Cross of Euros

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Abstract

The Eurozone currently confronts severe short-run macroeconomic adjustment problems, and a deficient institutional architecture that has to be reformed in the longer run. Europe's efforts at economic and monetary union are historically unprecedented. However, the gold standard provides lessons regarding what will and what won't work, macroeconomically and politically, in the short run, while US history provides long-run lessons regarding appropriate institutional structures. The latter also suggests that institutional reform only happens at times of great crisis, and that it cannot be taken for granted. Eurozone leaders may therefore ultimately have to take heed of the lessons of history regarding currency union breakups. The Eurozone is in trouble. Unemployment is at 12 percent and is getting worse. In Spain and Greece total unemployment exceeds 26 percent, and youth unemployment exceeds 60 percent. These two countries, together with Ireland and Portugal, and most recently Cyprus (subject to parliamentary approval which had not yet been received at the time of writing), are in official bailout programs. If Slovenia eventually joins the club, as seems possible, then more than a third of the Eurozone's members will be in such programs. There has been a sharp decline in citizens' confidence in European institutions, and in Greece the fascist Golden Dawn party entered parliament in 2012 and has since seen major gains in several opinion polls. Economies, societies, and political systems are fraying at the seams.

In the Cypriot, Irish, and Spanish cases banking crises rather than public finance have been to blame for economic collapse and loss of political sovereignty. Pre-crisis cross-border flows of capital had pushed up wages, prices, and asset prices in recipient countries, implying major adjustment problems that now have to be faced, but the fact that many of these flows have been channeled through banks is what has led to some of the Eurozone's most intractable problems. The costs of dealing with banking crises has worsened governments' fiscal positions, which in turn has placed further strain on banks' balance sheets, leading to a further deterioration in governments' fiscal positions, and so on.

The Eurozone crisis gives rise to two distinct but equally important questions. First: what macroeconomic policy mix is consistent with running a diverse monetary union involving 17 (soon 18) independent nation states? More specifically, what macroeconomic policy mix will be required to ensure that the adjustment problems which countries like Greece and Spain now face can be successfully overcome, and that the Eurozone does not collapse in the short to medium run? Second, what is the minimum institutional framework consistent with the survival of the Eurozone in the medium to long run? Finally, if macroeconomic adjustment problems cannot be overcome in the short run, and if necessary institutional reforms cannot be delivered in the medium to long run, then a third question becomes potentially relevant: how can the costs of a Eurozone breakup be minimized?

There are no convincing historical analogies for the Eurozone, which is a unique experiment. Nonetheless, history can provide us with lessons regarding all three questions. The gold standard provides lessons regarding what short run adjustment strategies the Eurozone should be pursuing today (Eichengreen and Temin 2010). The history of American monetary union provides lessons regarding what institutions the Eurozone will need in the longer run to survive, and, perhaps more pessimistically, the circumstances in which these are likely to come about, if they ever do. Finally, history also provides lessons relevant to the breakup of the Eurozone, should it come to that.

Why Previous "Monetary Unions" Offer a Poor Analogy

We agree with Eichengreen (2008) that the Euro is *sui generis*: there has never been anything quite like it before. In this section, we offer some comparisons and contrasts with previous arrangements that superficially appear somewhat similar. The columns of Table 1 list of the arrangements we consider, including three "monetary unions," along with currency board arrangements, the U.S. common currency, and the gold standard. The rows of the column show various characteristics of these arrangements.

	EMU	Latin Monetary	Scandinavian Monetary	Anglo-Irish Monetary	Currency boards	USA	Gold standard
		Union	Union	Union			
Does it eliminate exchange rate variability?	Yes	No	No	Yes	Yes	Yes	No
Does it eliminate national currencies?	Yes	No	No	No	No (d)	Yes	No
Is exit easy?	No	Yes	Yes	Yes	Yes	No	Yes
Is there a temporary escape clause?	No	Yes (a)	Yes (a)	No	No	No	Yes
Is there a common central bank?	Yes	No	No	No	No (e)	Yes	No
Are high denomination coins mutually acceptable?	N/A	Yes	Yes	N/A	N/A	N/A	No
Are low denomination coins mutually acceptable?	Yes	No	Yes	Yes (c)	Varies	Yes	No
Is paper currency mutually acceptable?	Yes	No	Yes (b)	Yes (c)	Varies	Yes	No
Is there a fiscal union?	No	No	No	No	No	Yes	No
Is there a political union?	No	No	No	No	No	Yes	No
Is there a banking union?	No	No	No	No	No	Yes	No
Is the union symmetric?	Yes	Yes	Yes	No	No	Yes	Yes
High labour mobility?	No	Partial	Partial	Yes	Varies	Yes	Partial

Table 1. Comparing currency unions

European monetary union (EMU) has completely eliminated exchange rate variability among Eurozone members by replacing national currencies with a single

currency, the Euro. By treaty, the Euro is managed by a common European Central Bank (ECB) whose primary objective is price stability, defined in practice as involving inflation less than two percent (although if this goal is satisfied, then the central bank may also support "general economic policies in the Union" with a view to achieving objectives such as full employment). While Eurozone members are all members of the European Union, they remain independent states. Under the original architecture, national authorities handle banking supervision, resolution and deposit insurance: there is no banking union. Nor is there a common Eurozone fiscal authority, or anything approaching a Eurozone government. Bailouts of member states are supposedly prohibited, and a series of fiscal rules have unsuccessfully attempted to make this prohibition credible. There is no legal means of leaving EMU, even temporarily, aside from leaving the European Union altogether.

The Latin Monetary Union was created as the result of a Convention signed in December 1865 in Paris by Belgium, France, Italy and Switzerland. Its purpose was to harmonize the specie (gold and silver) content of the coins of the four countries (Redish 1993): it was a coinage agreement, not a monetary union. Italy suspended the convertibility of its paper notes (now legal tender) into specie in 1866, the year the Convention entered into effect. So did Greece in 1868, the year after it joined the Convention, and France in 1870 (Einaudi 2000, p. 287). There was no common unit of account, no common political framework, and no common central bank (Einaudi 2000, p. 287).

The Scandinavian Monetary Union is somewhat more deserving of the "monetary union" title than its Latin counterpart, but there are many similarities between the two. Both gold coins, and token silver and bronze coins, were to be legal tender in the three countries, but member states were obliged to redeem their token coins in gold, ensuring stability (Henriksen and Kærgård 1995, p. 94). The union was originally set up, in 1873, with two members, Denmark and Sweden, and Norway joined in 1875. In 1885 the three central banks opened current accounts with each other, and gained the right to draw drafts in each other's currencies at par. Nevertheless, the central banks remained independent of each other, there was

no economic policy coordination in other areas, and countries retained their own currencies. As in the case of the Latin Union, the Scandinavian Monetary Union did not survive World War I.

There have been a number of small-scale monetary unions, typically between a larger and a smaller state, in which each state's currency has legal tender in the other (or the larger state's currency has legal tender status in the smaller state). The Anglo-Irish monetary union which lasted from Irish independence in 1922 until 1979 is one such example: Honohan (1994) considers this to have been *de facto* a currency board arrangement throughout virtually the entire period. Currency boards often have occurred in colonial situations where dependent states and territories issued their own currency (Schuler 1992). The key requirements are that the issuer must freely exchange local for foreign currency at par, and must hold enough foreign-denominated safe assets to cover its entire monetary base liabilities. Currency boards typically do not involve a common central bank or a common currency and countries can choose to leave at any time.

The U.S. actually has a true monetary union, not simply a more or less hard peg. As we will see, it gradually developed a common central bank, a banking union, and a fiscal union. The obvious difference between the U.S. and the Eurozone is that in the American case political union preceded monetary union, while the European gamble has been to try to develop a monetary union in the absence of political (and fiscal, and banking) union. Finally, the gold standard was not even formally speaking an exchange rate agreement. Rather, it was a series of country-by-country monetary regimes linking the value of currencies to the price of gold, obliging central banks or their equivalents to hold sufficient reserves to be able to make this commitment credible. It only became a quasi-fixed exchange rate regime as a by-product of free trade in gold, which led to gold prices being almost, but not entirely (since arbitrage was costly), equalized in different countries. Countries retained their own currencies, central banks and political and financial sovereignty, and could sever the link between their currencies and gold whenever they wished.

In short, there are no good historical analogies with European monetary union. However, this does not mean that history holds no lessons for the Eurozone.

The Adjustment Problem: What We Can Learn from the Gold Standard

Most of the debate in the run-up to the adoption of the Euro was couched in terms of traditional optimal currency area theory (Mundell 1961, Kenen 1969). If the benefits of a common currency are that it increases trade, then these should be increasing in the extent of trade integration within the currency area, but what about the costs? Here the main focus of the theory is on how different areas can adjust to macroeconomic shocks. If shocks are symmetric across areas, then a common monetary policy response is appropriate, reducing the cost of a common currency. If shocks are asymmetric, then labor flows from depressed to booming regions will help adjustment, as will wage and price flexibility, or a central fiscal authority that can smooth shocks across areas. If these alternative adjustment mechanisms are absent, the areas may be better off with separate currencies so that the exchange rate can be used as a tool of adjustment. The history of the gold standard remains a rich source of lessons on how adjustment across countries takes place in modern economies and polities.

The Gold Standard, The Trilemma, and Adjustment in Theory and Practice

The gold standard was supposed to ensure aggregate price stability, by making it impossible for governments to engage in inflationary policies. It also offered the prospect of microeconomic benefits by encouraging international integration, and indeed it seems to have boosted trade by more than the Euro has done (Mitchener and Weidenmier 2008; Baldwin 2006; Silva and Tenreyro 2010). How did it cope with macroeconomic adjustment?

At a basic level, the gold standard operated as a straitjacket on macroeconomic policy, according to the fundamental macroeconomic policy *trilemma* which says that a country cannot simultaneously choose three policies: 1) a fixed exchange rate, 2) open capital markets, and 3) monetary policy autonomy. It

must pick two. If a country chooses open capital markets, uncovered interest parity must hold; that is, since arbitrage equalizes expected returns at home and abroad, domestic interest rates must equal world interest rates plus the expected depreciation of the domestic currency. If a country chooses open capital markets *and* fixed exchange rates, this implies that domestic interest rates have to equal the base-country interest rate, ruling out monetary policy autonomy. If a country chooses open capital markets *and* wishes to set domestic interest rates at levels suitable to domestic conditions, then exchange rates can no longer be fixed. However, a country can choose an autonomous monetary policy and a fixed exchange rate if it imposes capital controls. While the trilemma is a simplification there is ample historical evidence to support its basic predictions (Obstfeld et al. 2004, 2005). It therefore provides a useful organizing framework for international macroeconomic history (Eichengreen 2008, Obstfeld and Taylor 2004), since the key historical plot lines revolve around which leg of the trilemma countries have chosen not to pursue.

The gold standard, like the Eurozone and the U.S. monetary union, offers lessons about what happens when the exchange rate across an area is fixed and capital markets are open, implying that monetary policy is the same across gold standard adherents, Eurozone members or U.S. states. Many scholars have stressed the potential for instability in this setting, and the paucity of tools available in response. In a flexible exchange rate setting, local demand booms would drive up interest rates, drawing in capital from abroad and appreciating the currency. This in turn would moderate the boom. With a fixed exchange rate, local interest rates cannot rise. Indeed, central banks must prevent this by expanding money supplies, amplifying the boom. The opposite follows in slumps. As Ford (1962, p. 188) wrote, "It is easy to understand the dislike of some Argentines for a system which dictated that a slump must be aggravated by monetary reactions, although, doubtless, they had forgotten that the same system served to enhance booms." Speaking of the limits on policies in such settings, Triffin (1957, p. 289, as cited in James 2013) said: "The significance of monetary unification, like that of exchange stability in a free

market, is that both exclude any resort to any other corrective techniques except those of internal fiscal and credit policies."

Under the gold standard, the key goal for policy makers was not to moderate booms and busts, but rather to avoid losing gold. When a country found itself with a balance of payments deficit (that is, a current account surplus insufficient to finance capital outflows, or borrowing insufficient to finance a current account deficit), it needed a mechanism to staunch the resulting outflow of gold, and eventually to reverse it. Such a mechanism involved among other things lowering the prices of domestic goods relative to those of foreign goods (depreciating the real exchange rate), thus improving the trade balance. Such "real depreciation" can be achieved by depreciating the nominal exchange rate, i.e., lowering the value of the currency in which domestic prices are expressed, but this was ruled out under the gold standard. Real depreciation thus had to be achieved by lowering the domestic price level, a strategy sometimes referred to as "internal devaluation" in the Eurozone context.

In David Hume's (1752) formulation of the "price-specie-flow mechanism," adjustment was supposed to be automatic. Hume argued that gold outflows, which were needed to pay for trade deficits, would lower the money supply, since the latter was tied to gold reserves. This in turn would lower the internal price level, depreciate the real exchange rate, and improve the trade balance. Conversely, surplus countries would experience gold inflows, inflation, and real exchange rate appreciation.

The late 19th century world was more complicated than this. Enormous international capital flows meant that trade deficits could be financed by borrowing rather than by gold flows. And yet, interwar observers, looking back at the pre-1914 experience, believed that adjustment under the gold standard had been smooth as a result of monetary authorities following the "rules of the game." Deficit countries would raise discount rates, which would not only attract capital inflows, but shrink money supplies, allowing for Humean price reductions and real depreciations without the need for gold exports. If surplus countries lowered discount rates, then adjustment would be symmetric as well. Economic historians have known for a long

time that this is not how the adjustment process worked: central banks did not follow the rules of the game (Bloomfield 1959; Morgenstern 1959; for a classic account, see Eichengreen 1992, Chapter 2). And yet the classical gold standard worked fairly smoothly during the late nineteenth century, at least in core economies such as Britain, France and Germany.

One reason for this was that key economies such as Britain did not suffer from severe balance of payment imbalances, so not much adjustment was needed. In turn, Britain's payments remained fairly well balanced because the pound sterling's role as a "vehicle currency" facilitating international transactions meant that longterm capital outflows were in part matched by short term capital inflows, as borrowers placed money on deposit in Britain; and they were in part matched by exports of British capital goods (Eichengreen 1992, 2008).

In addition, pre-1914 economic and political conditions meant that insofar as macroeconomic adjustment was needed, it was easier than it would become in the interwar period (or in the Eurozone today).

First, wages and prices were more flexible than they would become subsequently: Hanes and James (2001) find no evidence of downward nominal wage rigidity in the United States between 1841 and 1891. This nominal flexibility was already declining before World War I: Hanes (1993, 2000) finds a decline in flexibility from the 1890s onwards, associated with the spread of large-scale, capital intensive, concentrated industry. Cross-country analysis by Basu and Taylor (1999) and Chernyshoff, Jacks and Taylor (2009) provides further evidence of greater nominal flexibility in the pre-1914 era. By contrast, the escape route of internal devaluation via downward nominal price adjustment appears elusive in today's world, where almost all significant real depreciations have come through nominal exchange rate adjustments (Shambaugh 2012).

Second, even in cases where macroeconomic adjustment increased unemployment (for example because falling prices and downwardly sticky wages implied rising real product wages), 19th century limits on who was allowed to vote meant that the interests of the workers involved could be largely ignored by policymakers (Eichengreen 1992).

Third, this period was also one of international mass migration, whose timing was influenced by business cycle conditions (Hatton 1995). This not only relieved labor market pressures during periods of stress, but led to remittances which strengthened the long-run payments positions of the countries involved (Esteves and Khoudour-Castéras 2009).

Fourth, partly as a result of limited political pressure opposing the gold standard, and also given ample gold reserves that were spread out among the core countries, capital markets usually did not question the commitment of policymakers to the gold standard. Credibility implied that capital flows tended to be stabilizing: that is, if an exchange rate started depreciating, it was expected that it would soon appreciate, meaning that private investors would buy the currency thus helping to bring about the needed appreciation and in the process reversing gold outflows (Eichengreen, 1992).

Fifth, when these mechanisms did not suffice, international cooperation between core central banks willing to lend to each other, or intervene together, could be relied upon to stabilize the situation. In other cases, the value of gold across countries was allowed to vary within a certain band (between the "gold points"), or kept at the band edge via quasi-controls ("gold devices") without apparently setting off fears that monetary authorities might be contemplating a long-term deviation from the official pegged exchange rate.

It was a different story for countries in southern and eastern Europe, Latin America, and Asia. There, some countries pegged to silver, others had inconvertible currencies, and still others tried to peg to gold with only sporadic success. Catão and Solomou (2005) point out that trade with these countries amounted to two-thirds of core European trade, and more than 40 percent of US trade: that their exchange rates fluctuated against gold is not just an incidental detail, but an important fact about the world economy of this period. Catão and Solomou find evidence of large nominal and real depreciations in peripheral economies vis à vis the core during time of crisis, such as the late 1870s and early 1890s, and also find that trade balances improved when real exchange rates depreciated.

Summing up, adjustment under the classical gold standard was supposed in principle to involve "internal devaluation" only. Such a strategy was probably easier before World War I, in both economic and political terms, than it would be during the interwar period. Nevertheless, in the core economies adjustment typically happened in other ways, and only limited adjustment was required in the first place. In the periphery, where more adjustment was required at times of stress in the international economy, and which did not benefit from the same international cooperation which core economies enjoyed, countries frequently adjusted via nominal depreciation. Even in the heyday of the gold standard, the "internal devaluation" strategy was nowhere near as ubiquitous as is often thought.

The Gold Standard and the Great Depression

The economic and political environment was very different after World War I, implying that the gold standard worked much less smoothly than it had done before (Kindleberger 1973; Temin 1989; Eichengreen 1992).

First, the underlying imbalances facing core economies and requiring adjustment became much larger than previously. The United Kingdom's balance of payments position was much more fragile. Her net international asset position had been greatly weakened by the war, implying less investment income, while war debts were another drain on the economy. Her trade position had been weakened as a result of competitors seizing overseas markets during the war. In addition, on Churchill's decision, the pound went back onto the gold standard at the pre-war rate in 1925, implying an overvalued exchange rate, particularly vis à vis the U.S. dollar and the French franc. The United Kingdom experienced large balance-of-payments deficits from about 1925 onwards and a deep industrial slump. Moving beyond the British case, the United States was now emerging as the largest net lender, to Latin America and countries such as Germany. When the U.S. Federal Reserve raised interest rates in 1928 in an attempt to halt a runaway stock market, these regions faced a sudden stop in capital imports, and with it a need to adjust. Many abandoned gold soon thereafter.

Second, the macroeconomic adjustment process was less smooth than before 1914, for reasons emphasized by Eichengreen (1992). Nominal wages were now more rigid. Voting rights had broadened. The economic and political costs associated with adjustment based on internal devaluation were thus higher than before. These changes reduced the credibility of governments' commitment to the gold standard, implying that capital flows were now potentially destabilizing (Obstfeld and Taylor 2003). Nor was international cooperation between central banks as effective during this period, due to political frictions and different views on what constituted appropriate economic policy.

Perhaps most damaging was the asymmetric nature of international adjustment under the interwar gold standard. Countries with a balance-of-payments deficit (like the U.K.) had an incentive to raise discount rates to prevent gold outflows, while surplus countries (like France) who were experiencing gold inflows had an incentive to "sterilize" them—that is, to adjust the money supply in ways that prevented the inflow of gold from causing inflation—so that they would continue accumulating gold. World gold reserves rose steadily between 1925 and 1932, but with the United States not lowering its gold holdings, and with France rapidly increasing its reserves, there was insufficient gold elsewhere (Irwin 2010). Deflation in countries like Germany was not matched by inflation elsewhere, making macroeconomic adjustment all the harder.

Several lessons from this disastrous interwar experience are directly relevant for today's Europe.

First, nominal wages were sticky downward in the Depression (Bernanke and Carey 1996), implying that deflation led to a large rise in real wages, and a consequent drop in employment and output. Wages were not unusually rigid during this period (Hanes 2000): this downward stickiness is a fact of life in modern economies. Figure 1 shows indices of wages and salaries between 2008 and 2012 in Greece, Ireland, Portugal and Spain, four countries currently trying to achieve nineteenth-century style internal devaluations. As can be seen, wages have been steadily rising in Portugal and Spain, despite very high levels of unemployment there. Even in Ireland, a country widely regarded as having unusually flexible labor

markets, and as having successfully accomplished an "internal devaluation", there is no sign of wages falling, although they have managed to avoid rising. In all four countries, by contrast, employment levels have been continually falling, although the Irish decline came to an end in the second half of 2012.¹



Figure 1. Average wages and salaries (business economy) & total employment, 2008–2012

Source: Eurostat.

Note: the wage data are adjusted for working days; no seasonal adjustment in the case of Ireland.

¹ Constant nominal wages are consistent with falling unit labor costs if labor productivity increases. On this score, Ireland does better, but the effect is partly a statistical illusion due to a shift in the composition of the Irish workforce, with low-productivity workers being laid off (Darvas 2012). The Irish real exchange rate depreciated during the period, but this was due to keeping a lid on wage costs while wages rose elsewhere, not by depressing local nominal wages.

The one important Eurozone exception to the general conclusion that nominal wages are rigid downwards is Greece, where manufacturing wages declined by more than 10 percent in the three years starting in 2010. The impact of the depression on the fabric of Greek society has been particularly harsh, as we have seen: if this is what it takes to produce nominal wage declines, prudence might suggest alternative adjustment mechanisms. As long as countries choose to stay in the Euro, this means rising wages and prices in surplus countries, but as in the interwar period, Eurozone surplus countries are reluctant to accept temporarily higher inflation rates.

Second, deflation during the interwar period was dangerous in other ways as well. It increased the real value of debts, placing indebted households, businesses and financial institutions under pressure (Fisher 1933). It worsened bank balance sheets and deepened the financial crisis, with knock-on effects on businesses reliant on bank lending. It increased real interest rates, and induced households to postpone expensive purchases. Deflation helped deepen the Depression: even if internal devaluation were possible in modern economies, deflation would not be desirable.

Third, large public debts are difficult or impossible to stabilize when deflation is increasing the real value of the debt and slowing economic growth. This was true before 1914: Flandreau et al. (1998) show that public debts tended to rise as a percentage of GDP during the deflation of the 1873–1896 period, before falling thereafter. During the interwar period, Britain made strenuous attempts to reduce its large public debts, running primary budget surpluses of 7 percent of GDP during the 1920s. Despite these efforts, the deflationary low-growth environment meant that the British debt-to-GDP ratio increased substantially over the decade: the IMF's (2012, p. 112) conclusion is that this episode is "an important reminder of the challenges of pursuing a tight fiscal and monetary policy mix, especially when the external sector is constrained by a high exchange rate."

Fourth, during the interwar period, countries such as Germany attempted to adjust based not only on internal devaluation, but also with fiscal austerity. This strategy was costly, since fiscal multipliers were high in the 1930s, given weak

economies and interest rates affected by the zero lower bound. Almunia et al. (2010) find multipliers well in excess of one in a sample of 27 countries between 1925 and 1939.

Fifth, countries only started to recover from the Depression once they left the gold standard (Eichengreen and Sachs 1985; Campa 1990). Revaluing countries' gold reserves as they left the gold standard made it possible to boost the money supply. Leaving gold replaced expectations of deflation with expectations of inflation. There were transitory competitiveness gains for early movers who depreciated first. Countries also tended to do better when they embraced capital controls and used the policy space so liberated, even if they remained pegged (Obstfeld and Taylor 2004). Regaining monetary independence, one way or another, was the route to recovery.

Sixth, the Depression had calamitous political consequences. De Bromhead et al. (2013) show that voting for extremism was negatively related to GDP growth during this period, at least in countries that had not been inoculated by a lengthy history of democracy. Ponticelli and Voth (2011) also find a strong correlation between fiscal austerity and political chaos (as measured by riots and other disturbances) over the last 100 years or so, and the result is robust when restricted to the interwar sample. It is foolish to ignore the potential political consequences of lopsided and deflationary adjustment strategies.

The experience of the 1930s is not only a cautionary tale of the limitations of adjustment strategies based on internal devaluation and fiscal austerity, but an illustration of the power of monetary policy and of the value of macroeconomic policy flexibility. It is a useful reminder that Keynes' short run is the time frame within which politics occurs, for good or ill.

The Fiscal and Banking Nexus: Lessons from the United States

The United States differs from the actually existing Eurozone in several critical details of its economic, financial, and political architecture, as discussed earlier, and these qualitative differences have accumulated over time (Rockoff 2000; Bordo

2004). Figure 2 indicates the extent to which the U.S. is also more likely to satisfy the Mundell-style optimal currency area criteria regarding the integration of product markets, symmetry of shocks, and labor mobility, as well as Kenen's criterion regarding the ability of a central fiscal authority to smooth shocks across regions.







Correlation of local growth with US/EZ growth, average



Persons born outside state/country in US/EZ, average



Share of local income shock offset by federal transfers!

(d) Fiscal Criterion!





Sources: (a) data for 2007; intra-U.S. trade volumes from the 2007 Commodity Flow Survey, minus 2007 U.S. imports from the BEA NIPA, all divided by GDP from BEA NIPA; EZ trade with EZ and EZ GDP from Eurostat. (b) annual data for 1997–2007, U.S., state and census region real GDP growth rates from BEA (higher correlation statistic is for the regions); EZ and EZ country growth rates from Eurostat. (c) data for 2012; U.S. from Statistical Abstract; EZ from Eurostat; (d) upper and lower range of U.S. estimates and euro point estimate taken from multiple older sources in HM Treasury (2003); U.S. midpoint 28% figure based on recent Federal income tax elasticities alone based on Auerbach (2009, Figure 2).

Regarding market integration (panel (a)), cross-border inter-state trade amounts to 66 percent of GDP in the United States. In the 17-country Eurozone such trade amounts to only 17 percent of Eurozone GDP: the U.S. is strongly ahead on this criterion.

Panel (b) indicates that the average correlation between real GDP growth in the eight U.S. "Census" regions and national real GDP growth is 0.78. In the Eurozone, the average correlation is about 0.5. Thus, on the symmetry criterion, the Eurozone has lower correlations between the shocks in its constituent countries than we see in the U.S. (and they are also far more varied). This difference may reflect aggregation in large census regions: it disappears if we take the sample of fifty U.S. states, but these are smaller and more diverse units than the 17 Eurozone countries. The U.S. has perhaps a minor advantage on this criterion.

As regards the labor mobility criterion (panel (c)), the average share of people in a U.S. state who were born outside that state is 42 percent. The equivalent figure for the Eurozone is only about 14 percent. This is a deep-seated difference: the U.S. attained something approaching a single labor market sometime in the nineteenth century. Elastic flows of population from Europe, and then across the continent to the open frontier, ensured that labor markets were very fluid, and they have remained so ever since. Over two centuries, U.S. regional real wage gaps have never exceeded ±10%–30% (Margo 1998; Rosenbloom 1996, 2010). Such levels of mobility and integration remain a distant prospect for most of Europe, given language and other barriers.

*[http://eh.net/encyclopedia/article/Rosenbloom.LaborInst]

The U.S also has a central federal fiscal authority, which enables substantial intra-national fiscal taxes and transfers that vary with the local business cycle and operate as intra-union automatic stabilizers. The Eurozone, and the European Union itself, do not enable such sizeable fiscal transfers across countries, and indeed appear quite averse to doing so at present. Panel (d) shows that measures of these federal fiscal stabilizer effects are imprecise for the U.S., but a recent estimate based on just income tax alone shows an offset of 28 cents of a local state-level \$1 income loss, while among Eurozone countries the corresponding figure is effectively nil.

Figure 2 suggests that the U.S. is better suited for a common currency than the Eurozone. Figure 3 presents a different and arguably more direct take on the question. It plots estimates of ruled-based optimal monetary policy responses (Taylor 1993) for four U.S. regions versus the whole since 1987, and for the Eurozone core and periphery versus the whole since 1999.² The contrasts are striking. The estimated rule for the four U.S. regions considered separately indicates small gaps between their "desired" policy rates and the national Fed target rate: divergences are usually between 0 and 200 basis points, a little more after the crisis. The "desired" policy-rate gaps between the Eurozone and its core and periphery regions are much larger and more persistent. Prior to the crisis the periphery target was consistently 300 basis points above the core; afterwards it was between 500 and 700 basis points lower. By this metric, a one-size-fits-all monetary policy appears more tenable in the U.S. than in the Eurozone.



Figure 3. Monetary Policy Taylor Rules: Eurozone versus The United States

Notes and source: The two scales are commensurate (1800 basis points). See Israel Malkin and Fernanda Nechio. 2012. U.S. and Euro-Area Monetary Policy by Regions. *FRBSF Economic Letter*, Federal Reserve Bank of San Francisco, February 27.

² The Taylor rule used is: *Target* = $1 + 1.5 \times Inflation - 1 \times Unemployment gap$, where the latter is the difference between the measured unemployment rate and the natural rate (the unemployment rate where inflation neither decelerates nor accelerates).

Optimal currency area theory neglects some of the most important issues facing the Eurozone since the crisis exploded, in particular those having to do with banking and financial stability (Obstfeld 2013). The United States has since the 1930s had an effective national banking union, fully backstopped by a combination of the Federal Reserve and the U.S. Treasury, and augmented by deposit insurance and other collective programs. The Eurozone has virtually nothing in place, except for ad hoc measures offered by the ECB.

Of course, neither America's banking union nor an economically meaningful fiscal union existed at the birth of the country in the late eighteenth century. However, the United States has maintained a single currency area since the beginning (apart from a brief time during the Civil War when three currencies were in use). How did American monetary union function in their absence? And what did it take—and when, and how—to eventually deepen the US institutional architecture?

For a long period, until the U.S. Civil War, bank notes in the United States that is, promissory notes issued by banks that could be used to transfer funds or to make payments—did not uniformly trade at par with currency (Gorton 2012). Even after this, bank deposits did always not trade at par with currency: that is, if you deposited currency in a bank account, and later withdrew it, the amounts might not match. "Free banking" was mostly the norm, there was no monetary authority, and in this decentralized system only gold functioned as a reference value for money, or as true (par) money itself.

Yet payments frictions were in some respects the least of U.S. problems. Throughout this time, the U.S. economy suffered asymmetric shocks at the regional level which states felt they couldn't or didn't want to offset given fiscal orthodoxies, and which centralized monetary policy, such as it was, was designed to ignore (Rockoff 2000). How did the economy adjust? States and localities suffered, and defaulted if necessary, banks went under, and labor emigrated to more prosperous towns nearby or states far away.

Eventually the U.S. experienced a sequence of crises sufficiently intense to spur change. The first shock came at the time of the U.S. civil war. The need for

union war finance spurred the National Banking Acts, creating a new standardized national currency, with these uniform notes backed by banks' holdings of U.S. Treasury debt. The Acts also set up a Comptroller to regulate the new form of nationally chartered banks. The new structure placed a large quantity of U.S. Treasury debt on bank balance sheets but not just as a wartime expedient, and it remains there to this day as the U.S. banking system's reference safe and liquid asset. Yet no central bank or lender of last resort appeared yet, and pockets of "nonpar" banking survived, especially in rural areas. Bank runs and crises remained, and recessions recurred frequently, but in a political-economic equilibrium where macroeconomic management was not expected to play a role.

Still, by the time in the early twentieth century that U.S. banks had become large enough that they constituted systemic risks, they were holding U.S. government securities as their safe and liquid assets, rather than state and local debt: Illinois banks do not hold Illinois debt, for example. This meant that defaults by state and/or local governments did not entail a systemic threat to the financial system as a whole. By contrast, in today's Eurozone, each nation's banks largely hold national debts of their own country, implying a national sovereign-bank doom loop.

Despite the National Banking Acts the late nineteenth and early twentieth centuries were characterized by increasingly frequent and serious financial crises (1893 and notably 1907), and deep recessions and depressions (the 1880s/90s). During the Panic of 1907, only a large privately coordinated intervention led by J. P. Morgan had stemmed panic. This raised the fear that without a true central bank, with lender of last resort capability backed by unlimited balance-sheet capacity, the system was becoming increasingly fragile. In response to this sense of rising systemic risk the Federal Reserve was established in 1913, creating a full-fledged monetary union with monopoly note issue, par clearing for all member banks, and a national payments system.

However, in its early years the new system suffered regional tensions, and proved ineffective in halting the 1930s banking panics. It was politically hobbled at first by a still prevalent Jacksonian mindset suspicious of central banking. A small but revealing example involved the Fed's attempt to eliminate non-par banking

being halted by Supreme Court action in the 1920s. Non-par banks thus clung on until the Monetary Control Act of 1980. In the depths of the Great Depression some regional Feds threatened not to lend gold to one another through the Gold Settlement Account, revealing concern about inter-district settlement risk in physical gold via the Board. Such doubts were decisively squashed by changes to the Federal Reserve Act in 1935. Today's Interdistrict Settlement Account (set up when? 1935?) settles in infinitely suppliable fiat money via the System Open Market Account. Today's Eurozone equivalent is the TARGET2 balances between the separate national central banks and the ECB. In both the U.S. (1.9%) and the Eurozone (2.6%) these imbalances represent a small fraction of banking system assets (but a much larger share of Eurozone GDP, 9.4% versus 1.7% of GDP); but in the U.S. since the 1930s there has been absolutely no concern that these imbalances might be limited or subject to settlement (or exit) risk.³

The financial collapse of the 1930s was utterly devastating, revealing the more destructive potential of such crises in modern, highly-financialized economies where levered balance sheets imply "financial acceleration": in good time banks, firms and households might feed off wealth effects, borrow and drive up asset prices after positive shocks, and create more wealth and leverage; but after negative shocks this could go into reverse, producing a vicious circle of contraction (Bernanke xxxx; Bernanke and Gertler xxxx). One response was to put in place new prudential architecture, beginning with the Banking Act of 1935. Legislation for **central regulation and insurance edicts** were promulgated, deposit insurance was instigated with concomitant supervision, the Glass-Steagall act separated commercial and investment banking, and the role of the Board of Governors was upgraded, permitting them to impose uniform monetary policy in all regions without opposition. The U.S. finally had a strong lender of last resort, with substantial powers, especially if exigent circumstances should recur.

³ <u>http://www.bruegel.org/nc/blog/detail/article/729-why-is-there-no-target2-debate-in-the-us/</u>; http://jpkoning.blogspot.com/2012/02/idiots-guide-to-federal-reserve.html.

Just as banking union progressed gradually in the U.S., so too did fiscal union. Initially the central government left states to themselves under a "no bailout" constitutional settlement brokered by Hamilton, whereby the U.S. central government would do a once-and-for-all debt mutualization to place Revolutionary War debts in common, but would then expect each of the states to stand on its own fiscally, observe near-budget balance and, if need be, be allowed to default (Sargent 2012). The rules survive to the present, and many states have been through fiscal distress and even default. The ability to default provided a dimension of flexibility at times of crisis, while protecting federal taxpayers from moral hazard bailout burdens entailing higher taxes and/or inflation on the collective. State level debts are typically modest in size and, as noted, with that paper kept off banks' balance sheets. But such arrangements also implied a potential bias toward pro-cyclical fiscal policies at the state-and-local level, a destabilizing feature witnessed again in today's Great Recession.

Under this setup U.S. fiscal union was weak or nonexistent in the 19th century. However, after World War I and the Depression federal expenditures and taxes grew large enough to provide substantial and elastic fiscal transfers (income taxes, unemployment insurance, agricultural support, and later Social Security) and steady components of spending (like defense spending) which were shared between states and helped smooth out asymmetric shocks. The Federal system also makes transfers from some "overpaying" states (like California and Illinois) to "underpaying" states (like Texas or Florida), with these transfers reflecting persistent cross-state imbalances in things such as incomes, defense activity, the location of retirees, etc. [check; cite]

Thus, after 100 years of evolution, the U.S. fiscal and banking union involves an interesting and, so far, durable mix of hard long-run rules, such as the "no bailout" setup allowing state default, and institutional innovations that have made the system more stable. Since the Civil War the system has not involved a state-level financial doom loop; since the Depression it has provided an elastic short-run policy regime, embedded in intra-union fiscal stabilizers and union-level banking sector backstop and oversight. In contrast, since the current crisis began the Eurozone has

been unable to decide on whether there should be bailouts or not, defaults or not, automatic stabilizers or not, bank backstops and oversight or not—indeed at times it has veered towards almost all of these positions.

With U.S. history in mind, an optimist might argue since the Eurozone project is barely 10 years old, and the United States took perhaps 140 years to fully develop an appropriate institutional structure, we should be impressed rather than concerned by how far the Eurozone has come already. The evolution of U.S. monetary and fiscal institutions was a fitful and crisis-ridden process, from the fights (ongoing) over the role, if any, for central banking and for large fiscal transfers; the longstanding political obstacles to government deposit insurance, at the state and then federal levels; and the conflict over a hard monetary regime, only resolved by the gigantic disaster of the 1930s, but not before a series of disputes, notably the bimetallism and "cross of gold" arguments of the 1890s, had posed deep questions about the desirability of a deflation-prone and asymmetrically-adjusting regime. There were times when the monetary regime, and at times even the monetary union itself, were deeply unpopular, and the subject of national or regional tensions. (cite?)

Recent developments in Europe, such as the 2012 decision in principle to move towards a banking union, offer some hope of eventual institutional reform. Unfortunately, more rapid change may be required today in the Eurozone than was the case in nineteenth-century America. The nature of modern economies, and of politics in the independent democracies that comprise the Eurozone, is such that Europe may not have the luxury of experimenting for 140 years before finding workable arrangements. In democratic polities, popular calls for public goods, social insurance, countercyclical macroeconomic policy, and financial stability cannot be brushed aside as in the less democratic era of the nineteenth-century classical gold standard.

The United States began with a secure political union from which exit (tried once during the Civil War) is <mark>impossible</mark>, and which provided a stage on which economic and monetary union developments could be slowly constructed. Its national constitution embodied key assumptions about the existence and

permanence of the national debt (a key potential collective safe asset), central taxing power (ultimate central fiscal capacity), as well as the common currency and the commerce clause (truly free interstate trade). Onto this, after major crises, a banking union and an economically meaningful fiscal union were later grafted. In comparison, neither the Eurozone nor the European Union comprise a political union; exit is possible from both; there is no central fiscal authority in either, nor any common debt, and there seems to be no appetite on the part of creditor nations to go down that route.

Europe's fitful progress on meaningful banking or fiscal union reforms suggests that the jury is still out on whether the Eurozone can achieve the minimal necessary collective institutions needed to sustain deep integration and macrofinancial stability of the kind that the U.S. economy can take for granted. What might these institutions be?

The fact that the Eurozone scores so poorly on optimal currency area grounds suggests a need for mechanisms allowing smoother and more symmetric adjustment between its members. Moves to enhance labor mobility, for example by improving pension or health insurance portability, can help, but, we suspect, only to a limited extent. A stronger fiscal center as in the U.S. is therefore desirable, but there seems little prospect of this: member states will thus have to engage in counter-cyclical fiscal policy themselves. For some countries, the size of their existing debts means that debt restructuring will be required in order for them to regain the ability to do this (Wyplosz 2012). The difficulty of developing Eurozonewide automatic stabilizers should also focus attention on the design and policies of the ECB. Since asymmetric adjustment based on internal devaluation does not work, the ECB should target a higher rate of inflation for the Eurozone as a whole at times of stress, to facilitate relative price adjustment. The behavior of the ECB during this crisis suggests that treaty revisions may be required to bring about such a shift in policy.

The institutional architecture of the Eurozone also needs to be deepened if a recurrence of the present crisis is to be avoided. A banking union seems essential. This would involve common supervision, common resolution procedures and common deposit insurance, and in consequence at least some elements of a fiscal union (Pisani-Ferry et al. 2012; Goyal et al. 2013 [IMF]). However, the system will remain fragile as long as national banks hold national debt: a "safe" Eurozone asset is required so that governments can default on their debts without collateral damage to financial systems in their own countries and potentially, via contagion, across the Eurozone (Brunnermeier et al. 2011). Say something more about this?

Such a safe asset is particularly important since the ability of national governments to default is also essential, being the logical corollary of the no-bailout clause which has worked well in the U.S. context, and which seems consistent with the requirements of national democracies. By contrast, the Eurozone attempt to avoid fiscal free riding by legally constraining national governments has been an intrusive failure (Lindseth and Mody 2013, Wyplosz 2012). Indeed the no-bailout clause was abandoned in 2010 due to fears about the consequences of defaults for creditor countries' banking systems. That experience suggests that Eurozone bank resolution procedures need to be implemented by an independent body, immune from political pressure, separate from the ECB, and with a clear mandate to protect taxpayers, bailing in bank creditors as necessary: otherwise default may be politically impossible in those countries where it is most needed (Goodhart forthcoming, Turner forthcoming).

Costs of Exit: Lessons from Past Breakups

What if the Eurozone ultimately fails? History can speak of past cases in which common currencies split up, although again the analogies are imperfect.

Austro-Hungarian Empire

Following the end of World War I in 1918, the Austro-Hungarian empire was rapidly divided into successor states: the Kingdom of Serbs, Croats and Slovenes (which became Yugoslavia in 1929); Czechoslovakia; Austria; Hungary; and Romania. Initially the monetary union based on the Krone continued, with banknotes for the entire region being printed in Budapest and Vienna, but this arrangement proved unsustainable (Garber and Spencer 1994). The separate states decided to introduce their own currencies from early 1919 onwards.

In one way, this process proved straightforward: countries typically overstamped existing banknotes, and converted bank deposits into the new currency at a pre-arranged parity, imposing levies or forced loans in the process as needed. However, Garber and Spencer (1994) note a feature of the process with obvious implications for any Eurozone break-up: the fact that these measures were enacted at different times in different countries led to large flows of currency across borders, despite attempts by the authorities to block them, as people sought to move their currency holdings to wherever they thought they would be most valuable. These decisions were based partly on assumptions about where the conversion would take place at the most favorable rate, and partly on assumptions about future rates of inflation; the old currency also tended to flow to where it remained legal tender the longest (in this instance Hungary). The obvious implication is that any break-up of the Eurozone would work best if it happened quickly, and preferably in a coordinated manner, with temporary capital controls being essential. Another implication is that any suggestion of a future break-up could prove extremely destabilizing as investors and households anticipated the capital gains and losses that it would imply (Eichengreen 2007).

The Austro-Hungarian example does not suggest that hyperinflation is a necessary consequence of a currency break-up, as is sometimes suggested: the hyperinflation experienced in both Austria and Hungary reflected the inflationary financing of large budget deficits that had helped precipitate the break-up of monetary union in the first place. Czechoslovakia put in place an institutional framework prohibiting such policies, and suffered deflation rather than inflation, as it attempted to rejoin the gold standard at the pre-war parity (Eichengreen, 2007).

Argentine Currency Board

Argentina has exited currency board experiments three times, in 1914, 1929, and <mark>2002</mark>. The most recent exit illustrates some problems that could occur in the event of a Eurozone breakup. Argentina had borrowed large amounts from local

banks. When the government defaulted, the banks became insolvent as well, leading to a textbook "triple crisis"—a banking crisis, a sovereign debt crisis, and a currency crash. In the aftermath came the problem of who bore the losses. In 2002, Argentina declared that dollar loans would be repaid in pesos. This reduced the cost to the government of bailing out Argentina's banks (Roubini and Setser), but also led to a plethora of costly legal disputes. These included disputes about "pesification" itself, and about the asymmetric pesification values attached to different claims; they dragged on for many years, generating considerable uncertainty. The external default led to an eventual bond exchange which minority "vulture" holdouts were still fighting in New York courts at the time of writing. Capital controls (*corralito*) had to be imposed immediately to prevent arbitrage and have never been fully dismantled. There were thus considerable costly side effects which have to be set against the benefits to Argentina of devaluation and default.

Conclusions

In the long run, a well-functioning Eurozone requires a move towards a banking union, and at least some degree of fiscal union. The problem is that the short-run problems facing the periphery are now so great that politicians may never get a chance to solve these long-run problems, since the Eurozone will have collapsed in the meantime. The history of the gold standard tells us that an asymmetric adjustment process involving internal devaluation in debtor countries, with no corresponding inflation in the core, is unlikely to be economically or politically sustainable. A more flexible macroeconomic policy mix, involving looser monetary policy, a higher inflation rate, a weaker euro, debt restructuring, and greater levels of public expenditure by core governments (or some EU-level institution such as the European Investment Bank) is needed in order to make the adjustment process less asymmetrical, and lessen the risk of a Eurozone collapse.

Turning to the long-run challenges facing the Eurozone, U.S. experience suggests that major institutional reforms require major political and economic crises. Moves towards an American banking union, and a larger Federal government

capable of playing an adjustment role in regional crises, only came about after such shocks as the Civil War, the Panic of 1907, and the Great Depression. The trouble is that these crises occurred within the context of a pre-existing state. It is one thing to develop deeper Federal institutions at times of crisis in one country; another thing to do so in a union of 17 independent states. There, a sufficiently major crisis may lead to countries deciding to abandon the Euro project altogether, which is why a Eurozone breakup cannot be excluded.

As in the Argentinian case, a Eurozone breakup would involve the redenomination of assets and liabilities, and in all likelihood sovereign defaults in some cases as well. (? What do we want to say?) This would imply large crossborder redistributive effects. A plethora of private contracts would be affected, involving not just Eurozone firms: the scope for legal chaos seems clear. If the Eurozone is destined to break up, then speed and cooperation are essential, to avoid both destabilizing capital flows and years of costly litigation and uncertainty. Such a scenario seems fanciful in the extreme, but if Eurozone policy makers do not rapidly move towards a different macroeconomic policy mix, and at the very least a meaningful banking union, then Europe may ultimately find itself clutching at such straws.