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FX Special Reports

2,000 Years of Monetary Union History: Euro Lessons

- We begin by investigating whether the Eurozone satisfies the criteria of an “optimal currency area”. We find that it does not fulfill all the criteria, but in the remainder of the essay argue that this is neither a sufficient nor a necessary condition for a failure of monetary union.
- We turn to history, because the evolution of single-currency areas has not only been dependent on macroeconomic criteria, but on institutional arrangements and political imperatives. We discuss the creation of the United States Monetary union, as well as monetary unions in Scandinavia, Europe (the Latin Currency Union), Scandinavia, Yugoslavia and the USSR. We argue that the type of relationship between the “federal” central bank vis-à-vis the regional central banks is an important determinant of whether a monetary union survives.
- We also find that currency unions have historically exhibited uneven allocation of credit (or money supply) across different regions, so that effective enforcement mechanisms are required to avoid currency union breakdown. Finally, we argue that currency breakups have followed, rather than preceded, political union breakups. We conclude that monetary unions are as much about politics and institutions as they are about economics, and that the future of the Eurozone will depend on the extent to which current political and institutional weaknesses can be overcome.

Economics

Research Team

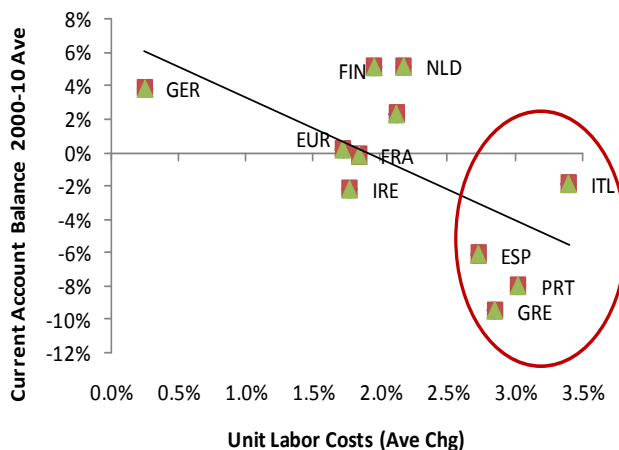
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Figure 1: Eurozone May Not Be “Optimal Currency Area”, But Success of Monetary Unions Has Not Just Been About Macro



Source: Deutsche Bank

Deutsche Bank AG/London

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2,000 Years of Monetary Union History: Lessons for the Euro

Overview

In this essay we begin by investigating whether the Eurozone satisfies the criteria of an “optimal currency area”. We find that it does not fulfill all the criteria, but in the remainder of the essay argue that this is neither a sufficient nor a necessary condition for a failure of monetary union. We turn to history, because the evolution of single-currency areas has not only been dependent on macroeconomic criteria, but on institutional arrangements and political imperatives. We discuss the creation of the United States Monetary union, as well as monetary unions in Scandinavia, Europe (the Latin Currency Union), Scandinavia, Yugoslavia and the USSR. We argue that the type of relationship between the “federal” central bank vis-à-vis the regional central banks is an important determinant of whether a monetary union survives. We also find that currency unions have historically exhibited uneven allocation of credit (or money supply) across different regions, so that effective enforcement mechanisms are required to avoid currency union breakdown. Finally, we argue that currency breakups have followed, rather than preceded, political union breakups. We conclude that monetary unions are as much about politics and institutions as they are about economics, and that the future of the Eurozone will depend on the extent to which current political and institutional weaknesses can be overcome.

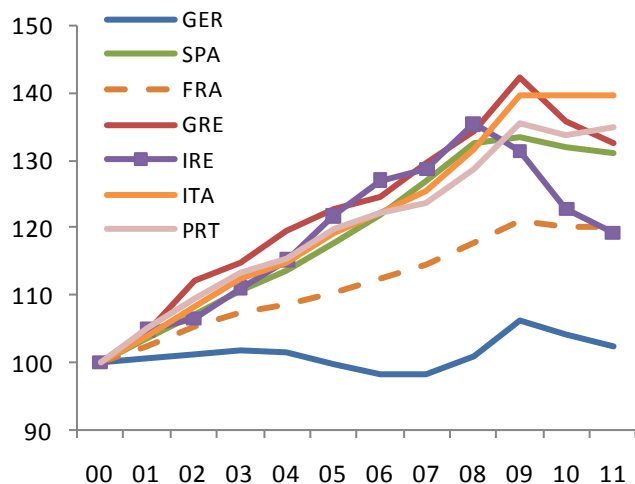
Is the Eurozone an Optimal Currency Area? The Macro Story

When do regions benefit from sharing a common currency and when do they suffer? Robert Mundell won a Nobel Prize for designing the theory of *optimal currency areas* to address this question.¹ As a rule of thumb, for two regions to gain from a single currency, the **microeconomic benefits** (lower transaction costs and elimination of currency risk) must outweigh the **macroeconomic costs** (principally, the inability to create bespoke monetary policy for each region).² These costs are evident today in the European Union as the periphery struggles with a strong euro brought on by German export prowess. In the past decade wages have risen as fast in Germany as they have in the periphery, but only Germany has experienced strong productivity growth. The resulting competitiveness gap is evident from wide intra-EMU current account deficits as peripheral countries struggle to export goods using a strong euro.

¹ Mundell, Robert (1961). “A Theory of Optimal Currency Areas”. American Economic Review 51 (4): 657-665.

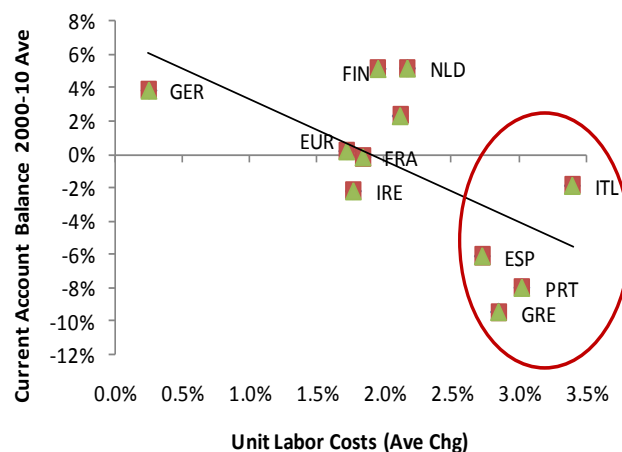
² Kouparitsas (2001). *Is the United States an optimum currency area? An empirical analysis of regional business cycles*. Federal Reserve Bank of Chicago, working paper 2001-22.

Unit labor costs (productivity-adjusted wages) rose much faster in the periphery....



Source: Deutsche Bank, EcoWin.

...wide intra-EMU current account deficits exist as the periphery struggles with a strong euro



Source: Deutsche Bank, EcoWin.

Mundell described an optimal currency area as having the following characteristics:

- 1 **Labor mobility** – so that workers can move to productive countries for jobs and companies can take advantage of low unit labor costs
- 2 **Capital and wage flexibility** – if wages are growing faster than productivity, then either wages should fall (deflation) or capital invested to make productivity rise
- 3 **Fiscal union (transfers)** – automatic stabilizers such as unemployment benefits and progressive taxation tend to dampen swings in the business cycle but pose a threat to government finances during downturns. Fiscal union minimizes the risk that hard-hit regions will incur unsustainable debt loads by sharing the budgetary burden with stronger regions.
- 4 **Correlated business cycles** – joint monetary policy is made difficult when regions frequently experience asymmetric economic shocks. During “two speed” recoveries with monetary unions, some regions may benefit from looser monetary policy while others require tight monetary policy, creating a no-win situation for the joint central bank. The same reasoning applies to currency pegs – EUR/DKK is much easier to peg than USD/CNY because the former currencies are tied to highly correlated economies that are likely to benefit from identical monetary policies.

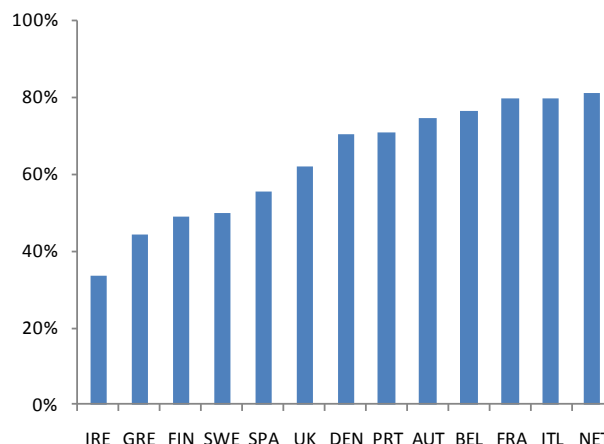
Academic opinion varies widely on the optimality of the European Monetary Union. Prior to the financial crisis, GDP correlation between EMU members was actually quite high, and remains so among “core” members. Eurozone GDP has tracked German GDP very closely since the 1970s and growth figures for individual members are 50-80% correlated to German growth with the notable exception of Ireland, Greece and the Nordics. Moreover, disparities in GDP levels have been greatly alleviated in past decades through convergence initiatives such as the European Regional Development Fund.

Eurozone growth (except for the periphery) has always been highly correlated to German growth



Source: Deutsche Bank, EcoWin.

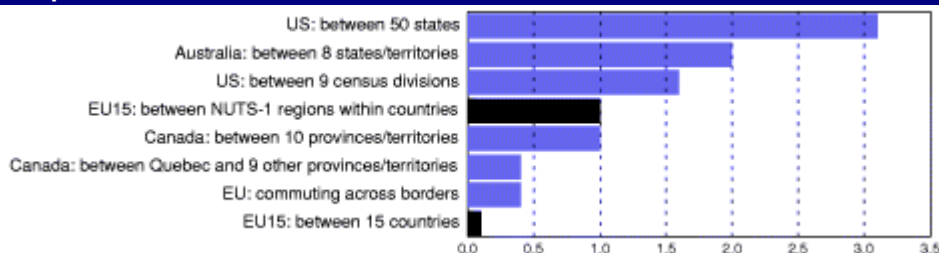
GDP correlations with Germany are lowest for Ireland and Greece since 1970; Portugal has the highest "beta"



Source: Deutsche Bank, EcoWin.

However, Europe falls far behind on measures of labor market flexibility and mobility. Workers in the United States and Australia are far more likely to work in different regions than Europeans are likely to work outside their home countries. Part of this discrepancy is surely due to language barriers, but labor mobility within individual countries, notably Italy, is not particularly high either. The absence of labor mobility contributes to unit labor cost dispersion and resulting monetary tensions within the Eurozone. It also ensures that unemployment rates vary far more between Eurozone countries than between U.S. states, Australian territories or Canadian provinces.

Cross-border labor mobility (% of working age population 2000-05) is far lower within the European Union than between US states and Australian territories



Source: OECD, "Economic Survey of the European Union 2007: Removing obstacles to geographic labour mobility".

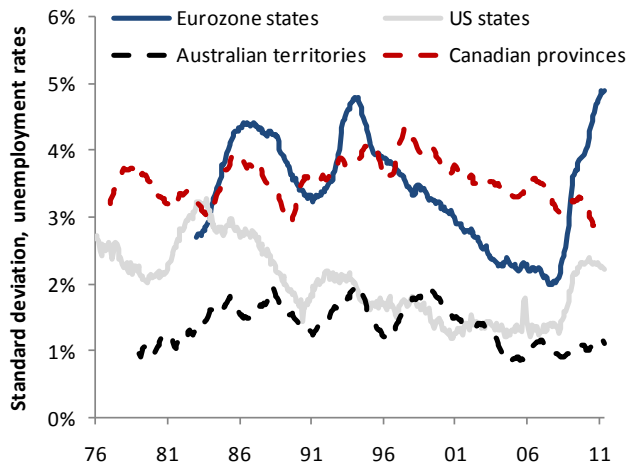
Fiscal unions have proven durable within sovereign countries such as the United States despite the existence of independent state fiscal authorities. In part this reflects the oversight already in place: every U.S. state except Vermont has some form of a balanced budget provision written into its constitution.³ Yet state defaults are not unprecedented; nine states defaulted in the 1840s and Arkansas defaulted on its debts during the Great Depression. One might argue that US states have used creative accounting to circumvent balanced budget provisions by systematically underfunding pension and retiree health care liabilities – estimates of these total unfunded liabilities range from \$1-3 trillion.⁴ Central

³ For more detail see the "NCSL Fiscal Brief: State Balanced Budget Provisions", NCSL (2010).

⁴ For more detail see "The Trillion Dollar Gap", Pew Center on the States, 2010.

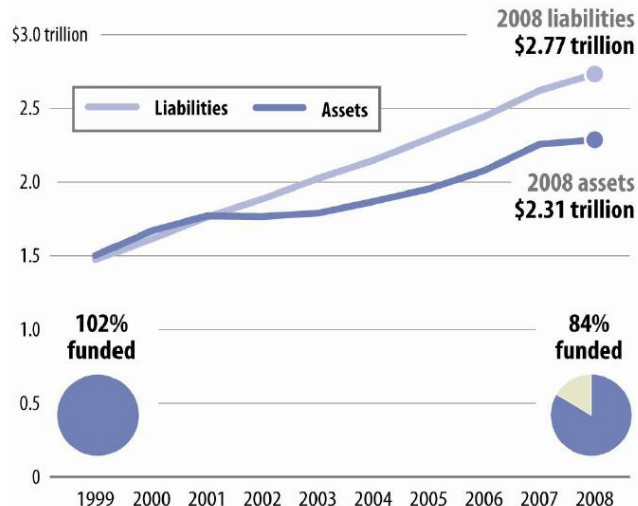
governments from China to Spain have encountered difficulties monitoring the spending of their provinces.⁵

Eurozone unemployment rates vary more than between regional rates (within countries)



Source: Deutsche Bank, EcoWin.

States may be accumulating deficits through unfunded pension (and health care) liabilities of \$500bn or more



Source: Pew Center on the States, "The Trillion Dollar Gap", 2010.

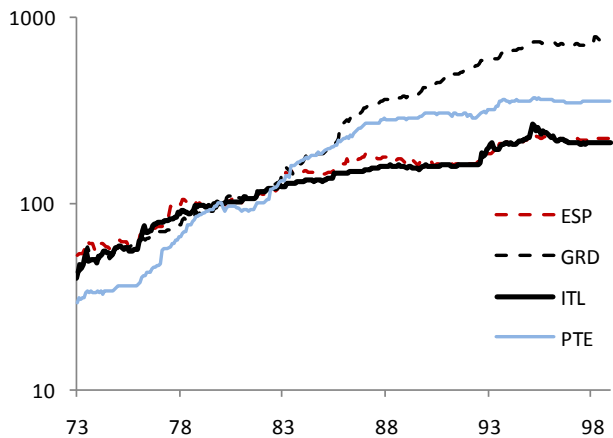
At any rate, U.S. state budgets are dominated by federal spending, while the EU budget is a small fraction of the cumulative spending of member states. In this sense fiscal union (and its associated cross-regional transfers through automatic stabilizers) is largely absent from the European Monetary Union just as it was in the United States prior to the New Deal.

It is worth noting that Eurozone countries ran quite diverse monetary and fiscal policies before the advent of the euro, as evidenced by the path of their exchange rates against the Deutschmark. The Stability and Growth Pact (SGP) was incorporated into the EMU framework as a check against profligate countries choosing to free-ride on the fiscal credibility of the Eurozone's stronger members. But the SGP has so far proven to be unenforceable as threats to fine nations already in heavy debt were not credible in practice. Olli Rehn, the EU commissioner for economic and monetary affairs, has proposed withholding regional development funds for countries that violate the SGP and giving Eurostat limited oversight of national budgets.⁶ In a sense, this oversight would mirror the discipline U.S. states impose on themselves through balanced budget amendments.

⁵ Moody's downgraded five Spanish regions on 1-Jul-11 as debt was discovered to be higher than previously thought. They also warned on 5-Jul-11 that Chinese local government debt may be CNY 3.5 trillion more than previously reported, with bad deal accounting for 8-10% of total loans. BBC article link: <http://www.bbc.co.uk/news/business-14024999>

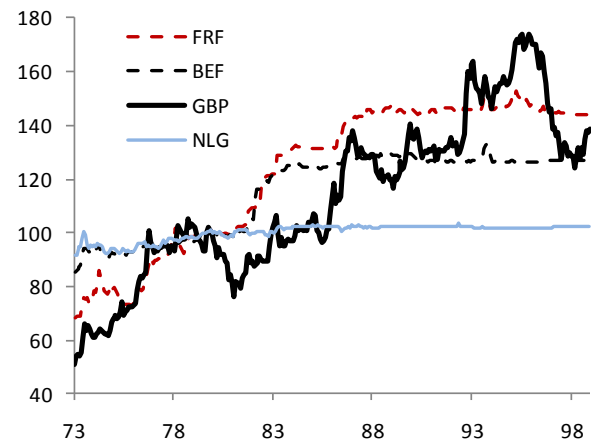
⁶ Chaffin, Joshua and Nikki Tait. "Brussels targets spendthrift states". Financial Times, 14-Apr-10.

Mark appreciation against periphery currencies was rapid in post-Bretton Woods era (DEM/XXX, 1980 = 100)



Source: Deutsche Bank, EcoWin.

DEM also rose against some of the "core" Eurozone members (DEM/XXX, 1980 = 100)



Source: Deutsche Bank, EcoWin.

Defining Currency Areas

While the literature on the optimality of currency areas dates back to the 1960s, currency areas themselves go back millennia. The Mediterranean basin arguably formed one of the first currency areas in the Western world, with the Athenian tetradrachm, most frequently portraying an owl, maintaining a similar purchasing value throughout Ancient Greek trading centres. The tetradrachms were known for their tight standards of purity and weight, and when combined with Athens' prime role in Mediterranean trade established the coins as a unit and store of value in 5th century B.C. Greece.

Mundell defines a currency area as "a domain within which exchange rates are fixed", distinguishing this from a currency union, which "implies a single central bank with note-issuing powers". In practice, the institutional setup of currency areas and unions has been so diverse, that only historical examples can provide an adequate overview of possible arrangements. Using the IMF exchange rate arrangement classification system⁷ as a starting point, we identify the following currency area arrangements together with the most relevant historical examples:

- 1 **Conventional pegs:** this is an arrangement under which a country formally pegs its currency at a fixed rate to another currency, and where the country authorities stand ready to maintain the fixed parity through direct or indirect intervention. While there is not always a commitment to irrevocably keep the exchange rate fixed, the credibility of the peg is usually maintained by backing a certain portion of the domestic monetary base with the anchor currency.⁸ Historical examples of pegs involving a large number of countries include the Gold Standard over the 19th and early 20th centuries, the Bretton Woods system of the 1950s and 1960s and the CFA franc zone involving fourteen central and western African countries.

⁷ Habermeier, Karl et. Al. "Revised System for the Classification of Exchange Rate Arrangements", IMF Working Paper WP/09/211, November 2009.

⁸ *Ib id.*, page 11, appendix.

- 2 **Currency boards:** this arrangement goes beyond a currency peg. According to the IMF, a currency board is based on an explicit legislative commitment to exchange domestic currency for a specified foreign currency at a fixed exchange rate, combined with restrictions on the issuing authority to ensure the fulfillment of its legal obligation. This implies that domestic currency will be issued only against foreign exchange and that it remains fully backed by foreign assets, eliminating traditional central bank functions such as monetary control and lender-of-last-resort, and leaving little scope for discretionary monetary policy. Frequently cited currency board arrangements include the Hong Kong dollar peg, which began in 1983, and the Argentina currency peg of 1991-2002.
- 3 **Dollarization/Euroization:** this involves the currency of another country circulating as the sole legal tender in another country. Adopting such an arrangement implies the complete surrender of the monetary authorities' control over domestic policy. Two of the most well-known examples are El Salvador (dollarization) and Montenegro (euroization).
- 4 **Monetary/currency union:** similar to dollarization, a monetary union involves the circulation of the same legal tender in more than one national or state jurisdiction, but control of monetary policy is surrendered on a multilateral, rather than unilateral basis. Monetary policy is controlled jointly by participating members. Monetary unions have evolved dynamically over time, with many developing into federal political unions (United States, Italy, Germany), others breaking up following political dissolution (USSR, Yugoslavia, Austro-Hungarian Empire), and others existing in the context of independent nation states (Latin Currency Union, Scandinavian Union and European Economic and Monetary Union).

Keeping these distinctions in mind, we now turn to a discussion of the history of currency unions. We discuss the United States, the Latin Currency Union, the USSR, Yugoslavia, Czechoslovakia and the Austro-Hungarian empire. We conclude by discussing what lessons can be learnt for history for the Eurozone.

How to Build a Currency Union in a Century: the United States

The dollar has existed since the ratification of the Constitution in 1788 but the United States has not always been a true monetary union such as we know it today. The dollar has always functioned as the unit of account and a medium of exchange (e.g. as the "currency") in the US but the role of dollar-denominated banknotes as legal tender⁹ was not established until 1862 and the reliability of USD banknotes as a *store of value* depended largely upon the "full faith and credit" of the issuing institution. In the Constitution, dollars are *not* \$1 banknotes. Rather, they are defined as gold and silver dollars, where a dollar is a certain amount of each metal (a "bi-metal" standard).¹⁰ Prior to the Civil War, private banks circulated their own

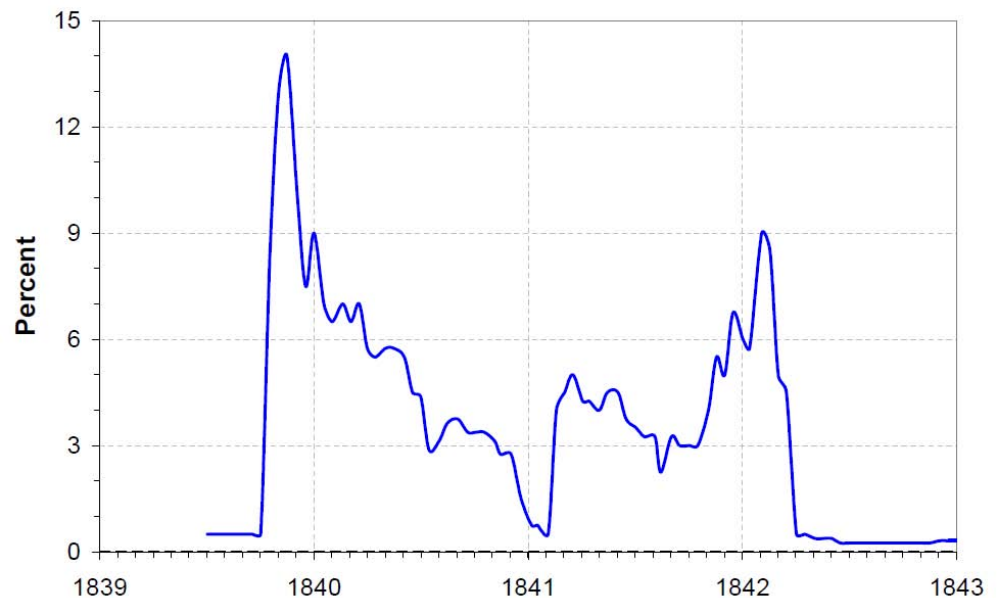
⁹ Legal tender is any method of payment defined by law as a means for extinguishing debts, public or private. That is, if you owe \$100 in taxes or to a merchant today, Federal Reserve notes and coins cannot be refused as payment (although merchants may refuse Federal Reserve notes and coins *before* the debt is incurred). Prior to the Civil War, only gold and silver ("specie") were official legal tender, as established in Article 1, Section 10, Clause 1 of the United States Constitution. A debt of \$100 was 100 *gold* dollars and a \$100 banknote did not automatically discharge this debt.

¹⁰ The dollar was established as the unit of account by the Coinage Act of 1792. Gold eagles (\$10, 247.5 grains of pure gold), silver dollars (371.25 grains of silver) and copper pennies (11 pennyweights of copper) produced by the U.S. Mint were deemed sole legal tender for dispensation of debts. This definitely implicit fixed the gold-silver price at 371.25/24.75 = 15-to-1 (the current gold/silver price ratio is approximately 40-to-1, roughly where it was by 1900 following the 19th century silver mining boom). The silver content of a dollar was nearly equal to the silver content of GBP 0.20 (4 shillings). See the following US Mint link for details: <http://www.usmint.gov/historianscorner/?action=docDetail&id=326>

notes, denominated in dollars and promising to pay specie (gold or silver dollars) on demand. These notes traded at various discounts to par depending on the credit-worthiness of the issuing bank and the state in which it had been chartered. For instance, you might travel to New York City from Philadelphia carrying \$10 notes issued by a bank in Pennsylvania and find that New York merchants would only exchange \$9.50 in notes and coins issued in New York (see figure below for estimated discount rates). There was, in fact, much fraud; notes from defunct banks continued to circulate long after bankruptcy had occurred.¹¹ Banknotes thus carried a considerable amount of credit risk despite their short-dated nature. Risk-taking banks had every incentive to debase the currency by issuing more banknotes than they had specie in reserve (at roughly a 10-to-3 ratio).¹²

In other words, control of the broad money supply was largely de-centralized in antebellum America, just as sovereign credit is largely de-centralized in the Eurozone today.

Monthly modal discounts on Philadelphia banknotes in New York City, 1839-1842



Source: Weber (2002), "Banknote exchange rate in the antebellum United States". Federal Reserve Bank of Minneapolis, Working Paper No. 623.

Alexander Hamilton had anticipated this problem in 1790 and encouraged Congress to charter The Bank of the United States but his efforts to impose central banking on the US was in vain. Modeled after the Bank of England¹³ (itself a private bank until 1931), the Bank of the United States was well capitalized and therefore issued the safest and most plentiful supply of banknotes, although it did not have a monopoly on issuing banknotes. It was the sole depository for US federal revenues but otherwise functioned as a private bank. From the start the privileged status of the B.U.S. drew populist contempt – its 20-year charter was not renewed by Congress in 1811. A Second Bank of the United States was chartered in 1816 following inflation resulting from the War of 1812; its charter was also not renewed by populist President Andrew Jackson. Each time, B.U.S. banknotes were assailed by hard

¹¹ See Weber (2002), "Banknote exchange rate in the antebellum United States". Federal Reserve Bank of Minneapolis, Working Paper No. 623.

¹² See Bodenhorn (2008), "Antebellum Banking in the United States". EH.Net Encyclopedia, edited by Robert Whaples.

¹³ The Bank Notes Act of 1833 made Bank of England notes legal tender and the Bank Charter Act of 1844 gave the Bank of England monopoly rights over banknote issuance in England and Wales. Scottish and Northern Irish private banks still issue their own banknotes. Bank of England notes are de facto accepted as legal tender in Scotland and Northern Ireland even though they are technically promissory notes, and vice versa for Scottish and Northern Ireland banknotes in England and Wales. The Banking Act of 2009 insures Scottish and Northern Ireland banknotes are fully backed by Bank of England notes or UK coin in order to protect against private bank failure. See Bank of England link: http://www.bankofengland.co.uk/banknotes/about/scottish_northernireland.htm

money proponents as an enabler of inflation (rapid expansion of the B.U.S. loan book helped cause the Panic of 1819). After all, the B.U.S. was a private bank seeking profits rather than a central bank mandated to keep inflation in check. Pointedly, there was a constant scrutiny and resentment of the bank's shareholders, many of whom were prominent industrialists and quite often foreign citizens. Its president Nicholas Biddle was vilified by Jackson during the "Bank War" as having a monopoly over the currency (indeed, this was the point). Then as now, ordinary citizens were wary of foreign and special interests influencing the money supply, and hence the relationship between creditors and debtors.

Following the closure of the second B.U.S. private banks went back to demanding payment in specie; the deflationary shock that followed resulted in the Panic of 1837. An era of "free banking" with discounted private banknotes and loose money ended with double-digit inflation brought on by the Civil War.

Bi-metalism and the "The Cross of Gold"

During the Civil War, the U.S. Treasury issued the first "greenbacks", consisting of Demand Notes (later United States Notes, or "Legal Tender Notes"), that could legally discharge debts under the Legal Tender Act of 1862. As such, it was the first "fiat currency" issued in the United States – the notes themselves were never backed by gold or silver¹⁴, but debts incurred of \$10 (e.g. \$10 silver dollars, or 2,475 grains of pure silver) could be legally discharged using a \$10 United States Note. Debts incurred before the Legal Tender Act were quickly paid in greenbacks since they traded at a discount to gold; afterwards, gold dollars ceased to be used as currency and were hoarded since their metal value was now worth more than the newly devalued dollar represented by United States Notes.¹⁵

A similar fate befell silver – a silver mining boom in the 19th century left the old gold-silver price untenable, as the metal in \$10 gold coins became more valuable than the metal in 10 silver dollars on the open market, yet both were still accepted as legal tender for a \$10 debt. Accordingly, silver drove gold out of circulation, as people repaid their debts in silver and hoarded gold coins. Gold also left the country as payment for imports while foreigners paid for exports in silver, resulting in a balance of payments crisis. The Coinage Act of 1873 finally brought the U.S. onto the gold standard (many countries, notably Britain, had shifted to gold earlier) and de-monetized silver, leading to a contraction of the money supply and deflation.

¹⁴ The only U.S. banknotes that were ever "backed" by gold or silver and intended for mass circulation, in the sense that the bearer, an ordinary citizen, could receive gold or silver from the Treasury on demand, were silver and gold certificates, issued from 1865-1933 and 1878-1957, respectively. Gold certificates were rarely circulated, and were forcibly redeemed by the Gold Reserve Act of 1933. Silver redemption was suspended in 1968. During the Classical Gold Standard (1870-1914) and Bretton-Woods Era (1945-1971), foreign governments could demand gold for dollars from the U.S. treasury at a fixed price (\$20.67 under the Classical Gold Standard, \$35/ounce under Bretton-Woods). President Nixon closed the "gold window" in 1971 because the U.S. trade deficit caused foreign governments to deplete U.S. gold reserves, as the gold shadow price was well above \$35/ounce. This imbalance forcibly ended the Bretton-Woods Era. During the Gold Exchange Standard, Bank of England sterling notes were gold-backed and were the primary vehicle to transfer balance-of-payments in trade between London, Paris, Berlin and New York money markets. For more details, see Bordo (1981), "The Classical Gold Standard: Some Lessons For Today", Federal Reserve Branch of St. Louis.

¹⁵ Incidentally, American Gold Eagle coins are still legal tender in the U.S. today but their market value when melted down far exceeds their face value. This is a classic example of Gresham's Law; when two sets of money are pegged at a misaligned exchange rate (in this case, an American Gold Eagle, with 1 oz of gold, has a face value of \$50 but a market value exceeding \$1600), the undervalued money (banknotes) will push the overvalued money (gold) out of circulation and the overvalued money will be hoarded. Although you can pay a \$50 debt with a gold eagle it would not make much sense to do so!

Which "dollar bills" do you prefer? United States Notes (1966) vs. Gold Certificates (1928); Federal Reserve Notes (1934) vs. Private Bank Notes (Mechanics Banks, 1854)



Source: Courtesy of the Federal Reserve Bank of San Francisco, "Showcase of Bills" at www.frbsf.org/currency/stability/show.html

This Act resulted in pointed regional and class conflict as (mostly Western) farmers chafed under heavy debts made worse by deflation while (mostly Eastern) bankers and industrialists benefitted from the strong and stable currency. Western farming interesting took up the cause of “bi-metalism”; that is, keeping the overvalued silver-to-gold price of roughly 15-to-1 and re-instituting silver as legal tender in order to expand the money supply and implicitly monetize debts through inflation. Bi-metalists found a champion in William Jennings Bryan, who rode a wave of populist sentiment following the Panic of 1893 to win the 1896 Democratic Presidential nomination with his “Cross of Gold” convention speech advocating the return to bi-metalism. As always during financial panics, political tensions mount between debtors who push for looser monetary policy and creditors who seek to contain inflationary pressures (and indeed, tacitly encourage deflation).

Emergency Liquidity Assistance (“Lender of Last Resort”), the Panic of 1907 and the Federal Reserve Act

The Federal Reserve Act of 1913 provided the United States with a permanent central bank. Passage of this act was the direct result of the Panic of 1907, a severe credit crunch which resulted in numerous bank runs and ultimately the direct intervention of John Pierpont Morgan acting as “lender of last resort”. Over the course of a weekend J.P. Morgan personally orchestrated the merger of U.S. Steel with the failing Tennessee Coal, Iron and Railroad Company as well as the joint rescue of the Lincoln Trust Company by rival trusts.¹⁶

U.S. politicians were taken aback by the demonstrated, seeming irreplaceable role of J.P. Morgan in the nation’s financial system. Small private banks had always experienced runs due to the seasonal demands of farmers for bank credit during the harvesting cycle, but never had a financial panic so clearly threatened the broader U.S. financial system. President Wilson, bowing to populist concerns over delegating sole authority to the Federal Reserve, supported the creation of 12 regional Federal Reserve branches which in the period 1913-1935 were given independent authority to extend lender-of-last-resort facilities to private regional banks.

Eichengreen (2007) highlights the limitations of such arrangements. The New York Fed unilaterally intervened to support banks in the wake of the October 1929 stock market crash. Subsequent interventions caused the New York Fed to run short of gold reserves in 1933, and criticism from other regional banks (notably Boston and Chicago) and the Board limited further intervention.¹⁷ The system lacked a clear distribution of power and monetary authority between the Federal Reserve Board and the Federal Reserve banks.¹⁸ Effectively, each Federal Reserve branch had the power to set its own interest rates and determine regional monetary policy conditions. Eichengreen (1991) argues that these institutional limitations were a key factor driving the sub-optimal response of the Federal Reserve System to the Great Depression.¹⁹

The Banking Act of 1935 put an end to this confusion by firmly delegating liquidity and interest rate responsibility to the Federal Reserve Board and was arguably the defining moment for a United States currency union. The institutional structure of the Federal Reserve System set in that year is still in place to this day. Coming into existence in 1788, it took more than a century for the United States currency area to form into a single monetary union with a single central bank having a monopoly on the dollar supply of money.

¹⁶ See “The Panic of 1907”, Federal Reserve Bank of Boston, link at: www.bos.frb.org/about/pubs/panicof1.pdf

¹⁷ For original source material, see Meltzer, Allan H. (2003), “A History of the Federal Reserve, Volume 1: 1913-1951”. Chicago: University of Chicago Press.

¹⁸ “The American economy: a historical encyclopedia”, Cynthia Clark Northrup, 2003, page 381

¹⁹ See “Designing a central bank for Europe: a cautionary tale from the early years of the Federal Reserve System”, NBER working paper 3840, 1991.

Latin Monetary Union and the Scandinavian Monetary Union: Genuine Union, But No Checks and Balances

During the same time as the “bimetallist” debate was taking place in the US, France, Belgium, Italy, Switzerland (and later Greece, Spain and others) established a monetary union known as the “Latin Currency Union”. Central banks of the LCU agreed to exchange gold for silver coins at a fixed price, while the union treaty guaranteed the acceptability of each member’s coins in all countries. Specified standard sizes and finesses for the gold and silver coins were set.²⁰ With each national central bank still having control of mintage, this arrangement led to destabilizing flows both externally, and internally. High gold prices relative to silver compared to the official conversion ratio led to an outflow of gold from the union and the eventual suspension of gold convertibility. In the meantime, some member countries began to debase their currencies, by minting coins that contained a lower precious metal content. To the extent that some countries ran tight monetary policy (France) they lent credibility to the LCU in its early days enabling other countries to devalue their coinage at low cost. Countries issuing devalued currency (primarily Italy and Greece) received the full benefit of monetary expansion but shared in the costs of higher LCU-wide inflation and pressure on gold reserves. Eichengreen (2007) argues that unlike EMU, the key weakness of the Latin Currency Union was that it had no central monetary authority akin to the ECB and the union was relatively easy to exit by suspending the convertibility of silver coin and/or banknotes into gold.²¹

A similar effort at monetary union occurred during this time in Scandinavia, in which the central banks of Sweden, Norway and Denmark agreed to exchange their banknotes at par (all three currencies were re-named “crown”, a usage that remains today). This union also fell prey to debt monetization as Sweden abandoned the gold standard during World War I.

The conflict between Latin Currency Union nations can be viewed as a struggle to gain seigniorage – a conflict that remains relevant to the European Monetary Union today. Seigniorage is the ability for governments to profit by issuing currency – it is the difference between the face value of the coin and the cost of coin production (including the value of the metallic content). In the modern context, seigniorage is a central bank’s profit from issuing banknotes and buying interest-rate bearing assets; this is commonly referred to as *debt monetization* or *quantitative easing*. These profits come from existing coin or banknote holders who pay an “inflation tax” on their devalued currency. In the Latin Currency Union, national coinage was exchangeable between all countries, and therefore all citizens suffered from the ensuing inflation when Italy and Greece debased the currency. However, only Italy and Greece shared in seigniorage revenues from issuing devalued coinage. Similarly, in the past decade peripheral countries issued a disproportionate share of Eurozone debt at low interest rates. Their debt burdens would be eased the most through monetization but all Eurozone countries would suffer equally if inflation were to follow.

When Monetary Unions Dissolve: Czechoslovakia, the Austro-Hungarian Empire, the Soviet Union and Yugoslavia

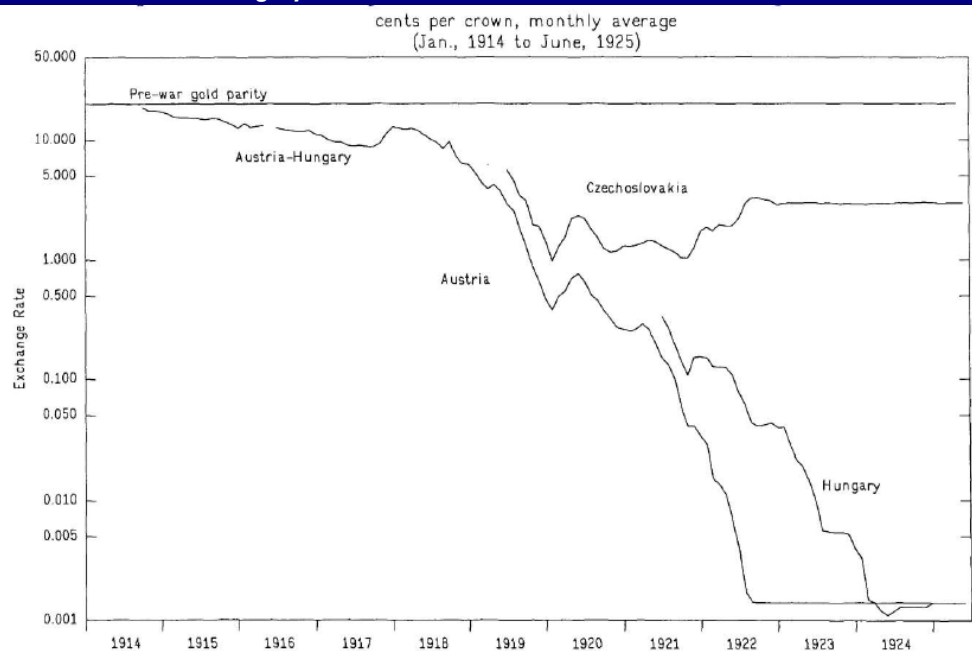
The European Monetary Union is unique in its conception as a monetary union with a central bank but independent financial ministries. Historically, the only instances of unified central banking and fiscal independence have been transitional episodes following the dissolution of empires or federations. In all these instances however, monetary union break-up has

²⁰ Eichengreen (2007), “Sui Generis EMU”. NBER Working Paper No. 13740, page 5

²¹ ib.id..

followed, rather than preceded, political break-up. Garber and Spencer (1992) detail the mechanics of the Austro-Hungarian monetary union following the dissolution of the empire after defeat in World War I.²² As nations began to leave the union in 1919 and form their own national currencies they affixed national stamps on all Austro-Hungarian banknotes circulating within their borders to be converted into the new currencies. Upon conversion each nation imposed a different “stamp tax” (usually a portion of the old money was forcibly converted into national debt paying low rates of interest); effectively the level of tax established the exchange rate between old banknotes and the new currency. Czechoslovakia and the Kingdom of Serbs, Croats and Slovenes (later Yugoslavia) were the first countries to introduce new currencies and unstamped notes promptly fled to Austria and Hungary to avoid the stamp tax. But these new currencies became havens in the early 1920s as the Austro-Hungarian bank began printing unstamped banknotes to finance the war debts of Austria and Hungary. Eventually Austrian crowns became worthless as a result of this debt monetization while Czech crowns retained their value against other international currencies. In an ironic twist, the ability of the Austrian government to gain seigniorage through the central bank, and the inability of Czechoslovakia to do so, eventually resulted in the preservation of the Czech crown’s value.

Price of USD in Austrian, Hungarian and Czech crowns, 1914-1925. Following World War I, Austria and Hungary monetized their debts but Czechoslovakia did not



Source: Garber, Peter and Michael Spencer (1992). "The Dissolution of the Austro-Hungarian Empire: Lessons for Currency Reform". IMF Working Paper 92/66.

The Czech Republic would again experience capital inflows following the dissolution of Czechoslovakia in 1993. The two newly independent countries initially agreed to maintain the Czechoslovakia koruna for a period of time, but quickly led to a separation into two currencies. With the Czech economy perceived as stronger, (Slovakia had double-digit unemployment and budget deficits while the Czechs had low unemployment and a balanced budget) capital flight of Slovak savings into Czech banks caused Marian Jusko, the deputy governor of the Slovak National Bank, to call for a 30% devaluation of the Slovak crown, a rate quickly taken up by major commercial banks in both countries.²³ Under these

²² Garber, Peter and Michael Spencer (1992). "The Dissolution of the Austro-Hungarian Empire: Lessons for Currency Reform". IMF Working Paper 92/66.

²³ Pehe, Jiri. "The Czech-Slovak Currency Split". RFE/RL Research Report, Vol. 2, no. 10, March 1993.

circumstances the peg was no longer sustainable and parity was broken only six months after independence.

The dissolution of monetary unions was accelerated in the instances where central banks had the power to monetize the debt of independent fiscal authorities. This was the case in the break-up of Yugoslavia and the Soviet Union. In the case of Yugoslavia, the Croatian War of Independence resulted in hyperinflation for the Croatian and Yugoslavia dinars as both countries monetized their war debts (inflation was rising in pre-war Yugoslavia in any case), but Slovenia managed to introduce the tolar with minimal disruption to their economy. Three months after Slovenia's independence referendum, all bank accounts, domestic wages, prices, and other obligations in Slovenia were immediately converted to tolar, which was made sole legal tender and fully convertible into foreign currencies, including the Yugoslavian dinar. Laws were quickly drafted to establish the Bank of Slovenia and pass fiscal reforms to prevent the monetization of deficits.²⁴ The tolar maintained its value throughout the 1990s even as other regional currencies became worthless.

The dissolution of the Soviet Union, saw the collapse of the ruble zone in 1992-93, played out in similar fashion to the Latin Currency Union. The institutional features of the post-Soviet ruble zone superficially resembled the European Monetary Union. Moscow's Central Bank of Russia (formerly the Gosbank) was the monopoly issuer of paper currency for all fifteen former Soviet republics in addition to Russia itself. Nearly all the former republics expressed an initial desire to continue using rubles but were reluctant to take orders from the central bank. The newly independent republics quickly raced to gain seigniorage by printing their own bank credit (cash transactions were prevalent as credit was almost non-existent).²⁵ Although inflation would have resulted in the former Soviet Union without a common currency (many republic central banks habitually provided soft loans to former state enterprises), it was exacerbated through negative externalities associated with seigniorage. Dolan (2010) notes that, as with Slovenia, the stronger Baltic economies achieved a smooth exit from the inflation-plagued ruble area, attracting significant foreign capital in the process.

Lessons for the Eurozone

We began by asking whether the Eurozone fulfills the macroeconomic criteria of an optimal currency area. Academic opinion has been mixed, but the asymmetric shocks hitting the Eurozone over the last two years point to significant structural weakness of EMU. Our overview of the history of currency unions point to lessons to be learnt going beyond textbook macro analysis, however. Currency areas go as far back as the existence of money itself. History demonstrates that their durability and cohesiveness has been less dependent on the macroeconomic factors determining their optimality, but their institutional and political configurations. The willingness to overcome institutional constraints when union survival has been threatened has been an important determinant on ultimate success. We identify three lessons from our historical overview:

(1) The institutional relationship between the "federal" central bank vis-à-vis the regional central banks is important in ensuring monetary union survival.

It took more than a century to build the United States monetary union since the dollar was created in 1778. Monetary union was only sealed in 1935, following the asymmetric shocks

²⁴ Pleskovic, Boris and Jeffrey D. Sachs (1992). "Political Independence and Economic Reform in Slovenia". Appearing in *The Transition in Eastern Europe, Vol. 1*, NBER. University of Chicago Press. Available at www.nber.org/books/bln94-2

²⁵ For more details, see Dolan (2010), "The Breakup of the Ruble Area (1991-93): Lessons for the Euro". Available at: <http://dolanecon.blogspot.com/2010/07/breakup-of-ruble-area-1991-1993-lessons.html>

of the Great Depression. Union occurred when regional Federal Reserve branches yielded their autonomy in creating liquidity and lender of last resort policy to the Federal Reserve, overcoming the inter-regional disagreements that plagued the union in the earlier period. Similar to the Federal Reserve, the ECB controls open market operations and lender of last resort facilities at the European level. The credit risk of ECB open market operations is borne by the Eurosystem as a whole, in proportion to each national central bank's contribution to the ECB capital base. Seen from this *institutional* perspective, the importance of ongoing ECB commitment to finance Eurozone banks at a centralized level goes beyond the immediate impact on financial stability. The centralized nature of the ECB's decision-making process has allowed the buildup of large imbalances within the Eurosystem²⁶ (see chart below) while avoiding potential conflicts of interest that could emerge if liquidity assistance were delegated to the national central bank authorities, similar to the 1920s experience in the US.

Under Eurosystem financing arrangements, EMU central banks also have the ability to provide direct Emergency Liquidity Assistance to domestic institutions (ELA). While the ECB governing council can override ELA with a ¾ majority vote, liquidity provision becomes the prerogative of the national authority, which is also responsible for the credit risk assumed under such an arrangement. A shift to ELA funding, which has so far been limited to a few banks as well as providing financing to Irish banks under non-ECB eligible collateral, would threaten the capacity of the ECB to respond to the crisis by increasing potential institutional conflict as well as undermining national central banks' creditworthiness relative to the rest of the Eurosystem. The ECB commitment to continue to provide financing to distressed peripheral banking systems serves as a key institutional lynchpin of monetary union.

This notwithstanding, centralization of the monetary policy function reduces the adaptability of the central bank at times of financial stress. As Eichengreen notes, the centralization of Federal Reserve authority in the 1930s was a mixed blessing. While it permitted the emergence of an institutional structure capable of internalizing interregional externalities and avoided policy deadlock, it enhanced the influence of factions within the Federal Reserve System who least appreciated the role of monetary policy in countering the Great Depression. From this perspective, the ECB is currently facing similar constraints. Centralized decision-making has prevented the emergence of institutional conflict *within* the European System of Central Banks (ESCB). It has however made the ECB a reluctant participant in resolving the Eurozone peripheral crisis, with uncertainty over the eligibility of Greek government bonds under the ECB refinancing window being the most recent example.

(2) Currency unions have historically exhibited uneven allocation of credit (or money supply) across different regions. This requires effective enforcement mechanisms to prevent currency union breakdown.

Prior examples of currency unions such as the Scandinavian Union or the Latin Monetary Union of the 19th century disintegrated due to uneven growth of the money supply between participating national central banks. Countries issuing devalued currency (primarily Italy and Greece in the Latin Union) received the full benefit of monetary expansion but shared in the costs of higher LCU-wide inflation and pressure on gold reserves on others. In a currency union such as EMU or the US, the creation of base money is centrally controlled. "Cheating" through excessive money printing is therefore not possible. But broad money supply growth

²⁶ See "Macroeconomic Imbalances and the Eurosystem", Global Economic Perspectives, Deutsche Bank Research, June 8th 2011. During the 2008 financial crisis, the distribution of risk involved in various liquidity-providing programs in the US such as the Term Auction Facility (TAF), Term Securities Lending Facility (TSLF) and FX swaps with foreign central banks was dependent on program execution. Some liquidity programs (eg. discount window lending) were executed directly by regional Federal Reserve banks, while others were executed by the NY FRB, with the exposure subsequently distributed to each regional Reserve banks depending on the size of each Reserve Bank's balance sheet.

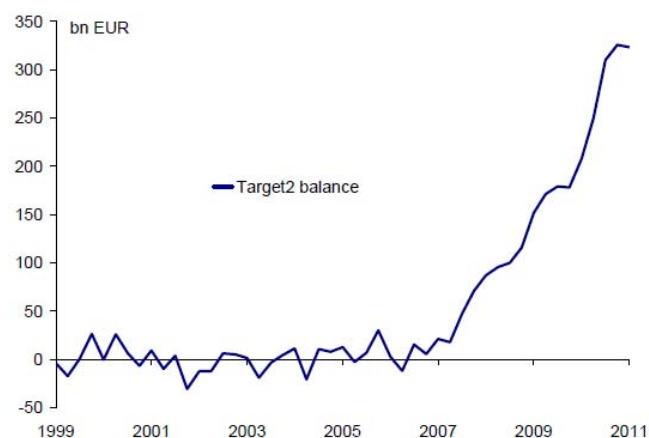
can still be uneven, because credit in the modern financial system is disintermediated from narrow banking and broad money can decouple from the monetary base.

In the Eurozone, peripheral sovereigns and private-sector banks were able to borrow monetary credibility from core European countries in the run-up and in the first years of EMU. Collapsing bond spreads allowed independent finance ministers, corporations and bank CEO's to expand EMU-wide broad money through issuance of sovereign, corporate and bank debt, just as independent monetary authorities in the Latin Currency Union (LCU) were able to expand the LCU-wide monetary base by issuing devalued coinage. In both cases "Gresham's Law" prevails – overvalued money (banknotes backed by Italy/Greece in the 19th century, peripheral debt in the 21st) drives out undervalued money (gold, euro banknotes / ECB financing) from circulation as the overvalued money is given to official institutions at the pegged exchange rate and undervalued money is hoarded and/or leaves the country.

Today, the ECB accepts all EMU sovereign debt collateral regardless of origin just as French banks exchanged silver coins for gold at an overvalued rate during the LCU. In both cases the official institutions are put under pressure to change the pegged exchange rate (in the ECB case, the NPV of the collateral) to avoid depleting the undervalued money. This creates a negative feedback loop, where depositors doubt the ultimate commitment of the ECB to maintain financing for periphery banks, and thus perceive euros held in core European banks to be more valuable than euros held in periphery banks, resulting in a "deposit bleed" from the periphery into the core. The key to preventing a collapse of the banking system is the ongoing commitment by the ECB to provide financing to peripheral bank systems, which in turn are able to submit sovereign-guaranteed paper as collateral.

To make the Eurozone a sustainable monetary union in the long-run however, enforcement mechanisms have to be put in place to prevent divergent growth in money supply (borrowing) within EMU that has proved so damaging in the current crisis. Much as the lack of an enforcement mechanism caused the Latin Union to break up, so EMU requires mechanisms to prevent excessive borrowing by private and public lenders within member states. Changes currently being negotiated over the European Stability and Growth Pact as well as the new CRD IV/Basel III regulations should be seen as attempts at controlling excessive monetary/credit growth by the public and private sectors within EMU in the context of a disintermediated financial system.

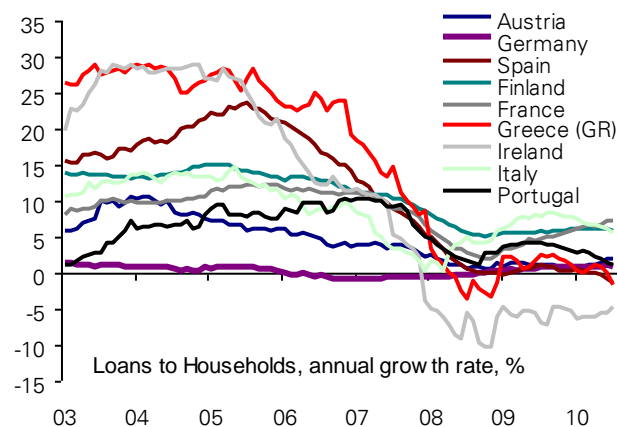
Accumulation of Large Imbalances Within Eurosystem Only Possible Thanks to Centralized ECB Lending



Claims of the Bundesbank against the ECB

Source: Deutsche Bank, EcoWin.

Single Currency, But Divergent Trends in Money Supply Growth Contributed to Building of Imbalances in EMU



Source: Deutsche Bank, EcoWin.

(3) Currency unions have historically been determined by political imperatives. Currency breakups have followed, rather than preceded, political union breakups.

Our voyage through history has shown that there are few parallels to modern-day European economic and monetary union. Similarly to the Latin and Scandinavian Unions of the 19th century, EMU has lacked sufficient enforcement/supervision mechanisms to prevent a build-up of imbalances within the Union. But contrary to these historical experiences, Eurozone monetary policy is conducted by a single entity with centralized control of liquidity and base money provision that prevents the emergence of institutional conflict within the European system of central banks. More pertinent examples of currency unions are those that have been accompanied by a weak or strong form of political union, including the United States, the Austro-Hungarian Empire, Czechoslovakia and the USSR. Monetary union in these instances was coordinated by a central bank authority at the federal level, which had monopoly control of the monetary base and issued a single currency throughout. In all these instances, a common currency was the outcome, rather than the cause of an (oftentimes forcibly pursued) political union.

Similarly, currency union break-up was preceded, rather than followed, by dissolution of political union, which was not driven by the failure of currency union itself but broader socio-economic and political forces. For instance, the break-up of the Austro-Hungarian Empire was precipitated by the emergence of the modern nation-state in Europe, while the dissolution of the Roublezone followed the failure of central planning and the lack of democratic accountability of Soviet institutions. History therefore serves as a reminder that political and economic imperatives are intertwined, and that the continued survival of European Economic and Monetary Union goes beyond the macroeconomic determinants of an optimal currency area.

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Appendix 1

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