of strict fiscal prudence opposed Eurobonds, describing them as a fatal temptation. Eurobonds would enable less disciplined nations to piggyback on the strong German credit rating and impose higher interest rates on the country's debt [45].

Despite objections to the creation of a Eurobond, the EC Commission's green paper put forth some serious proposals. The proposal with the greatest traction was the introduction of two types of euro-zone debt instruments – "blue bonds" and "red bonds". The euro-area sovereign bond market could consist of two distinct parts:

- stability bonds (or "blue bonds"): The issuance of stability bonds would occur only up to certain predefined limits (the EU debt ceiling under fiscal rules of 60% of GDP) and thereby not necessarily covering the full refinancing needs of all member states. These bonds would imply a uniform refinancing rate for all member states and would be considered safe assets in an investment portfolio;
- national government bonds ("red bonds"): The remainder of the issuance required to finance member state budgets would be issued at the national level under national guarantees (i.e., debt above the 60% threshold). The scale of national issuance by each member state would depend on the agreed scale of common issuance of stability bonds and its overall refinancing needs. Depending on the size of these national bond markets and issuances and the country's credit quality, these national bonds would have country-specific liquidity and credit features and accordingly different market yields. These bonds would naturally attract higher interest rates. In theory, these arrangements would provide a strong incentive for government to cut their debt to below 60% [47,42].

Despite German brush-offs, there were good reasons why this proposal should have risen to the top of the euro-zone's political agenda. It would be a lifeline for states facing a run on their debt. An ability to refinance up to 60% of GDP into jointly guaranteed bonds would have prevented usurious interest rates for several years – enough time to put public finances on a sustainable path [29]. A commonly backed "stability bond" would ensure all euro-zone members could meet their financing needs and create a vast market that could compete with US Treasuries as a global benchmark [42]. The extensive pooling of sovereign debt was fiercely resisted in Germany, where officials believed it would revive market pressure on profligate euro-zone countries, allowing weak economies to become "free riders" on the strong credit rating of Germany and other triple A sovereigns. The measure failed.

4. Economic governance over fiscal policy

The new-look MU was to be rounded off with a set of strengthened rules on economic governance, covering areas such as budget deficits, public debt and competitiveness (while allowing member states to maintain national sovereignty over taxation and expenditure – provided their debt positions and related deficits remained sustainable). The crucial element was "reversed qualified majority voting" for warnings and sanctions if a government broke the rules. Fines would be semi-automatic because governments would have to muster a majority to reject a sanctions proposal from the European Commission. Whether any government would ever be punished is another matter. No fines were ever imposed under the EU's old stability and growth pact. If government took more radical steps towards a true fiscal union, however, matters might be different [45].

Other proposals included the creation of an entity, a "stability council" that would supervise and enforce national fiscal and competitiveness policies. This entity would be empowered to levy fines. Euro-zone leaders sympathetic to such ideas argued that the euro-zone area needed more and better integration. On the monetary side there was the ECB, but there was no real integration on the budgetary side. There was a need for more capacity to take budgetary measures at the euro-zone level [45].

At every stage of the debt crisis, the force of events pushed the euro zone towards more integration even without the inclusion of non-EU members of the MU [45]. This integration was pursued without a democratic consultation in respective countries. Greece and others requesting aid were required to push austerity programs devised in Brussels (determined in Germany) without their parliaments having any real say in framing the programs. Germany had to support costly rescue programs and backtrack on positions that opposed bailouts or ECB interventions despite real political opposition and public disapproval for those actions.

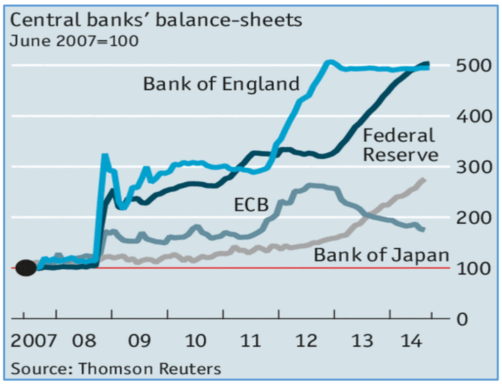
Time and again Ms. Merkel took stands against bail-outs only to relent. Germany balked at bailing out Greece and at a permanent rescue fund and Ms. Merkel vetoed the use of bail-out money to buy government bonds in the secondary market. In each case she gave in (too late, say critics). In July 2012, she pushed through parliament the ESM, the permanent fund she once opposed, and Europe's fiscal compact. Germany's capital contribution to the ESM pushed its budget deficit from €26bn ($332bn) to €35bn. Germany's potential liability, if all the money was lent and everyone defaults, could be €280bn. But her partners wanted more: Eurobonds backed by all countries, more time for weak economies to meet deficit-reduction targets, direct lending to Spanish banks and a "banking union", with Europe-wide deposit insurance [43].

In March 2012, the 25 EU leaders signed the Treaty on Stability, Coordination and Governance aimed at strengthening fiscal disciplines and introducing stricter surveillance within the euro area, in particular by establishing a "balanced budget rule". The main elements of the fiscal compact included a requirement for national budgets to be in balance or in surplus, a criterion that would be met if the annual structural government deficit did not exceed 0.5% of GDP at market prices. The balanced budget rule had to be incorporated into members' national legal systems. The EU Court of Justice would be able to vary national transposition of the balanced budget rule. Its decision was binding, and could be followed up with a penalty of up to 0.1% of GDP, payable to the ESM [44]. As of 1 March 2013, any granting of financial assistance under the ESM would be conditional on ratification of the treaty and the inclusion of the balanced budget rule into national legislations. The treaty's provisions were incorporated into the legal framework of the EU within five years after the treaty's entry into force [44].

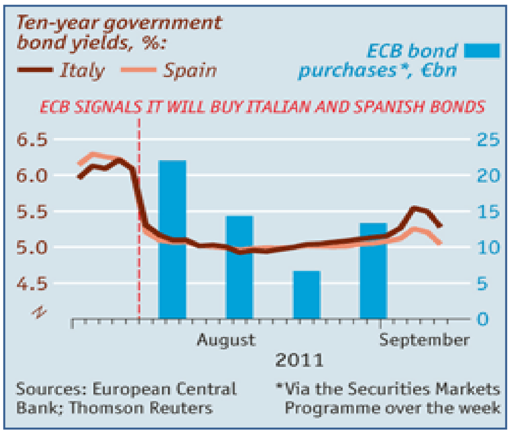
QE by the ECB

At the start of the financial crisis, the European Central Bank (ECB) ploughed a solitary course, reflecting its unique status as a monetary authority without a state. While other big central banks, notably the US's Federal Reserve (Fed), adopted QE—

buying government bonds by creating money—to stimulate recovery, the ECB relied mainly on lowering interest rates and providing unlimited liquidity to banks on longer terms and against worse collateral [48]. The chart below (Central banks' balance-sheets) shows how the ECB's balance sheet was much lower relative to the Fed's and the Bank of England. Japan had started QE before 2007 and another round took place in 2013.

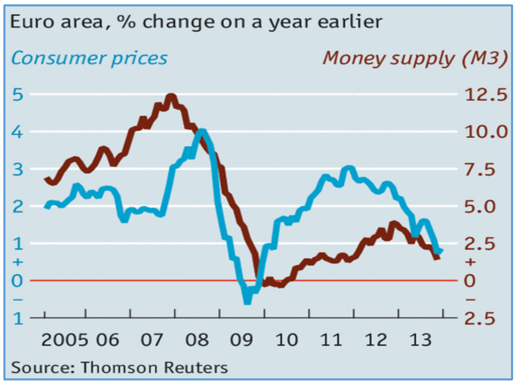


To help bring calm in 2011, the ECB entered the bond markets by buying Italian and Spanish government debt. The intervention lowered Italian 10-year debt from more than 6% to about 5%, but as the yields creeped up purchases had to increase (see chart, bond yields and purchases) [57].



In 2012, the ECB under Mario Draghi took bolder steps. It provided banks with €1 trillion ($1.3 trillion) of cheap 3-year variable-rate loans to avert a funding crisis. In September, it countered euro break-up fears by pledging, if necessary, to buy unlimited amounts of government bonds for countries besieged by the markets. Central bank's balance-sheets began picking up in 2011-12 with the loan programme to banks, and fell as banks repaid the money early, clearly showing how the ECB had yet to aggressively pursue QE [2] [6].

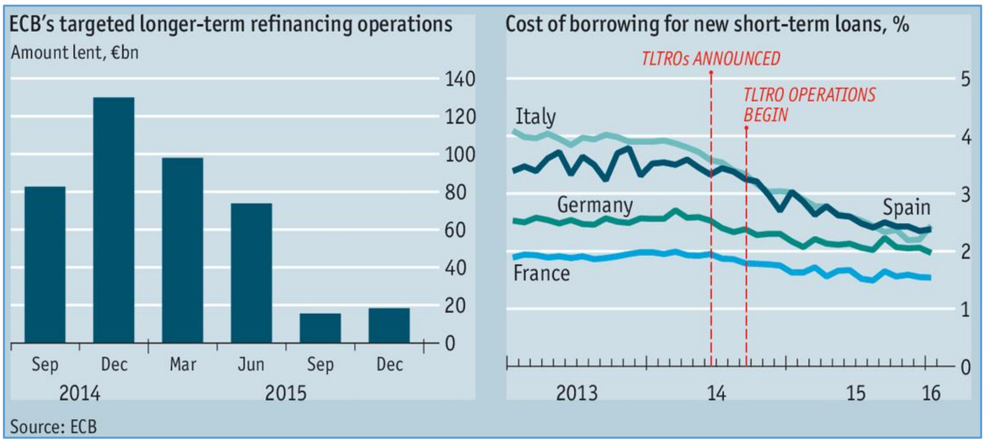
The twin threat in late 2014 was the stalling of euro-zone recovery and a slide towards deflation, a worry in the euro area because debt was high in many states and deflation raised its burden in real terms [48]. The deflation and slower growth in money supply reflected the euro area's concerns (see chart euro area prices and money supply) [49]. The ECB tried to galvanise the lifeless economy in two ways beyond ultra-low interest rates: a funding scheme to boost banks' lending to firms and the purchase of private-sector assets.



The ECB deployed "targeted longer-term refinancing operations", or TLTROs (extending cheap credit to banks that boost lending to businesses) in 2014 [56]. It conducted the first of two special lending operations amounting to €400 bn ($520 bn or 4% of euro-zone GDP) available to banks on extremely generous terms: for up to four years at a fixed annual interest rate of just 0.15%. The only condition was that banks raise their lending to business. In 2015 and 2016, more funding was made available provided that banks actually raised their net lending (i.e., it offered banks very cheap loans if they increased lending) [49]. TLTRO was aimed at countries like Italy and Spain, where monetary easing had not reduced borrowing costs by as much as it had in Germany or France [56].

These "targeted" long-term loans tackled a flaw in the ECB's 2011-12 scheme when banks in southern Europe used cheap three-year funding to buy sovereign debt rather than to lend more to companies [49]. Some saw TLTRO I as a damp squib because not all the $400 bn ($436 bn) of funding on offer was taken up in its early stages, and later demand dropped off further (see left-hand chart, ECB's lending under TLTRO). Bank lending to firms in the euro area in January 2015 was the same as it had been in September 2014, at the scheme's launch. The banks that borrowed from the ECB under TLTRO I did expand credit, but largely in countries with already healthy lending, such as Germany and France. The ECB found that banks in vulnerable countries that received TLTRO funds cut lending rates by an average of 1.15 percentage points between June 2014 and July 2015, compared with only 0.45 points among non-recipients. Lending volumes followed a similar pattern. Borrowing costs around the euro zone converged (see right-hand chart), although perhaps thanks to other policies as well [56]. Banks in southern Europe pocketed their full whack with glee but their counterparts in northern countries like Germany were not so needy [49].

Although banks in "vulnerable" countries—a category that includes Italy, Portugal and Spain—had not increased lending in absolute terms, they did at least cut corporate lending more slowly than they had been, as the scheme required. Stabilising lending to companies when it had been falling at an average annual rate of 4% since 2012 was a success of sorts. Numbers



crunched by Fitch, a rating agency, suggested that Italian and Spanish banks were the most avid participants. A single Italian bank, Intesa Sanpaolo, drew €28 billion of TLTROs [56].

In March 2016, the ECB, deployed TLTRO II. Next to ever-more-negative interest rates and ever-bigger bond purchases, TLTROs seemed mundane, but if one looked at the fine print, the ECB was offering to pay banks to lend. To encourage credit growth, the ECB charged banks for parking excess reserves with it (those negative interest rates). The new TLTRO II scheme was supposed to increase the incentive to lend, by returning some of the money the ECB made in this way to banks that increase their stock of corporate loans. Those that raise their lending above a certain target were paid as much as 0.4% to borrow from the ECB, with the precise rate depending on how liberally they splashed the ECB's money around [56].

Mr Draghi took few chances with the new, beefed up, TLTRO II. Whereas TLTRO I loans had to be repaid by September 2018, irrespective of when they were made, TLTRO II loans would last four years from the date of issuance. TLTRO I loans could also be called in if the borrower failed to meet its lending target; TLTRO II loans would not be recalled, and the interest on them would not rise above 0%, even if lending targets were not met. Also, banks would be eligible to borrow far more: TLTRO I limited the loans on offer to 7% of a bank's outstanding corporate credit; under TLTRO II the cap was raised to 30% [56].

The TLTRO initiatives resembled the Bank of England's funding-for-lending scheme, launched in 2012, which did not prevent further declines in lending to business, especially to smaller firms. The ECB's programme would fail to boost bank lending, said Huw van Steenis of Morgan Stanley, a bank, though it would cheapen the cost of credit for smaller firms in Italy and especially Spain [49].

As well as making long-term loans to banks, in October 2014 the ECB started buying two types of private-sector financial instrument underpinned by bank loans: covered bonds (debt issued by banks backed by safe loans) and asset-backed securities (ABS) [2] [6]. The purchase of ABS could in principle boost credit, especially if the underlying loans are to small firms. The banks selling ABS would no longer have to hold capital against these loans, freeing them to make new ones. But ABS were divided into slices carrying varying degrees of risk; the ECB only could buy the safest slices, or those guaranteed by governments. And there was not much to buy: the value of all outstanding euro-zone ABS backed by loans to small business amounted to around €100 billion [49]. By late December 2014, the ECB had bought just over €30 bn, overwhelmingly in covered bonds. If sustained, this could have added up to €200 bn to the ECB's balance-sheet by the end of 2015 [53].

Since the ECB created money to pay for the purchases, this was a form of QE, but it was small in scale. The ABS market remained a shadow of its former self before the financial crisis. The covered-bond market was healthier, but the ECB managed to buy only around €75 billion-worth over two years in two previous asset-purchasing schemes. Altogether, the ECB struggled to buy more than €100 billion a year in ABS and covered bonds, says Gareth Davies of JPMorgan, a bank [49]. Private-asset markets in the euro-zone were not big enough for purchases to have much impact. So, it was argued that asset purchases would have to be of government debt as it had been done by other central banks [51].

Further cuts in the lending rate, to 0.1% were set to address deflation, but beyond that, the ECB had two options before turning to QE proper: strengthening its forward guidance and setting negative interest rates. Since the council's declared policy was that of forward guidance, reinforcing it made sense. Other central banks provide harder guidance. The Fed and the Bank of England tied pledges not to raise rates to explicit thresholds for unemployment (and even then not to treat these as automatic triggers). As Willem Buiter of Citigroup pointed out, the ECB's version could be hardened with bank's long-term liquidity operation at a fixed low rate. That would enhance the credibility of the guidance and help to keep forward interest rates very low [49].

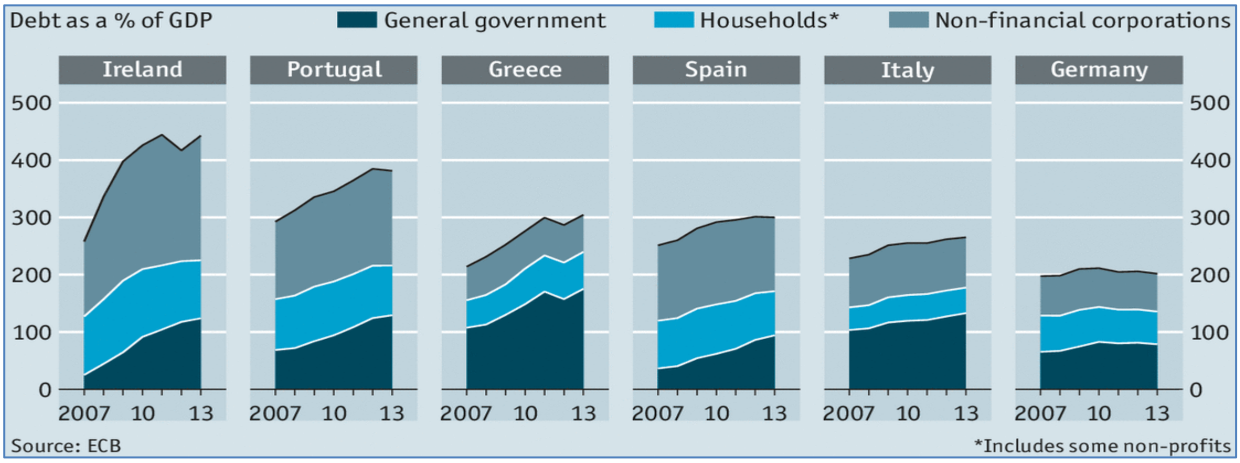
Introducing negative rates would be more radical but consistent with the current version of forward guidance, which applied to all the bank's policy rates. The rate that would go negative was the one the ECB paid on overnight money left with it, which since July 2012 had been zero. A negative deposit rate would in effect charge banks for parking spare funds at the ECB. Though this would be unprecedented for the euro area, Denmark had already gone negative in July 2012 (in response to the ECB's zero rate) to deter inflows of foreign funds that were putting upward pressure on the krone and threatening its peg to the euro [49].

The case for the ECB going negative was broader than that for the Danish central bank. Owing to the fragmentation of the euro zone, the deposit rate mainly affected banks in northern creditor countries, which could access the money markets. If the deposit rate turned negative, this would ease money-market rates because it acted as a floor for them. This would help to stimulate activity in northern Europe and could ease upward pressure on the euro, which had been uncomfortably strong for export businesses. An even bigger prize would be if the policy restored a euro-zone interbank market by nudging northern banks to lend again to their southern counterparts, which had been relying on central-bank funding [49]. But that gain would be elusive if northern banks continued to ostracise southern banks on the ground they are still too risky. And going negative could backfire. Banks would be likely to restore any erosion in their profit margins by raising their lending rates, which would defeat the purpose of the exercise [48].

In September 2014, rates were cut to 0.05% and the asset-backed securities purchases from banks was an effort to get them to lend at that rate. German attitudes toward the ECB likened the policy to opening the money tap, taking on debt and buying "junk" [54]. According to Hans-Werner Sinn, an economist with the Ifo Institute, "the ECB has cut interest rates by too much", and it is not authorised to buy bonds "as this is a fiscal and not a monetary-poly measure. Such a policy would be at the expense of the European taxpayers, who would have to pay for the losses incurred by the ECB" [54]. The Bundesbank in particular feared that QE would relieve pressure on less creditworthy countries to overhaul their economies and keep deficits in check. It would also mutualise within the ECB the risk of holding dodgy sovereign debt [51].

Worries that slow growth in the euro-zone would be a serious drag on the world economy increased. Deflation, makes debts harder to bear, had taken hold in the periphery, and threatened to afflict the euro-zone as a whole. Between 2007 and 2013, the ratio of government debt to GDP in the euro-zone rose from 66% to 93%. The spike was most dramatic in the periphery (see chart, debt as % of GDP). In Greece, the ratio increased to 175%, and in Portugal, it virtually doubled to 129%. High government debt itself does not necessarily crimp economic growth, but as bond yields rose, serving that debt would become difficult. Italy- with the third-largest stock of government debt in the world, much of which was refinanced each year- was a particular concern [55].

The overhang of private-sector debt was also a cause for concern. Overindebted firms struggle to grow and invest, while tying up scarce bank capital, which impedes lending to worthier borrowers. The picture was not uniformly grim. Despite Italy's staggering government debt, its households owed less than



Germany's and its non-financial companies not much more. Spain's private sector deleveraged substantially in a few years as recapialisations left its banks better able to withstand write-downs of bad loans [50].

Turning to QE is the policy that most clearly tackled the risk of deflation by lowering long-term interest rates and shoring up the money supply, which was barely growing. As the ECB pursued QE, it would have to buy in secondary markets a basket of bonds reflecting the economic weight of the 18 euro-zone countries (nearly 30% would thus have to be German). But it was particularly difficult to adopt because the Bundesbank opposed bond-buying on the ground that it blurred monetary and fiscal policy, especially in a currency union where there is no equivalent to federal US debt. In December 2014 Yves Mersch, a member of the ECB's executive board, said that purchasing a basket of government bonds would pose "immense economic, legal and political challenges" [49].

The ECB tried to avoid having to grasp any of these nettles, and was keener to influence market expectations through talk and threats rather than deeds [49]. For example, the markets long expected the ECB to introduce QE. That already led to a remarkable rally in sovereign-bond markets, especially in the troubled countries of southern Europe. In Portugal, for example, ten-year bond yields fell by 3.5 percentage points in the course of 2014, from 6.2% to 2.7% [52].

In late 2014, about halfway through a speech at Jackson Hole amidst central bankers, Mario Draghi had reached a passage in his prepared remarks about the worrisome trend in inflation afflicting much of the continent. Then Mr Draghi went off his text to utter a line that would send a potent message to global financial markets and political leaders across Europe. The ECB's governing council, he said, "will use all the available instruments needed to ensure price stability in the medium-term" [50].

The remarks surprised Mr Draghi's colleagues on the council, but their impact was delayed: European markets were closed, the addition was not in the speech on the ECB's website, and the Jackson Hole audience focused on his comments about austerity. The next Monday, euro-zone governments' bond yields fell and equity markets around the world rallied in anticipation of more monetary easing at the next ECB board meeting [50].

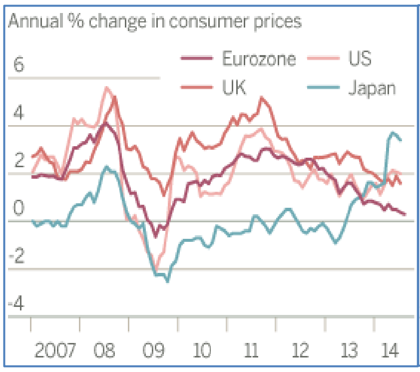
Few central bankers were more aware of the power of their words than the ECB's urbane president. Another of Mr Draghi's ad-libs, made in 2012, that the ECB would do "whatever it takes" to save the euro was seen as a masterstroke that halted the downward economic spiral that had gripped the continent [50].

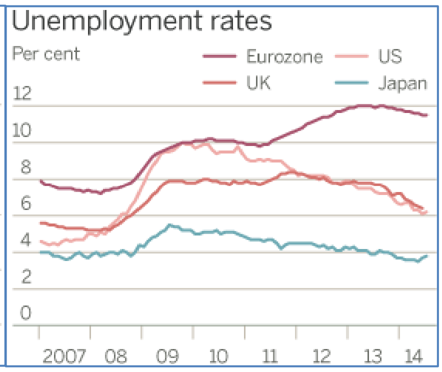
The confidence inspired by that speech lasted until 2014, when worries about the eurozone began to resurface. Mr Draghi's Jackson Hole remark was his most direct acknowledgment yet that investors had begun to lose faith in the ECB's ability to hit its inflation target – the cornerstone of its policy framework. The suggestion was that the eurozone's monetary guardians were willing to do more to prevent it from falling into Japanese-style stagnation [50].

Yet his pledge came with a caveat. Conditions had become so bad that, while the ECB could act, it could not do it all alone. Mr Draghi signalled the ECB was reluctant to reach for its most powerful tool – mass government bond buying, or QE proper – without the co-operation of European governments. At the height of the crisis central bankers saved the day, cutting interest rates and providing plentiful supplies of cheap money to stave off a financial meltdown. But the lacklustre performance of the global economy since then had highlighted the limits of monetary policy. While central bank cash helped asset prices soar, productivity and growth remained anaemic in advanced economies [50].

For the first time, the ECB president proposed what amounted to a fiscal and monetary compact with the currency area's lawmakers. The only way to defeat the region's low inflation and double-digit unemployment was, he said, "a policy mix that combines monetary, fiscal and structural measures at the union level and at the national level" (see charts on unemployment and inflation) [50].

Guntram Wolff, director of a Brussels think-tank, said it was a message Europe needed to hear: the euro-zone economy is in a





mess so grave that mass bond-buying alone cannot revive it. "He is saying that the euro-zone needs easier macroeconomic policies and structural reforms, and that the two need to go hand in hand," Mr Wolff says. "You need both; without reform all of the fiscal and monetary ammunition will just evaporate" [50].

Six years after the collapse of Lehman Brothers, the currency area's economy remained smaller than it was at its pre-crisis peak. Its recovery had ground to a halt. Inflation, at less than a fifth of the ECB's target of just below 2%, threatened to wreak havoc by exacerbating high debt burdens in some countries. [Its aim was to achieve inflation "below but close to 2% over the medium term."] For that to change, Mr Draghi signalled that governments in the eurozone's three largest economies – Germany, France and Italy, none of which grew at all between the 1st and 2nd quarters of 2014 – needed to act alongside the euro-zone's monetary guardian [50].

The message: Paris and Rome must reform their economies, removing barriers to the creation of businesses and jobs. Countries with the flexibility to spend more while staying within EU deficit rules should do so, creating what Mr Draghi described as "a more growth-friendly overall fiscal stance for the euro area".

Though the ECB president did not name names, that suggestion was widely interpreted as a call for Germany, the euro-zone's dominant economic power, to raid its fiscal coffers [50].

"The part of Mr Draghi's speech on the fiscal stance was an innovation," says Lucrezia Reichlin, a professor at London Business School and a former head of research at the ECB. "The idea of co-ordination between monetary and fiscal policy from a euro area perspective is a hint to Germany" [50].

France, already used to the ECB's grumbles that it should do more to restructure the economy, received Mr Draghi's calls warmly. President François Hollande's government seized on the speech. "It is the position held by the president for the past two years," insisted prime minister Manuel Valls. The French president was acutely aware that France's credibility was very low, weakening its pleas to Brussels and Berlin for more budgetary leeway and a demanded boost from the EU and Germany. During his two years in office, pledges to reduce the budget deficit below the EU's designated limit of 3% had come and gone with each budget projection. After securing a two-year delay from Brussels to 2015, it was already clear, with growth stalled, that France could not meet that deadline either [50].

Nevertheless, if the ECB president was to pull off his strategy to mend the euro-zone economy, it is crucial that he win the support of German chancellor Angela Merkel. "In Germany what matters is that he has Merkel's support. If Draghi is keeping her onside, then he'll be fine," says Lorcan Roche Kelly, of Agenda Research [50].

The government of the euro-zone's largest economy, accounting for almost 30% of the region's output, had room to spend. A fall in output in the 2nd quarter raised concerns that Germany – the bloc's economic engine – was beginning to run out of steam, bolstering the case for more investment spending by Berlin. Ms Merkel's willingness to raid the fiscal coffers was unclear. She left the door open to channelling the budget surplus into investment programmes, but indicated this could happen only if the economy were strong enough [50].

In 2014, the ECB was the only leading central bank to have avoided embarking on QE. One factor has been German opprobrium over a policy some view as a bailout for the region's weaker economies. The governing council's hawks also used what they viewed as France and Italy's fiscal profligacy and resistance to reform as crucial to their argument. Some analysts viewed the apparent trade-off between QE and more reform from France and Italy – and more spending from Germany – as a ploy to buy more time [50].

"Draghi's remarks shouldn't be taken at face value. His call for fiscal easing deflects pressure on the ECB to launch QE, safe in the knowledge that Germany would block any such move," said Philippe Legrain, an economist and former adviser to then European Commission president José Manuel Barroso. "By arguing that the effectiveness of QE depends on a more stimulative fiscal policy and bolder structural reforms, he was in effect raising new hurdles to it" [50].

As 2014 drew to a close, after months of debate and exhausting all alternatives, the ECB signaled an increasing readiness to pursue QE aggressively. The ECB president wanted to crank up monetary policy because inflation remained uncomfortably lower than the bank's goal of 2%. On 22 January 2015 the ECB announced that it was finally introducing purchases of €60 bn ($70 bn) a month for at least 19 months, adding hefty purchases of government bonds to an existing scheme to buy covered bonds and asset-back securities (currently around €10 bn-worth a month). Special rules applied to purchases of the bonds of countries like Greece which received bail-outs. The bulk of any losses on sovereign debt that were purchased would be borne by national central banks [52].

The ECB was permitted to buy sovereign bonds in secondary markets, but unlike the other central banks it lacks a state. The credit ratings of the countries in the euro-zone vary from AAA in Germany to junk in Greece. Buying Greek debt would expose the central bank to potential losses if Greek politics soured further. The Bundesbank fretted about anything that might seem as the ECB straying into forbidden fiscal territory. A majority of the 25-strong council backed Mr Drahi in moving to QE [53].

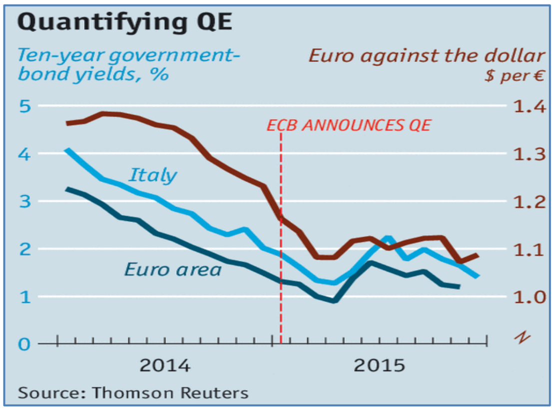
Another difference between QE in the euro zone and in the US in particular arose from the nature of their financial systems. Because firms rely much more heavily on capital markets in the US, they benefited a lot as falling yields on government debt pushed investors into riskier assets such as corporate bonds. By contrast, banks are more dominant in the euro zone, so its companies would benefit less from the boost to European capital markets [52].

There were two main channels through which QE was likely to work in the euro zone. One is the "signalling" effect. By adopting the policy, the ECB sent a clear message to markets and to firms that it was determined to bring inflation closer to 2%. The other was through the exchange rate. The euro had already been weakening by spring 2014 and further weakening of the single currency seemed likely [52].

All this made the ECB's foray into QE less like the programmes launched by the Fed and the Bank of England at the height of the crisis and more like those of the Bank of Japan, which had been combating the more insidious threat of deflation. As with Japan's more recent bond-buying splurge (in 2013-14), the main effect seemed likely to come via the exchange rate. The worry was that like Japan in the early 2000s, the ECB may have introducing the policy too late [52].

The belated adoption by the ECB of QE started in 2015. An ECB study of QE found that it was responsible for half of the percentage-point fall in the average yield of ten-year government bonds in the euro zone between the start of September 2014 and the end of March 2015. The contribution to declines in countries such as Italy, which had been assailed by the bond markets, was even bigger, at 0.7 percentage points (see chart, quatifying QE) [58].

In Feb 2017, the spread between ten-year government bonds in France and Germany had reached its widest level in four years. The proximate cause seemed to be a growing concern about political risks to the euro. A big influence is the growing conviction that the ECB would soon decide to wind down QE [59].



The ECB announced in December 2016 that it would reduce from April the amount of bonds it buys each month, from €80bn ($85bn) to €60bn. Mario Draghi, the bank's boss, insisted this was not a "taper", a word that implied a gradual reduction in purchases to zero. But the published minutes of the ECB's December meeting suggested that QE was nevertheless running out of road. It was acknowledged, for instance, that there were legal risks in ditching a self-imposed rule that the ECB should not buy more than a third of any country's government debt. This rule puts a cap on the Bunds the ECB can buy, since Germany has a shrinking debt pile. That matters because Germany also has the euro zone's largest economy and bond purchases are proportionate to economic heft. It would cause a stink if the ECB decided to buy proportionately more bonds of high-debt countries such as Italy—or indeed France [59].

There were other reasons to believe the ECB was heading for the QE off-ramp. The euro-zone economy was puttering along nicely. Although the core rate of inflation, which excludes volatile food and energy prices, was stuck below 1%, headline inflation had picked up sharply and was expected to rise further in the spring – 2016's big fall in oil prices dropped out of the annual rate. The QE programme was conceived when deflation was greatly feared. As the risk of it diminishes, it is harder for the ECB to justify further hefty asset purchases—even if there were enough eligible bonds to buy [59].

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