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**What Does the 1930s' Experience Tell Us about the Future of
the Eurozone?**

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What Does the 1930s' Experience Tell Us about the Future of the Eurozone?

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Abstract

If the Eurozone follows the precedent of the 1930s, it will not survive. The attractions of escaping from the gold standard then were massive and they point to a strategy of devalue and default for today's crisis countries. A fully-federal Europe with a banking union and a fiscal union is the best solution to this problem but is politically infeasible. However, it may be possible to underpin the Euro by a 'Bretton-Woods compromise' that accepts a retreat from some aspects of deep economic integration since exit entails new risks of financial crisis that were not present eighty years ago.

JEL Classification: F33; N14

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1. Introduction

The economic crisis in Europe that started in 2008 is the most serious since the 1930s. Not surprisingly, the experience of that decade can be seen as a source of lessons as to the dangers that Europe now faces and the policy responses that may be forthcoming. Looking at the 1930s in this way is not reassuring. That decade was notorious not only for the severe economic downturn of the Great Depression but it was also a period notorious for banking crises, currency wars, exchange controls, protectionism and sovereign default. The gold standard collapsed, central banks lost their independence, and the public lost its faith in the market economy. Ultimately, it took half a century fully to reverse the 1930s' economic disintegration of Europe although a beginning was made in the 1940s under the auspices of the Bretton Woods Agreement and the Marshall Plan.

If the debacle of the 1930s were to be repeated, the prognosis for the Eurozone would indeed be gloomy. In order to assess the likelihood of this happening and potentially to avert this outcome, it is important to understand in some depth the evolution of economic policy and its rationale in the aftermath of the shocks that battered the European economy following the Wall Street Crash. This paper provides just such an analysis using ideas building on the macroeconomic trilemma highlighted by Obstfeld and Taylor (2004) to throw light on the question 'will this time be different?'. A key feature of 1930s' macroeconomic policymaking was that, for much of the 1930s in depressed economies, nominal interest rates were at the zero lower bound (ZLB) and the implications of trying to achieve economic recovery in such conditions are also explored.

In any event, the post-2008 crisis has significantly affected the medium-term prospects of European economies. The legacy is one of misalignments of real exchange rates, high public debt to GDP ratios, a prolonged period of fiscal consolidation, a fragile banking system and levels of real GDP that will be appreciably below what would have been expected pre-crisis. The design of European Monetary Union has been revealed to be fundamentally flawed. The policy space available to troubled Eurozone economies appears to be uncomfortably narrow. The status quo does not seem to offer a viable future. Using the political trilemma proposed by Rodrik (2000) to reconsider the 1940s' response to the damage done by the 1930s, this paper argues that the choice for the Eurozone economies lies between minor or major disintegration and that, either way, this will have adverse effects on growth performance.

1. Economic Disintegration in the 1930s: an Outline

The Great Depression of the early 1930s was characterized by deflation, slump and financial crises; prices declined, there were substantial and prolonged falls in real GDP and unemployment rose dramatically while banking and currency crises proliferated. The responses of policymakers added up to a major globalization backlash which entailed greatly increased barriers to international trade and capital flows. Economic policy was very much the domain of the nation state and was orientated to what were perceived as domestic needs; attempts at international policy coordination such as the World Economic Conference held in London in 1933 were failures and, of course, this era preceded the establishment of the GATT/WTO and the IMF.

Table 1 records the macroeconomic experience of the industrialized countries. The average decrease in real GDP was almost 17 per cent and the 1929 level was not regained until 1936. While output fell sharply in most countries there was a considerable variance – on an annual basis, real

GDP fell from peak to trough by over 25 per cent in both Germany and the United States but only by about 6 per cent in the United Kingdom (Crafts and Fearon, 2013). In general, the slump was much worse for countries in which there was a banking crisis and which were slow to leave the gold standard. The 1930s are rightly notorious for high unemployment but internationally comparable data are scarce; the figures in Table 1 are useful for suggesting how rapidly unemployment rose and how slowly it fell in the internationally tradable industrial sector but, by excluding the service and public sectors, significantly exaggerate overall levels of unemployment. Table 1 also reports a steep decline in the volume of world trade which fell initially by about 24 per cent and never regained its 1929 peak during the 1930s.

In Table 2 we see that many countries had a banking crisis (financial distress in the banking system, bank liquidations, significant bank runs etc.) Again experience varied greatly – in the United Kingdom there were no bank failures whereas in the United States about 9000 banks (accounting for about 1/7th of all deposits) failed. A comparison of the catastrophic banking crisis in 1931 with that of 2007/08 shows that the countries involved in 1931 accounted for 55.6 percent of world GDP while the figure for the latter period is 33.5 percent (Reinhart, 2010; Maddison, 2010).

Table 3 chronicles the collapse of the gold standard in the 1930s quite soon after its restoration post World War I. Famously, the United Kingdom made an ignominious exit in September 1931 having returned to gold only 6 years earlier. Virtually all major economies were on gold in 1929 but by late 1936 the French devaluation signalled the final demise of an international monetary system based on free convertibility of currencies into gold at a fixed parity. Table 4 shows that the price of staying on the gold standard was a big loss of international competitiveness – reflected in numbers exceeding 100 – and massive deflationary pressure on prices. There was a stark contrast between France and the United Kingdom by late 1933.

It is also apparent from Table 3 that foreign exchange controls, i.e., restrictions on the international mobility of capital, became widespread. The macroeconomic trilemma states that a country can have at most two of a fixed exchange rate, independent monetary policy and unrestricted capital mobility (Obstfeld and Taylor, 2004). Whereas in the 1920s the modal choice by far was to sacrifice independent monetary policy, in the 1930s typically one or both of capital mobility and a fixed exchange rate were discarded. Table 5 shows that there was a strong (though by no means perfect) correlation between abandonment of the fixed gold-standard exchange rate and recovery so that, on average, countries seem to have benefited from revising their macroeconomic trilemma choice.

Table 6 reports a measure of increased protectionism based on tariff rates. This is only part of the picture since the 1930s also saw a substantial resort to non-tariff barriers to trade such as quantitative restrictions perhaps affecting as much as 50 per cent of world trade (Gordon, 1941). Increased barriers to trade clearly played an important role in reducing trade volumes in the 1930s. Models based on import demand functions (Madsen, 2001) and on the historical relationship between world production and trade (Irwin, 2012) both suggest that protectionism accounted for around 40 per cent of the fall. The goals of protectionist policies were typically to safeguard employment, to improve the balance of payments and to raise prices. Unlike today, there were no constraints from WTO membership.

As Table 7 reports, sovereign default was widespread in the 1930s – much more so than in the debt crisis of the 1980s – and was an important part of the world economic crisis and the withdrawal of

Latin American countries in particular from the world economy. Debts were owed to private bondholders rather than banks and this was important in permitting a relaxed attitude by lender governments (Eichengreen and Portes, 1989).

2. Economic Disintegration in the 1930s: Analysis

The decision to leave the gold standard was analyzed by Wolf (2008) who used a probit model to examine the odds of staying on gold. His results were that a country was more likely to leave if its main trading partner did, if it had returned to gold at a high parity, if it was a democracy, or if the central bank was independent. It was less likely to leave if it had large gold reserves, less price deflation, and strong banks. In other words, decisions as to whether to leave the gold standard were influenced by the strength of worries about loss of monetary discipline, the extent of deflationary pain, and deteriorating international competitiveness. The model predicts departures well and indicates that France was under the least pressure to exit in the early 1930s. This account maps into various generations of currency-crisis models. It also suggests that democratic politics undermined the gold standard. As Eichengreen (1996) underlined, the extension of the franchise had made acceptance of deflationary policies to stay on gold much less acceptable than in the nineteenth century.

For the typical small open economy in the rest of the world, the big problem as the Depression took hold was being subjected to deflationary pressure as world output and prices fell whilst being severely constrained in policymaking by membership of the gold standard. The concept of the macroeconomic trilemma tells us that such a country can only have two of a fixed exchange rate, capital mobility and an independent monetary policy. It follows that, for countries on the gold standard, a monetary-policy response to the deflationary shocks needed to be coordinated across countries (thereby allowing interest rate differentials to remain unchanged) but, as Wolf (2013) explains, international coordination was out of the question.

Besides having no control over monetary policy, staying on the gold standard required reductions in prices and money wages to maintain competitiveness, and entailed high real interest rates and increases in real labour costs (Newell and Symons, 1988). Leaving gold delivered autonomy over monetary policy with lower interest rates and real wage rates and also stimulated investment (Eichengreen and Sachs, 1985). In the post gold-standard world, central banks tended to lose control over the conduct of monetary policy which passed to governments. Indeed, Goodhart (2010) described the 1930s to the 1960s as an era of 'the subservience of central banks'.

It is implicit in this discussion that the aggregate supply curve is positively sloped rather than vertical so that aggregate demand shocks have output as well as price-level effects. This seems to be borne out by the evidence. Bernanke and Carey (1996) in a careful panel-data econometric study found both that there was an inverse relationship between real wages and output and that this reflected incomplete (and indeed quite sticky) nominal wage adjustment in the presence of aggregate demand shocks. The severity and duration of the downturn was increased the longer a country stayed on the gold standard (Bernanke, 1995). The collapse of the gold standard clearly triggered a 'beggar-thy-neighbour' currency war but nevertheless this delivered global deflation and was part of the solution not part of the problem (Eichengreen, 2013).

Staying on the gold standard also increased the risk of a banking crisis as balance sheets deteriorated, although these crises were experienced in many countries and were associated with weaknesses in banking systems as well as the deflationary pressures which stressed them (Grossman, 1994). Banking crises were bad for the real economy and countries which went through them were exposed to much larger decreases in real output; the median banking crisis lasting a year lowered industrial output by 12 per cent according to the estimates in Bernanke and Carey (1996).

The gold standard collapsed under the pressure of deflation. This problem stemmed from the behaviour of balance-of-payments-surplus countries and the asymmetric requirement for adjustment placed on deficit countries. Between 1927 and 1932 France saw its share of world gold reserves increase from 7 per cent to 27 per cent of the total. Since the gold inflow was effectively sterilized, the policies of the Bank of France created a shortage of reserves and put other countries under great deflationary pressure. By 1932, France and the United States together held 62 per cent of world gold reserves. Irwin (2010) concluded that, on an accounting basis, France was probably more responsible even than the US for the world wide deflation of 1929-33. He calculated that through their 'gold hoarding' policies the Federal Reserve and the Banque de France together directly accounted for half the 30 per cent fall in prices that occurred in 1930 and 1931. Deflation was accompanied by high real interest rates; central bank discount rates averaged 5 per cent as late as the end of 1931 and still almost 3.5 per cent in mid-1933 (Almunia et al., 2010).

The goals of protectionist policies were typically to safeguard employment, to improve the balance of payments and to raise prices. Unlike today, there were no constraints from WTO membership. Protectionism is usually thought of as the triumph of special-interest groups but, in this period, it may have been more a substitute for a macroeconomic-policy response. For example, Eichengreen and Irwin (2010) found that, on average, tariffs were higher in countries that stayed on gold longer and so had less scope to use monetary or fiscal policies to promote economic recovery. Their paper suggests that the financial crisis of 1931 rather than the Smoot-Hawley tariff was the real trigger for the 1930s' trade war.

Default was typically triggered by the increased burden of debt service as the depression intensified and export prices fell while real interest rates rose. Econometric analysis of the decision to default shows that it was more likely the higher the debt to income ratio and the greater the terms of trade shock but was also made more likely by unwillingness to pursue austerity policies (Eichengreen and Portes, 1986). In the 1930s, maintaining debt service tended to be associated with fiscal austerity and measures to improve the current account of the balance of payments while the decision to suspend payments was often accompanied by fiscal expansion and monetary reflation.¹ An analysis of the implications of default shows that it promoted growth, especially for heavy defaulters (Eichengreen and Portes, 1990).

This analysis highlights several points of relevance to today's Eurozone crisis. First, back in the 1930s devaluation, perhaps accompanied by default, was the route to recovery. Macroeconomic-trilemma choices were dramatically revised. Second, the existence of the fixed exchange rate system was

¹ Maintaining fiscal sustainability is much more onerous when the debt to GDP ratio is high. To prevent the debt to GDP ratio, d , increasing requires that the primary budget surplus/GDP ratio, $b > d(i - \pi - g)$, where i is the nominal interest rate on government debt, π is the rate of inflation and g is the real GDP growth rate. Default reduces d , possibly to zero.

undermined by surplus countries which placed large burdens of adjustment on economies with weak balance of payments positions. Third, exit from the gold standard was contagious. Fourth, when orthodox macroeconomic policies were unavailable as a way to fight unemployment, protectionism was to be expected. Finally, it should also be recognized that a long and deep contraction in GDP was conducive to the rise of extremist political parties, although the link was not automatic and depended on the structure of the electoral system and whether there was a long-standing democratic tradition (de Bromhead et al., 2013).

3. Macroeconomic Policy at the ZLB

The pre-2008 norm for the macroeconomic policy framework was inflation targeting by an independent central bank. The way in which inflation targeting is implemented is generally through a Taylor Rule. The central bank raises short-term interest rates if inflation is above target or if GDP is above the economically sustainable level – i.e., if the ‘output gap’ is negative. Inflation targeting using a Taylor Rule runs into difficulties when it requires that the nominal interest rate be negative. This is the ‘zero lower bound’ constraint. This is most likely to matter in times of deflation or severe recession especially if this is associated with a banking crisis and credit crunch (Woodford, 2011a). This suggests either that a strategy has to be devised to lower real interest rates by creating inflationary expectations and/or that it may be necessary to use expansionary fiscal policy.

Indeed, New-Keynesian macroeconomic models have been developed which predict that fiscal stimulus may be expected generally to have a larger multiplier effect when interest rates are held constant at the lower bound, as recent discussions have emphasized. One way in which this may work is when a deficit-financed increase in government spending leads expectations of inflation to increase. Simulated examples of fiscal stimulus in ‘great depression’ conditions have suggested values in excess of 2 may be observed (Woodford, 2011b).

In principle, the central bank can stimulate the economy by holding its interest rate down while encouraging people to expect inflation. Reductions in the real interest rate sustained over a period of time have the potential to act as an expansionary policy so monetary policy is not impotent after all even when interest rates hit the zero lower bound. This strategy may be hard to implement, however. There is a problem of ‘time inconsistency’ in that the private sector may anticipate that the central bank will change its policy as soon as the economy starts to recover. For the real interest rate policy instrument to be effective, it is vital that there is a credible commitment to future inflation. One way to achieve this might be to change the policy mandate of the central bank. Svensson (2003) suggested that a ‘foolproof’ way to escape the liquidity trap is to combine a price-level target path with an initial currency devaluation and a crawling exchange-rate peg which will require a higher price level in equilibrium and can be underpinned by creating domestic currency to purchase foreign exchange. Another way might be to revoke central bank independence and allow the finance ministry to run monetary policy

Following exit from the gold standard, both the United Kingdom and the United States experienced strong recoveries in real GDP in the years 1933 to 1937 with growth rates of about 4 and about 8 per cent per year, respectively. Table 8 reports estimates of real interest rates. Both cases reflect the importance of changes in inflationary expectations as well as the shift to a new stance with regard to the macroeconomic trilemma.

The most persuasive account of the American turning point in 1933 is to explain it as a 'regime change' linked to the exit from the gold standard and the Thomas Amendment which granted the President broad discretionary powers over monetary policy (Temin and Wigmore, 1990). Recent research has clarified and amplified this proposition in the context of the ZLB. Eggertsson (2008) sees devaluation as a necessary but not sufficient condition since the key is not devaluation per se but reducing real interest rates. In his analysis, the role of the New Deal and deficit spending is central but as a credible policy that raised inflationary expectations with the government targeting a return of prices to the 1926 level.² The results of the calibrated DSGE model used by Eggertsson (2008) are that regime change accounted for around 75 per cent of the rapid rise in real GDP between 1933 and 1937. It is clear from Table 8 that real interest rates fell quite dramatically and very quickly. Movements in the exchange rate, which fell to \$5.10 against the pound from \$3.45 and remained in the range \$4.90 to \$5.10 during the next 4 years, and in gold reserves, which almost doubled within a year, were consistent with the 'Foolproof Way' to escape the liquidity trap.

Until the UK left the gold standard, the Bank of England set interest rates with a view to maintaining the \$4.86 parity. In practice, this meant that policy had to ensure that rates were not out of line with foreign, especially American, interest rates. After leaving gold, control of monetary policy passed to the Treasury and it took some time for policy to be re-set. The opportunity to redeem the 5% War Loan was taken in mid-1932 and £1.92 billion was converted to 3.5% War Loan 1952 saving interest payments of £28.8 million annually, a non-trivial amount in the context of the fiscal consolidation of the time. At the same time, the so-called 'cheap money' policy became reasonably settled and clearly articulated; the Treasury Bill rate fell from 3.77% in the first quarter of 1932 to 0.60% in the third quarter of that year, a level close to which it remained through 1938 (Howson, 1975). It is generally agreed that 'cheap money' provided a significant monetary stimulus which worked through raising investment, especially in house-building (Broadberry, 1986, 1987).

Senior Treasury officials wanted the price level to rise and when the cheap money policy was introduced believed that prices would return at least to the 1929 level by 1935. The Chancellor of the Exchequer announced the objective of raising prices at the British Empire Economic Conference at Ottawa in July 1932 and subsequently reiterated it frequently. The fall in the exchange rate from \$3.80 in March 1932 to \$3.28 in December 1932 is consistent with escaping the liquidity trap in the 'Foolproof Way', as is the sustained fall in the value of the pound and the large increase in foreign exchange reserves over the next four years which reflected intervention by the authorities to keep the pound down (Howson, 1980). So market reactions suggest that the cheap money policy quickly became credible. As Table 8 reports, it brought about a considerable reduction in real interest rates compared with the start of the decade. Obviously, this strategy does not represent an irrevocable commitment but it was a credible policy given that the Treasury and the Chancellor of the Exchequer were in charge rather than the Bank of England.³ Cheap money and a rise in the price level were clearly in the Treasury's interests from 1932 as a route to recovery, better fiscal arithmetic, and to provide an alternative to the Pandora's Box of jettisoning balanced-budget orthodoxy and adopting Keynesianism (Howson, 1975).

² Ever since the work of Brown (1956) it has been known that the New Deal was only a very modest fiscal stimulus. With interest rates at the lower bound, the multiplier effects of an aggressive Keynesian policy might have been big, as the estimates of Gordon and Krenn (2010) suggest, but it was not tried.

³ This would not have been the case had the Bank of England run monetary policy. Governor Norman plainly disliked cheap money and regarded it as a temporary expedient (Howson, 1975, p. 95).

The interwar British economy lived under the shadow of a large public debt to GDP ratio that was the legacy of World War I. Both price deflation and recession threatened fiscal sustainability and this prompted a fiscal consolidation in the early 1930s which improved the structural budget surplus/GDP ratio by almost 4 percentage points between 1929/30 and 1933/34 (Middleton, 2010). After peaking in 1933 at 1.792, worries about a rising public debt to GDP ratio eased and, as Table 9 reports by 1938, it had fallen to 1.438 even though by then rearmament was well under way.

How could this happen? The stark difference from the period prior to leaving the gold standard in September 1931 is clearly seen in Table 9. When the price-deflationary years of the early 1930s had been left behind, the required primary budget surplus fell steeply and, indeed, once the differential between the real interest rate and the real growth rate had turned negative, it would have been possible to run modest primary budget deficits and still have stabilized d . In fact, primary surpluses continued, albeit smaller relative to GDP, through 1938. A check on the fiscal arithmetic shows that about 2/3 of the fall in d came from continuing primary budget surpluses with about 1/3 from the real interest rate falling below the real growth rate during the recovery.⁴ This experience does, however, underline the point that ‘financial repression’ reduced considerably the severity of the required fiscal squeeze to improve this fiscal indicator.⁵ It also makes very clear why the Treasury liked ‘cheap money’ and its policy to raise the price level was credible.

This discussion has thrown up a number of points that bear on the policy options that Eurozone countries might like to access. First, at the ZLB, price deflation not inflation is public enemy number one. Second, conventional inflation targeting by an independent central bank is not necessarily an appropriate monetary policy framework in a depressed economy trying to escape the liquidity trap. Third, falling prices make achieving fiscal sustainability at high public debt to GDP ratios very demanding in terms of the required budget surplus so that, if deflation is required to restore competitiveness in a fixed exchange rate system, austerity fatigue is a likely consequence. Fourth, by the same token, financial repression which reduces or even eliminates the need to run a primary budget surplus will always have political attractions when sovereigns are highly indebted and are unwilling or unable to default. Finally, although the textbooks suggest that Keynesian fiscal stimulus policies may be effective at the ZLB, the 1930s does not provide much evidence for this because such policies were not really tried.

4. The Euro Area 5 Years After the Crisis Started

Economic performance in Eurozone countries remains very weak, as is summarized in Table 10. Current OECD estimates are that for the Euro Area as a whole real GDP in 2014 will still not have regained the pre-crisis peak while in the worst affected country, Greece, real GDP may be only about 75 per cent of 2007. Prolonged recession has been accompanied by rapidly rising unemployment - from 7.4 per cent in 2007 to a predicted 12.3 per cent in 2014 in the Euro Area but with much more dramatic increases in several countries including both Greece and Spain where unemployment is predicted to be around 28 per cent in 2014. Price deflation has generally been avoided but inflation

⁴ These proportions are derived using the method proposed by Ali-Abbas et al. (2011), which is an application of the fiscal sustainability formula in footnote 1.

⁵ ‘Financial repression’ occurs when governments intervene to gain access to funds at below market interest rates typically through regulations imposed on the capital market including imposing obstacles to international capital mobility. This played a major part in the post-World War II reduction in D/Y in Britain (and other European countries) but was already a feature of the 1930s.

remains very low so the growth of nominal GDP in the Euro Area is projected to average only about 1.5 per cent per year in 2013 and 2014.

Current account positions have adjusted substantially in southern Europe where big deficits accompanied by capital account surpluses were prominent in 2007. By 2012, these deficits were much smaller following a sudden stop in capital inflows, falls in income and improvements in competitiveness so that on the basis of relative unit labour costs only Italy was in a (slightly) weaker position than in 1999. Even so, external debt has risen and to restore sustainable external positions further improvements in competitiveness are needed to stabilize net external debt to GDP ratios or, preferably, to reduce them to less vulnerable levels, say, 35 per cent of GDP. For Portugal and Spain to achieve the latter it has been estimated that improvements in competitiveness relative to the rest of the Euro Area of about 30 per cent are required while for Greece the figure is nearly 80 per cent (Guillemette and Turner, 2013). If these changes in relative unit labour costs were to be delivered through falls in domestic wages and prices, many more years of high unemployment would have to be endured. Indeed, Euro-periphery economies appear close to downward nominal wage rigidity – only in Greece were labour costs per hour lower in 2012 than in 2008 (Eurostat, 2013).

Table 11 reports public debt to GDP ratios. Across the Euro Area, these are high and still rising. The extent of fiscal consolidation that would be required to reduce debt to GDP ratios to the Maastricht-prescribed level of 60 per cent within a 20-year time horizon is non-trivial in many cases and debt to GDP ratios are likely to remain high for a long time if the only way to reduce them is fiscal orthodoxy. Attempts to improve competitiveness which entail price deflation would intensify the required fiscal consolidations.

The long-term implications of high levels of public debt are likely to be unfavourable for growth, as is highlighted by growth models of the overlapping-generations variety. The adverse impacts can occur through a number of transmission mechanisms including reductions in market-sector capital formation, higher long-term interest rates and higher tax rates. Empirical research on advanced economies has found negative relationships; for example, Kumar and Woo (2010) estimate that a 10 percentage point increase in D/Y is associated with a fall of about 0.2 percentage points in growth. If taken literally, this could imply that the future trend growth rate would be as much as 0.75 percentage points lower than pre-crisis.⁶

A further implication of high public debt to GDP ratios is that they seriously reduce the scope for fiscal stimulus to boost growth. As is well-known, worries about fiscal sustainability have already undermined willingness to use fiscal stimulus. Much less widely noticed, however, is that the legacy of the crisis will be a lengthy period when public debt to GDP ratios are at a level which potentially renders fiscal stimulus ineffective. Auerbach and Gorodnichenko (2011) find that at debt to GDP ratios greater than 100 per cent fiscal multipliers are close to zero even in deep recessions while Ilzetki et al. (2010) suggest that, on average, the fiscal multiplier is zero on impact and in the long run is actually negative at debt to GDP ratios above 60 per cent. For Euro Area economies which have given up the independent monetary policy instrument the implication may be that they have little or no scope to deliver economic stimulus through expansionary macroeconomic policies.

⁶ Although there is a significant negative relationship between debt and growth, the magnitude seems to vary across countries and the claim that a particular threshold can be identified at which the adverse effect intensifies is probably not robust (Egert, 2013).

Fears of sovereign debt crises have been exacerbated by banking crises which in turn are made potentially more serious by sovereign default – the so-called ‘doom-loop’. Both types of crisis are made more likely by slow growth and, in turn, undermine growth performance. According to the criteria adopted by IMF economists, there have been systemic banking crises in 8 Eurozone economies since 2008 (Austria, Belgium, Germany, Greece, Ireland, Luxembourg, Netherlands and Spain) with borderline-systemic crises in 4 more (France, Italy, Portugal, Slovenia) (Laeven and Valencia, 2012). The threat to public finances from financial instability is much larger than in previous generations because bank balance sheets are now much larger relative to GDP. In 6 countries (Austria, Belgium, France, Ireland, Netherlands and Spain) this ratio was at least 3 by 2009 (Obstfeld, 2013) whereas until the 1970s it was typically less than 1 in advanced countries (Schularick and Taylor, 2012). Equally, the threat to financial stability from sovereign default is considerably greater now than in the 1930s because the debts are owed to banks rather than private bondholders.

In these circumstances, what might the 1930s suggest is likely to happen? Prima facie, the possibilities seem fairly clear. The macroeconomic-trilemma framework points to exits from the Euro since devaluation has attractions for the periphery countries of Southern Europe because it would allow more policy sovereignty and a route to an early return to growth. The experience of monetary policy at the ZLB suggests that the Eurozone may be more likely to survive if the European Central Bank credibly targets higher rates of inflation for a period; this would not only reduce real interest rates but would also reduce real wages and restore competitiveness in the periphery (Schmitt-Grohe and Uribe, 2012). If neither of these comes about, then financial repression and/or sovereign default together with protectionism may take the place of orthodox macroeconomic and debt-management policies. Unless, of course, history is a poor guide and this time really is different.

5. The Future of the Eurozone through a Political-Trilemma Lens

These arguments can be developed more fully in the framework of the political trilemma (reproduced in Figure 1), originally proposed by Rodrik (2000) and recently used by Crum (2013) to consider the future of the Eurozone. The trilemma is that it is possible to have at most 2 of deep economic integration, democratic politics and the nation state. If a ‘golden straitjacket’ choice is made, then democratic politics is subservient to a rules-based system of governance while if global federalism is chosen, the nation state loses at least some of its political authority but democracy obtains at the federal level.

The 1930s’ implosion of the Gold Standard can be understood in terms of this political trilemma, as follows. In the 1920s, with the return to the Gold Standard, countries had signed up to the ‘golden straitjacket’, which had been acceptable in the context of very limited democracy in the 19th century but in the 1930s democratic politics at the level of the nation state over-ruled this policy choice (Eichengreen, 1996). To retain the benefits of deep economic integration would have required action to organize it through democratic politics at a supranational level but this was not feasible. When reconstruction of the international economy was subsequently undertaken under the auspices of the 1944 Bretton Woods agreement, economic integration was severely restricted by controls on international capital flows (the ‘Bretton-Woods compromise’ in Figure 1). The idea of the ‘Bretton-Woods Compromise’ was to sacrifice some aspects of economic integration to provide

sufficient policy space to make saving the remaining aspects (in this case moving back to freer trade) politically acceptable rather than accept the full 1930s' retreat from globalization.

Despite the apparent precedent of the 1930s, the Eurozone has not yet collapsed so this time may be different for several reasons which imply that the benefit/cost ratio of leaving the gold standard was rather different from that of exit from the Euro. First, this may be a Pyrrhic victory because it could well engender capital flight and a devastating bank run – or, put differently, ‘the mother of all financial crises’ (Eichengreen and Temin, 2013). Second, the perception of dire consequences of a devaluation and default for other Eurozone countries in an integrated capital market with much bigger bank balance sheets that feature substantial amounts of sovereign debt led to the provision of financial support with conditionality under the auspices of the ‘troika’. Third, the European Central Bank has acted as a lender of last resort not only to banks but also to sovereigns through sovereign debt purchases and its offer of outright monetary transactions (OMT).

Furthermore, the initial thrust of policy proposals by the European Commission (2012) is to strengthen the ‘Golden Straitjacket’ to preserve deep economic integration and the primacy of the nation state but at the expense of democracy. The Commission charts a path through new fiscal rules together with the beginnings of a banking union in terms of a single supervisory mechanism (SSM) followed by a single resolution mechanism (SRM). Crum (2013, p. 615) sees this as ‘a strategy with considerable justification’ since democratic federalization is out of reach and thus the only realistic alternative is collapse of EMU.

Yet, European Commission (2012) clearly envisages that reforms should ideally go much further and require treaty changes. Later stages of the process that it spells out include a full fiscal union and participatory democracy at the federal level including direct election of an EU President. Arguably, given the size of bank balance sheets relative to national economies, an effective banking union, which would ensure financial stability and break the doom-loop, entails more than the SSM and SRM; it requires a supranational fiscal backstop that underpins deposit insurance and allows the issue of Eurobonds (Obstfeld, 2013). So, the ‘golden straitjacket’ may not be enough to save EMU.

A ‘United States of Europe’ would entail banking union, fiscal union, and a constitution that ended Europe’s ‘democratic deficit’. Wolf (2012) spells out what this might enable. He notes that it would allow more effective European fiscal and monetary policy at the ZLB, and political legitimization of a much higher level of transfer payments from an expanded European budget while also finding a way to share burdens of adjustment between surplus and deficit countries. The advantages of this political-trilemma choice are the realization of economies of scale in the provision of federal public goods, the internalization of externalities and mutual insurance against asymmetric shocks (Spolaore, 2013). However, voters in different European countries have very different preferences for design of a reformed EU, i.e., ‘heterogeneity costs’ are probably too high to allow the realization of these putative benefits.

The economic history of the 1930s offers no guide as to the feasibility of ‘global federalism’ as a solution to the political trilemma but it does speak to the trajectory that might develop as a modern equivalent to the ‘Bretton-Woods Compromise’ - rather than the collapse of the Euro which Crum (2013) takes to be the third trilemma outcome. It is unlikely that we will see the re-imposition of capital controls across Europe on the scale of the 1950s but it may be that some economic

disintegration could make life within the Euro more politically tolerable for countries that otherwise have very limited policy space – indeed, this is already happening.

In the 1930s, countries ‘trapped’ in the gold standard turned to imposing barriers to trade, *faute de mieux*. Today’s equivalent includes increased reluctance to implement the Single Market in services and the creeping protectionism documented by Global Trade Alert (Table 12). These interventions are mostly not flagrant violations of WTO rules and traditional tariff measures are only a small part of what has happened. The European Commission and EU member states have been by far the most active protectionists accounting for 335 measures. EU protectionism has entailed a relatively high level of discrimination against foreign commercial interests and of selectivity among firms compared with other leading economic powers and 84 per cent of interventions in the EU have employed policy instruments that are subject to low or no regulation by the WTO using measures such as bailouts, trade finance, and subsidies, with the EU state-aids regime effectively suspended (Aggarwal and Evenett, 2012).

If high primary surpluses are required to achieve fiscal consolidation for countries which face high debt to GDP ratios and low rates of growth of nominal GDP, ‘austerity fatigue’ is a real worry. Indeed, Buitert and Rabhari (2013) have argued that in some cases the maximum politically feasible budget surplus may be less than that required for fiscal sustainability. This implies the attraction of ‘financial repression’ in the sense of manipulating the interest rate paid on government debt in order to use a positive differential between the real growth rate and the real interest rate to bear some of the burden of debt to GDP reduction, as in 1930s’ Britain. The increment to growth from greater financial integration in European countries which was realized pre-crisis (Gehring, 2013) is at risk if moves towards financial repression intensify and entail barriers to capital flows together with reductions in cross-border lending.⁷

Economic disintegration on this scale would have some adverse supply-side effects on growth but this might still be preferable to the impact of a collapse of the Euro. How costly that might be is a matter of speculation but estimates suggest it would be very disruptive; for example, Cliffe (2011) suggests that after 5 years real GDP in the Euro Area would still be 5 per cent lower than at the break-up. It is also reasonable to suggest that there would be a permanent adverse effect on GDP levels, although perhaps not as large as has sometimes been claimed. The currency-union effect on trade volumes was once thought to be very large but better econometrics and the opportunity to examine the actual impact of EMU now suggests that trade volumes increased by perhaps 2 per cent (Baldwin et al., 2008) with the implication that the trade effect on GDP was less than 1 per cent. There are, however, several channels through which EMU may have raised productivity and a recent study found that EMU had raised the level of real GDP per hour worked by 2 per cent (Barrell et al., 2008); this would potentially be at risk.

6. Conclusions

The economic history of the 1930s offers some clues about the future of the Eurozone but obviously does not provide a full template. Today’s world is different in important ways from that of 80 years

⁷ There have already been some such moves in the form of financial regulation (Reinhart, 2012) while cross-border investment in Europe has fallen by over 50% since 2008 and cross-border debt holdings by Eurozone banks have returned to 1999 levels.

ago when the gold standard collapsed. In particular, institutions have changed in the context of European integration and the treaty obligations of WTO membership while capital is more internationally mobile and information travels faster.

Taken at face value, the example of the 1930s suggests that there are big attractions for struggling Eurozone economies to return to growth via a strategy of devaluation and default, and to exit from the currency union. The advantages would potentially include improved competitiveness and circumventing downward nominal wage rigidity, less need to run primary budget surpluses in pursuit of fiscal sustainability and the opportunity to implement a new monetary-policy framework. However, whether exit can be achieved without triggering a massive financial crisis is doubtful.

An option that was not available in the 1930s may be for the European Union to undergo a major institutional reform to deliver a fully-federal Europe with a banking union, a fiscal union and democratic legitimacy. In principle, this certainly could sustain a combination of deep economic integration and democratic politics with the implication that the currency union is saved by downsizing the role of the nation state. Unfortunately, this requires a level of political agreement across EU member states that is unlikely to be realized.

The approach of the European Commission to making the Euro more robust has been to propose steps towards a banking union and new fiscal rules while respecting the primacy of the nation state. However, this does not deal with the lack of policy space that bedevils southern Europe and may not be enough if austerity, stagnation and high unemployment continue. Here the 1930s' (and 1940s') precedent of the 'Bretton-Woods compromise' has some relevance. By accepting some economic disintegration in terms of financial repression and protectionist policies, the survival chances of the Eurozone may be enhanced. Nevertheless, this would have some costs in terms of lower growth in the medium term even if less traumatic than a disorderly collapse of EMU.

References

- Aggarwal, V. K. and Evenett, S. J. (2012) 'Industrial Policy Choice during the Crisis Era', *Oxford Review of Economic Policy*, Vol. 28, No. 2, pp. 261-283.
- Ali Abbas, S. M., Belhocine, N., El-Ganainy, A. and Horton, M. (2011) 'Historical Patterns and Dynamics of Public Debt – Evidence from a New Database', *IMF Economic Review*, Vol. 59, No. 4, pp. 717-742.
- Almunia, M., Benetrix, A., Eichengreen, B., O'Rourke, K. H. and Rua, G. (2010) 'Lessons from the Great Depression'. *Economic Policy*, Vol. 25, No.50, pp. 219-265.
- Auerbach, A. and Gorodnichenko, Y. (2011) 'Fiscal Policy in Recession and Expansion'. NBER Working Paper No. 17447 (New York: National Bureau of Economic Research).
- Baldwin, R., Di Nino, V. , Fontagne, L., De Santis, R. and Taglioni, D. (2008) 'Study on the Impact of the Euro on Trade and Foreign Direct Investment', *European Economy Economic Papers* No. 321.
- Baldwin, R. E. and Evenett, S. J. (2012) 'Beggar-thy-Neighbour Policies during the Crisis Era: Causes, Constraints and Lessons for Maintaining Open Borders'. *Oxford Review of Economic Policy*, Vol. 28, No. 2, pp. 211-234.
- Barrell, R., Gootschalk, S., Holland, D., Khoman, E., Liadze, I. and Pomerantz, O. (2008) 'The Impact of EMU on Growth and Employment'. *European Economy Economic Papers* No. 318.
- Bernanke, B. (1995) 'The Macroeconomics of the Great Depression: a Comparative Approach'. *Journal of Money, Credit and Banking*, Vol. 27, No. 1, pp. 1-28.
- Bernanke, B. and Carey, K. (1996) 'Nominal Wage Stickiness and Aggregate Supply in the Great Depression'. *Quarterly Journal of Economics*, Vol. 111, No. 3, pp. 853-883.
- Bernanke, B. and James, H. (1991) 'The Gold Standard, Deflation, and Financial Crisis in the Great Depression: an International Comparison'. In Hubbard, R. G. (ed) *Financial Markets and Financial Crises* (Chicago: University of Chicago Press).
- Bordo, M., Eichengreen, B. , Klingbiel, D. and Martinez-Peria, M. (2001) 'Is the Crisis Problem Growing More Severe?' *Economic Policy*, Vol. 16, No. 32, pp. 53-82.
- Broadberry, S.N.(1986) *The British Economy between the Wars: a Macroeconomic Survey* (Oxford: Basil Blackwell).
- Broadberry, S. N. (1987) 'Cheap Money and the Housing Boom in Interwar Britain: an Econometric Appraisal'. *The Manchester School*, Vol. 55, No. 3, pp. 378-389.
- Brown, E. C. (1956) 'Fiscal Policy in the Thirties: a Reappraisal'. *American Economic Review*, Vol. 46, No. 5, pp. 857-879.
- Brown, W. A. Jr. (1940) *The International Gold Standard Reinterpreted, 1914-1934* (New York: National Bureau of Economic Research).

- Buiter, W. and Rahbari, E. (2013) 'Why Do Governments Default and Why Don't They Default More Often? CEPR Discussion Paper No. 9492 (London: Centre for Economic Policy Research).
- Chadha, J. S. and Dimsdale, N. H. (1999) 'A Long View of Real Rates'. *Oxford Review of Economic Policy*, Vol. 15, No. 2, pp. 17-45.
- Cliffe, M. (2011) *EMU Break-Up: Pay Now, Pay Later* (London: ING).
- Crafts, N. and Fearon, P. (2013) 'Depression and Recovery in the 1930s: an Overview'. In N. Crafts and P. Fearon (eds) *The Great Depression of the 1930s: Lessons for Today* (Oxford: Oxford University Press).
- Crum, B. (2013) 'Saving the Euro at the Cost of Democracy'. *Journal of Common Market Studies*, Vol. 51, No. 4, pp. 614-630.
- De Bromhead, A., Eichengreen, B. and O'Rourke, K. H. (2013) 'Political Extremism in the 1920s and 1930s: Do German Lessons Generalize? *Journal of Economic History*, Vol. 73, No. 2, pp. 371-406.
- Egert, B. (2013) 'The 90% Public Debt Threshold: the Rise and Fall of a Stylized Fact'. OECD Economics Department Working Paper No. 1055 (Paris: OECD).
- Eggertsson, G. B. (2008) 'Great Expectations and the End of the Depression'. *American Economic Review*, Vol. 98, No. 4, pp. 1476-1516.
- Eichengreen, B. (1992) *Golden Fetters: the Gold Standard and the Great Depression, 1919-1939* (New York: Oxford University Press).
- Eichengreen, B. (1996) 'Deja Vu All Over Again: Lessons from the Gold Standard for European Monetary Unification'. In Bayoumi, T., Eichengreen, B. and Taylor, M. (eds) *Modern Perspectives on the Gold Standard* (Cambridge: Cambridge University Press).
- Eichengreen, B. (2013) 'Currency War or International Policy Coordination?' *Journal of Policy Modeling*, forthcoming.
- Eichengreen, B. and Hatton, T. J. (1988), 'Interwar Unemployment in International Perspective: an Overview'. In Eichengreen, B. and Hatton, T. J. (eds) *Interwar Unemployment in International Perspective* (London: Kluwer Academic Publishers).
- Eichengreen, B. and Irwin, D. (2010) 'The Slide to Protectionism in the Great Depression: Who Succumbed and Why?' *Journal of Economic History*, Vol. 70, No. 4, pp. 871-897.
- Eichengreen, B. and Portes, R. (1986) 'Debt and Default in the 1930s'. *European Economic Review*, Vol. 30, No. 3, pp. 599-640.
- Eichengreen, B. and Portes, R. (1989) 'Settling Defaults in the Era of Bond Finance'. *World Bank Economic Review*, Vol. 3, No. 2, pp. 211-239.
- Eichengreen, B. and Portes, R. (1990) 'The Interwar Debt Crisis and Its Aftermath'. *World Bank Research Observer*, Vol. 5, No. 1, pp. 69-94.

- Eichengreen, B. and Sachs, J. (1985) 'Exchange Rates and Economic Recovery in the 1930s'. *Journal of Economic History*, Vol. 45, No. 4, pp. 925-946.
- Eichengreen, B. and Temin, P. (2013) 'Fetters of Gold and Paper'. In Crafts, N. and Fearon, P. (eds) *The Great Depression of the 1930s: Lessons for Today* (Oxford: Oxford University Press).
- European Commission (2012) *A Blueprint for a Deep and Genuine Economic and Monetary Union: Launching a European Debate* (Brussels).
- Eurostat (2013) *Eurostat News Release 54/2013*.
- Feinstein, C. H. (1972) *National Income, Expenditure and Output of the United Kingdom, 1855-1965* (Cambridge: Cambridge University Press).
- Gehring, A. (2013) 'Growth, Productivity and Capital Accumulation: the Effects of Financial Liberalization in the Case of European Integration', *International Review of Economics and Finance*, Vol. 25, No. 1, pp. 291-309.
- Goodhart, C. A. E. (2010) 'The Changing Role of Central Banks'. BIS Working Paper No. 326 (Basel: Bank for International Settlements).
- Gordon, M. (1941) *Barriers to World Trade* (New York: Macmillan).
- Gordon, R. J. and Krenn, R. (2010) 'The End of the Great Depression, 1939-41: Policy Contributions and Fiscal Multipliers'. NBER Working Paper No. 16380 (New York: National Bureau of Economic Research).
- Grossman, R. S. (1994), 'The Shoe That Didn't Drop: Explaining Banking Stability during the Great Depression'. *Journal of Economic History*, Vol. 54, No. 3, pp. 654-682.
- Grossman, R. S. (2010) *Unsettled Account* (Princeton NJ: Princeton University Press).
- Guillemette, Y. and Turner, D. (2013) 'Policy Options to Durably Resolve Euro Area Imbalances'. OECD Economics Department Working Paper No. 1035. (Paris: OECD).
- Howson, S. (1975) *Domestic Monetary Management in Britain, 1919-1938* (Cambridge: Cambridge University Press).
- Howson, S. (1980) 'The Management of Sterling, 1932-1939'. *Journal of Economic History*, Vol. 40, No. 1, pp. 53-60.
- Ilzetzki, E., Mendoza, E. G. and Vegh, C. A. (2010) 'How Big (Small?) are Fiscal Multipliers?' NBER Working Paper No. 16479 (New York: National Bureau of Economic Research).
- Irwin, D. (2010) 'Did France Cause the Great Depression'. NBER Working Paper No. 16350 (New York: National Bureau of Economic Research).
- Irwin, D. (2012) *Trade Policy Disaster: Lessons from the 1930s* (Cambridge, Mass.: MIT Press).
- Kumar, M. S. and Woo, J. (2010) 'Public Debt and Growth'. IMF Working Paper No. 10/174 (Washington, DC.: International Monetary Fund).

- League of Nations (1941) *Statistical Yearbook, 1940/1* (League of Nations: Geneva).
- Laeven, L. and Valencia, F. (2012) 'Systemic Banking Crises Database: an Update'. IMF Working Paper 12/163 (Washington, DC.: International Monetary Fund).
- Maddison, A. (1985) *Two Crises: Latin America and Asia 1929-38 and 1973-83* (Paris: OECD).
- Maddison, A. (2010), *Historical Statistics of the World Economy, 1-2008AD*.
[http:// www.ggdc.net/maddison](http://www.ggdc.net/maddison)
- Madsen, J. (2001) 'Trade Barriers and the Collapse of World Trade during the Great Depression'. *Southern Economic Journal*, Vol. 67, No. 4, pp. 848-868.
- Middleton, R. (2010) 'British Monetary and Fiscal Policy in the 1930s'. *Oxford Review of Economic Policy*, Vol. 26, No. 3, pp. 414-441.
- Mitchell, J., Solomou, S. and Weale, M. (2012) 'Monthly GDP Estimates for Interwar Britain'. *Explorations in Economic History*, vol. 49, No. 4, pp. 543-556.
- Newell, A. and Symons, J. (1988) 'The Macroeconomics of the Interwar Years: International Comparisons'. In Eichengreen, B. and Hatton, T. J. (eds) *Interwar Unemployment in International Perspective* (London: Kluwer).
- Obstfeld, M. (2013) 'Finance at Center Stage: Some Lessons of the Euro Crisis'. CEPR Discussion Paper No. 9415 (London: Centre for Economic Policy Research).
- Obstfeld, M. and Taylor, A. M. (2004) *Global Capital Markets: Integration, Crisis, and Growth* (Cambridge: Cambridge University Press).
- OECD (2013), *Economic Outlook* (Paris: OECD).
- Reinhart, C. M. (2010), "This Time is Different Chartbook: Country Histories on Debt, Default, and Financial Crises". NBER Working Paper No. 15815 (New York: National Bureau of Economic Research).
- Reinhart, C. M. (2012) 'The Return of Financial Repression'. CEPR Discussion Paper No. 8947 (London: Centre for Economic Policy Research).
- Reinhart, C. M. and Rogoff, K. (2009) *This Time is Different* (Princeton NJ: Princeton University Press).
- Rodrik, D. (2000) 'How Far will International Economic Integration Go?' *Journal of Economic Perspectives*, Vol. 14, No. 1, pp. 177-186.
- Schmitt-Grohe, S. and Uribe, M. (2012) 'The Case for Temporary Inflation in the Eurozone'. CEPR Discussion Paper No. 9133 (London: Centre for Economic Policy Research).
- Schularick, M. and Taylor, A. M. (2012) 'Credit Booms Gone Bust: Monetary Policy, Leverage Cycles and Financial Crises, 1870-2008'. *American Economic Review*, Vol. 102, No. 4, pp.1029-1061.
- Spolaore, E. (2013) 'What Is European Integration Really About? A Political Guide for Economists'. *Journal of Economic Perspectives*, forthcoming.

- Sturzenegger, F. and Zettelmeyer, J. (2007) *Debt Defaults and Lessons from a Decade of Crises* (Cambridge, Mass.: MIT Press).
- Svensson, L. E. O. (2003) 'Escaping from a Liquidity Trap and Deflation: the Foolproof Way and Others'. *Journal of Economic Perspectives*, Vol. 17, No. 4, pp. 145-166.
- Temin, P. and Wigmore, B. A. (1990) 'The End of One Big Deflation'. *Explorations in Economic History*, Vol. 27, No. 4, pp. 483-502.
- The Maddison Project (2013) *Per Capita GDP Update*.
<http://www.ggdc.net/maddison-project>
- Wolf, H. C. and Yousef, T. M. (2007) 'Breaking the Fetters: Why Did Countries Exit the Interwar Gold Standard?' In Hatton, T. J., O'Rourke, K. H. and Taylor, A. M. (eds) *The New Comparative Economic History* (Cambridge, Mass: MIT Press).
- Wolf, N. (2008) 'Scylla and Charybdis: Explaining Europe's Exit from Gold, January 1928 to December 1936'. *Explorations in Economic History*, Vol. 45, No. 4, pp. 383-401.
- Wolf, N. (2012). 'Crises and Policy Responses within the Political Trilemma: Europe, 1929-36 and 2008-2011'. EHES Working Papers in Economic History No. 16. (Berlin: European Historical Economics Society).
- Wolf, N. (2013) 'Europe's Great Depression: the Failure to Coordinate Economic Policies after the First World War'. In N. Crafts and P. Fearon (eds) *The Great Depression of the 1930s: Lessons for Today* (Oxford: Oxford University Press).
- Woodford, M. (2011a) 'Financial Intermediation and Macroeconomic Analysis'. *Journal of Economic Perspectives*, Vol. 24, No. 4, pp. 21-44.
- Woodford, M. (2011b) 'Simple Analytics of the Government Expenditure Multiplier'. *American Economic Journal: Macroeconomics*, Vol. 3, No. 1, pp. 1-35.

Table 1. The Great Depression in the Advanced Countries

	<i>Real GDP</i>	<i>Price Level</i>	<i>Unemployment (%)</i>	<i>Trade Volume</i>
1929	100.0	100.0	7.2	100.0
1930	95.2	90.8	14.1	94.8
1931	89.2	79.9	22.8	89.5
1932	83.3	73.1	31.4	76.5
1933	84.3	71.7	29.8	78.4
1934	89.0	75.3	23.9	79.6
1935	94.0	77.6	21.9	81.8
1936	100.6	81.4	18.0	85.7
1937	105.3	91.5	14.3	97.4
1938	105.4	90.4	16.5	87.0

Sources:

Real GDP: Maddison (2010), western European countries plus western offshoots.

Price Level: League of Nations (1941); data are for wholesale prices, weighted average of 17 countries.

Unemployment: Eichengreen and Hatton (1988); data are for industrial unemployment, unweighted average of 11 countries.

Trade volume: Maddison (1985), weighted average of 16 countries.

Table 2. Banking Crises, 1929-38

Argentina	1931, 1934
Austria	1931-2
Belgium	1931, 1934
Brazil	1931, 1937
Denmark	1931
Estonia	1930-2
Finland	1931
France	1930-2
Czechoslovakia	1931
Germany	1931
Greece	1931
Hungary	1931
Italy	1930-1, 1935
Latvia	1931
Norway	1931
Poland	1931
Portugal	1931-2
Romania	1931
Spain	1931
Sweden	1931-2
Switzerland	1931
Turkey	1931
United States	1930-3
Yugoslavia	1931

Sources: Bernanke and James (1991); Bordo et al. (2001); Grossman (2010); Reinhart and Rogoff (2009)

Table 3. Dates of Changes in Gold Standard Policies

	<i>Return to Gold</i>	<i>Suspension of Gold Standard</i>	<i>Foreign Exchange Control</i>	<i>Devaluation</i>
Argentina	08/1927	12/1929	10/1931	11/1929
Australia	04/1925	12/1929		03/1930
Austria	04/1925	04/1933	10/1931	09/1931
Belgium	10/1926	03/1935	03/1935	03/1935
Bolivia	07/1928	09/1931	10/1931	03/1930
Brazil	01/1927	12/1929	05/1931	12/1929
Bulgaria	01/1927		10/1931	
Canada	07/1926	10/1931		09/1931
Chile	01/1926	04/1932	07/1931	04/1932
Columbia	07/1923	09/1931	09/1931	01/1932
Costa Rica	10/1922		01/1932	01/1932
Cuba	06/1919	11/1933	06/1934	04/1933
Czechoslovakia	04/1926		10/1931	02/1934
Denmark	01/1927	09/1931	11/1931	09/1931
Ecuador	08/1927	02/1932	05/1932	06/1932
El Salvador	01/1920	10/1931	08/1933	10/1931
Estonia	01/1928	06/1933	11/1931	06/1933
Finland	01/1926	10/1931		10/1931
France	08/1926			10/1936
Germany	09/1924		07/1931	
Greece	05/1928	04/1932	09/1931	04/1932
Guatemala				04/1933
Hungary	04/1925		07/1931	
Italy	12/1927		05/1934	10/1936
Japan	12/1930	12/1931	07/1932	12/1931
Latvia	08/1922		10/1931	
Netherlands	04/1925	09/1936		09/1936
Nicaragua	06/1919	11/1931	11/1931	01/1932
Norway	05/1928	09/1931		
New Zealand	04/1925	09/1931		04/1930
Panama	06/1919			04/1933
Paraguay	08/1927		08/1932	11/1929
Peru	05/1928	05/1932		05/1932
Poland	10/1927		04/1936	10/1936
Romania	02/1929		05/1932	07/1935
Spain			05/1931	
Sweden	04/1924	09/1931		09/1931
Switzerland	06/1925			09/1936
United Kingdom	05/1925	09/1931		09/1931
United States	06/1919	03/1933	03/1933	04/1933
Uruguay	01/1928	12/1929	09/1931	04/1929
Yugoslavia	06/1931		10/1931	07/1932

Sources: Bernanke and James (1991); Brown (1940); Wolf and Yousef (2007)

Table 4. Price Levels as a Percentage of 1929 Purchasing Power Parities in December 1933 (129 = 100)

	<i>Cost of French Franc</i>	<i>Cost of Pound Sterling</i>
Austria	98.4	76.8
Belgium	115.2	90.0
Denmark	138.2	108.0
Finland	123.9	96.7
France		78.1
Germany	92.5	72.3
Greece	137.0	107.0
Italy	112.6	88.0
Netherlands	119.6	93.5
Norway	129.1	100.8
Spain	158.4	123.7
Sweden	130.9	102.3
Switzerland	100.4	78.5
United Kingdom	128.0	
United States	136.3	106.6

Note:

The relationship between the general level of wholesale prices in each country and (a) France and (b) United Kingdom in 1929 is taken as 100. The relationship in each subsequent period (on the basis 1929 = 100) is taken as the purchasing-power-parity exchange rate, and the actual exchange rate prevailing in that period is then expressed as a percentage of the purchasing-power-parity rate.

Source: Eichengreen (1992, Table 12.3).

Table 5. Dates of Changes in Gold Standard Policies and Economic Recovery

	<i>Return to 1929 Income Level</i>	<i>Devaluation</i>
Austria	1939	09/1931
Belgium	1939	03/1935
Denmark	*	09/1931
Finland	1934	10/1931
France	1939	10/1936
Germany	1935	*
Greece	1933	04/1932
Italy	1938	10/1936
Netherlands	1949	09/1936
Norway	1932	09/1931
Spain	1955	*
Sweden	1934	09/1931
Switzerland	1946	09/1936
United Kingdom	1934	09/1931
United States	1940	04/1933

Notes: real GDP per person never fell below the 1929 level in Denmark, Germany did not devalue but by imposing exchange controls effectively left the gold standard in July 1931, Spain was not on the gold standard.

Sources: Bernanke and James (1991); The Maddison Project (2013)

Table 6. Tariff Rates, 1928, 1935 and 1938 (%)

	1928	1935	1938
Austria	8.1	17.5	14.8
Belgium	3.4	8.3	6.7
Canada	15.9	15.4	13.9
Czechoslovakia	7.8	10.0	7.2
Denmark	5.5	8.2	7.3
France	6.6	16.9	16.6
Germany	7.9	30.1	33.4
Hungary	11.0	7.2	12.0
Italy	6.7	22.2	12.1
Japan	7.1	6.2	6.6
Netherlands	2.1	9.1	6.7
New Zealand	17.1	17.5	16.4
Norway	11.5	14.4	12.2
Spain	24.1	27.9	n/a
Sweden	9.3	10.1	9.5
Switzerland	9.3	23.3	18.1
United Kingdom	10.0	24.5	24.1
United States	13.8	17.5	15.5

Note: tariff rate is defined as customs revenue/value of imports.

Source: Eichengreen and Irwin (2010)

Table 7. Sovereign Debt Defaults, 1929-1938

Austria	1932
Bolivia	1931
Brazil	1931
Bulgaria	1932
Chile	1931
Colombia	1932
Costa Rica	1937
Cuba	1933
Dominican Republic	1931
Ecuador	1931
El Salvador	1931
Germany	1932
Guatemala	1933
Hungary	1931
Nicaragua	1932
Panama	1932
Paraguay	1932
Peru	1931
Poland	1936
Romania	1933
Uruguay	1933
Yugoslavia	1933

Source: Sturzenegger and Zettelmeyer (2007)

Table 8. Real Interest Rates (%)

	<i>USA</i>	<i>USA</i>	<i>UK</i>	<i>UK</i>
	<i>Real Short Rate</i>	<i>Real Long Rate</i>	<i>Real Short Rate</i>	<i>Real Long Rate</i>
1929	5.78	5.25	5.26	5.14
1930	6.00	5.87	8.63	8.01
1931	11.73	9.38	9.73	9.20
1932	14.24	13.68	5.11	7.24
1933	7.16	12.17	0.66	5.65
1934	-3.07	5.97	0.80	4.26
1935	-1.55	2.26	0.59	3.59
1936	-0.75	0.97	-2.86	1.22
1937	-2.00	0.70	-2.09	0.93
1938	2.32	2.55	-2.56	0.99

Note:

Real rates of interest are calculated on an ex-post basis. Real long rates are based on the yield of consols minus a 3 year backward-looking weighted average of actual inflation rates; for further details, see Chadha and Dimsdale (1999). I am grateful to Jagjit Chadha for providing me with the data.

Source:

Chadha and Dimsdale (1999).

Table 9. Fiscal Sustainability Data for United Kingdom, 1925-1938

	<i>b</i>	<i>i</i>	π	<i>g</i>	<i>d</i>	<i>b*</i>
1925-9 average	6.78	4.72	-0.99	2.22	1.636	5.71
1930	6.15	4.75	-0.40	-3.72	1.592	14.12
1931	5.41	4.51	-2.40	-2.37	1.698	15.76
1932	7.25	4.49	-3.58	0.65	1.736	12.88
1933	7.42	3.90	-1.40	4.74	1.792	1.00
1934	6.76	3.58	-0.68	4.78	1.731	-0.90
1935	5.68	3.64	0.87	4.26	1.650	-2.46
1936	4.95	3.59	0.55	4.15	1.587	-1.76
1937	3.89	3.67	3.73	3.17	1.472	-4.75
1938	1.56	3.62	2.77	0.42	1.438	0.62
1933-8 average	5.04	3.67	1.67	3.59	1.612	-1.38

Note:

The required primary budget surplus to GDP ratio, b^* , satisfies the condition that $\Delta d = 0$, where $\Delta d = -b + (i - \pi - g)d$

Sources:

b , primary budget surplus to GDP ratio, i , average nominal interest rate on government debt, d , public debt to GDP ratio from Middleton (2010) database; π , rate of inflation based on GDP deflator from Feinstein (1972); g , 4th quarter real GDP growth rate, from Mitchell et al. (2012).

Table 10. Macroeconomic Indicators

	2007	2012	2014
<i>Real GDP (2007 = 100)</i>			
France	100	99.9	100.4
Germany	100	103.5	105.9
Greece	100	80.0	75.2
Ireland	100	93.9	96.6
Italy	100	93.1	91.8
Portugal	100	94.2	91.9
Spain	100	95.9	94.6
Euro Area	100	98.8	99.3
<i>Inflation (%/year)</i>			
France	2.6	1.3	0.8
Germany	1.6	1.3	1.7
Greece	3.3	-0.8	-2.1
Ireland	0.7	1.9	1.2
Italy	2.4	1.6	0.9
Portugal	2.8	-0.1	0.0
Spain	3.3	0.3	0.4
Euro Area	2.3	1.2	1.1
<i>Current Account (%GDP)</i>			
France	-1.0	-2.3	-1.9
Germany	7.5	7.1	6.0
Greece	-14.6	-3.4	0.9
Ireland	-5.4	4.9	5.2
Italy	-2.4	-0.6	2.0
Portugal	-10.1	-1.5	0.5
Spain	-10.0	-1.1	3.5
Euro Area	0.2	1.9	2.8
<i>Unemployment (%)</i>			
France	8.0	9.9	11.1
Germany	8.3	5.3	4.8
Greece	8.3	24.2	28.4
Ireland	4.6	14.7	14.1
Italy	6.1	10.6	12.5
Portugal	8.0	15.6	18.6
Spain	8.3	25.0	28.0
Euro Area	7.4	11.2	12.3

Notes:

Inflation based on GDP deflator

Sources:

OECD (2013).

Table 11. Debt Ratios in 2012 and Fiscal Consolidation ‘Required’.

	<i>Public Debt/GDP (%)</i>	<i>Fiscal Consolidation 2012-2014 (%)</i>	<i>Average Fiscal Consolidation from 2014 to 2030 (%)</i>	<i>Peak Fiscal Consolidation (%)</i>
France	109.7	2.4	2.4	4.3
Germany	89.2	-0.1	0.0	1.5
Greece	165.6	3.2	3.2	8.1
Ireland	123.3	3.1	2.5	5.0
Italy	140.2	1.5	0.4	3.6
Portugal	138.8	2.1	3.7	7.7
Spain	90.5	2.8	2.5	4.9
Euro Area	103.9	1.4	1.1	2.4

Notes:

Fiscal consolidation is improvement in primary balance/GDP; the ‘requirement’ is to reduce debt to GDP to 60% by 2030.

The notion of the peak requirement is an adjustment to put debt on a downward trajectory towards the target which is followed by gradual relaxation as declining debt leads to lower debt service payments and convergence towards the target allows a slowdown in the pace of debt reduction.

Source: OECD (2013)

Table 12. Crisis Era Protectionist Measures Recorded by Global Trade Alert

Bailout/State Aid	324	Migration	47
Trade Defence	289	Investment	46
Tariff	166	Public Procurement	41
Non-Tariff Barrier (n.e.s)	110	Export Subsidy/Incentives	38
Export Taxes	85	Import Ban	28

Note: 'trade defence' comprises antidumping, countervailing duties and safeguard measures

Source: Baldwin and Evenett (2012)

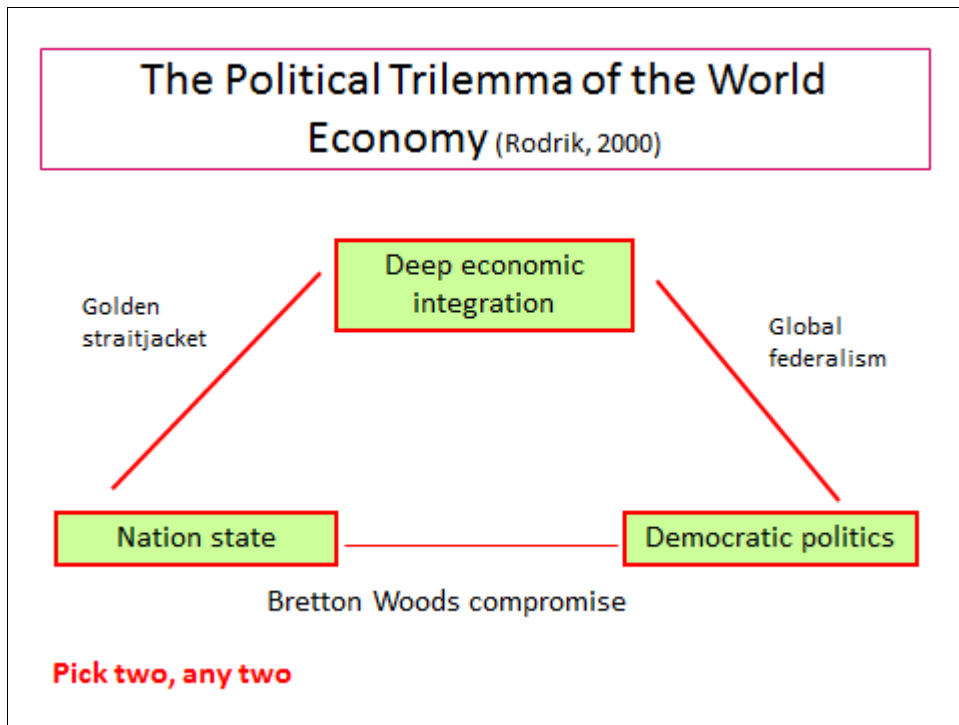


Figure 1