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PUTTING THE 'SYSTEM' IN THE INTERNATIONAL MONETARY SYSTEM

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ABSTRACT

The international gold standard of the late nineteenth century has been described as a system of 'spontaneous order', capturing the idea that its architects at the time were fashioning domestic monetary systems which created a system of fixed exchange rates almost as a by-product. In contrast the framers of the Bretton Woods System were intentional in building an international monetary system and so it is by advocates of designing an international monetary order.

In this paper we examine the transition from spontaneous order circa 1850 to designed system and then back towards spontaneous order in the late twentieth century, arguing that it is an evolution with multiple stops and starts, and that the threads that underlie the general tendency through these hesitations are the interplay between monetary and fiscal factors and the evolution of the financial system. This transformation is embedded within deep evolving political fundamentals including the rise of democracy, nationalism, fascism and communism and two world wars.

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Introduction

The international gold standard of the late 19th century has been described as a system of ‘spontaneous order’ (Gallarotti, 1995), capturing the idea that while subsequent writers indeed describe the gold standard as an international monetary ‘system’, its architects at the time were fashioning domestic monetary systems which created a system of fixed exchange rates as almost a by-product. In contrast, in 1944 the architects of the Bretton Woods system were intentional – they were building an international monetary system – and so it is today, albeit with perhaps competing teams of architects vying for the right to design the international monetary order.

In this paper we examine the transition from spontaneous order to designed system and then back towards spontaneous order, arguing that it is an evolution with multiple stops and starts, and that the threads that underlie the general tendency through these hesitations are the interplay between monetary and fiscal factors and the evolution of the financial system. This transformation is embedded within deep evolving political fundamentals including the rise of democracy, nationalism, fascism and communism and two world wars. We begin in the 1850s and describe the emergence of the classical international gold standard by the 1880. We argue that beneath the appearance of ‘spontaneous order’ lay a variety of indications that this was not an equilibrium. The international monetary conferences of the mid-19th century were (partially successful) attempts to produce a more ordered international monetary system. After World War I, more serious international co-ordination efforts were made and the Bretton Woods agreement of 1944 built on, but extended dramatically, those initial efforts. However Bretton Woods had some fatal design flaws and it devolved into the present non system of managed floating. The present euro zone is a designed system. The future will tell us if it will survive.

The forces we focus on are fiscal and banking changes, but there were also important political and intellectual changes. It is no coincidence that the chronology of monetary history is driven by warfare - the Franco-Prussian war and the US Civil War were critical to the evolution of their nations’ monetary history as were the World Wars more generally. Large scale warfare changed fiscal needs, domestic political powers and of course the balance of international political power. The importance of intellectual views is harder to gauge. The view that ‘gold’ is money, or that money must necessarily represent a possibly indirect claim on gold, has largely disappeared and was not universal in the 19th

century, but it was an influential view and the changing weight of that view was a part of the transition between the gold standard and today.

Setting the Scene - 1850

In 1850 the unit of account in each of the major powers was tied to a fixed weight of one or two precious metals. The backing of the coins was established by laws stating the amount of metal in the coins and the price at which the mint would buy metal. Table 1 sets out the metallic content of the coins in the four major Western economies.

Table 1 here

The UK was on a gold standard. The US, and France were on bimetallic standards and in 1850 the bimetallic standards were roughly in equilibrium, with both gold and silver circulating and being sold to the Mint. The majority of the German states were on a silver standard, but also issued gold coins that circulated at market values.

Not only was the unit of account defined as a given weight of metal but by 1850 there was an established norm that the sovereign should not arbitrarily change this/these weights. In Britain, the development of an orthodoxy whereby the pound sterling represented an unalterable amount of gold or silver is seen in the success of John Locke in the Locke-Lowndes debate in 1690s.¹ At that time the weight of coins in circulation had been considerably reduced by wear implying that the de jure weight of the coins exceeded their de facto weight. Lowndes, the mint master, proposed to mint new coins reduced in weight by the average amount of wear. Thus individuals could have brought in their old coins and be given new coins of the same legal tender value and specie content, bringing the de jure *down* to the de facto weight. This would effectively have depreciated the de jure value of the pound sterling. In contrast, Locke argued that the pound sterling represented a fixed weight of metal and that there should be no reduction in the de jure weight of a coin of a given value. He proposed unifying the de jure and de facto weight by bringing the de facto weight *up* to the de jure weight. Thus either the State would have to make up the weight lost to wear or an individual would receive back coins of less legal tender value than they brought in. Locke won the debate, and the coinage was not depreciated. The silver content of the pound sterling remained unchanged from 1666 until the explicit decision to issue

¹ See Feavearyear (1931; 135).

token silver coins in 1816. The gold content of the pound did not change from 1717, when Newton lowered the value of the guinea from £1.075 to £1.05 to 1931.

In the US, the metallic content of the dollar had been changed only once (in 1834) from the inception of the standard in 1792 and at least arguably this could be attributed to a need to reflect changes in the relative gold:silver price, rather than a response to fiscal needs. In France the gold and silver definitions of the unit had remained constant since the creation of the franc germinal in 1803.² The monetary situation in Germany was more fragmented as many States had their own coinage. By 1838, the Dresden coinage convention signed by the Zollverein states had somewhat reduced the heterogeneity.³ Each member state chose either the thaler (South German states) or the gulden (North German states) and the unit of account was determined by the equivalence of both 14 thaler and 24.5 gulden to 1 Cologne mark (233.85 gms) of silver.⁴ States also issued gold coins, such as ducats and 10 thaler coins, which were primarily commercial coins that traded at market rates, although some states assigned parities at which they were accepted at public treasuries.⁵

In each country the stock of money included not only coins but also paper money: a circulating IOU, issued by the State, or by a private entity with the permission of the state, a bank. However, central banking was in its infancy. The Bank of England, created in 1694, was a privately owned central bank which after 1844 had a monopoly over note issue.⁶ Notes were required to be redeemed in coin on demand but from 1833 were legal tender outside the Bank of England. The Bank may have been privately owned, but its affairs were completely intertwined with the state - explicitly by its need to renew its Charter, but more directly through (a) the State reliance on the Bank in times of fiscal stress and (b) the Banks's reliance on the State in times of liquidity stress.

In an earlier age, governments/monarchs financed their wars through debasements. The development of the banking system enabled them to do it through depreciation and printing money. Printing money leads to inflation which acts as a tax on the purchasing power of the money holders. The inflation tax

² For France and U.S. see Redish (2000).

³ James (1997)

⁴ A common coin, the *vereinsmunze*, was produced but at over 30 gms it was too heavy to be commonly used and states used their traditional coins. (Holtfrerich p.221)

⁵ The Treaty of Vienna in 1857 slightly modified the Dresden Treaty and was signed by Austria as well as the German states. By that Treaty a 1 thaler (i.e. Prussian) coin became legal tender in all signatories. The treaty limited the issue of gold coins by any signatory to a 10 gm and a 5 gms gold coin that was not required to be legal tender in any state.

⁶ Earlier issues of other banks were permitted to remain in circulation. Smith (1936, 21).

revenue is transferred to the government. During the Napoleonic Wars, the government suspended the requirement that Bank of England notes be convertible into specie, and then required the Bank to finance the war by purchasing government bonds. This expansionary monetary policy led to a rise in domestic prices and a depreciation of the currency. Indeed the value of a gold sovereign in paper pounds rose from £1 to £x. Yet following the war the government returned to fiscal stability (i.e. a balanced budget) by reducing its expenditure and raising taxes. Outstanding government debt declined from its peak of 260% of GNP in 1819 to 127% thirty years later (Mitchell, 1988). Convertibility was restored at the Pre-War parity in 1821.

The second facet of State/Bank interdependency was seen in 1847. The Bank Charter Act of 1844 required the Bank to hold a fixed ratio of gold to bank notes. In 1847, a liquidity crisis led to a run on the Bank which paid out gold reducing its reserves below the statutory minimum ratio. To prevent suspension of payments, the Bank requested a 'Treasury letter' from the Chancellor of the Exchequer to allow a temporary suspension of the Act, a boon that was granted.

The Bank of France, similar to the Bank of England, was a privately-owned corporation intimately connected with the State. It was created in 1802, in a nation still reeling from the effects of the Revolution and the Assignats.⁷ The experience with the Assignats, limited the capacity of Napoleon to finance his war with paper money, and hence the note issues of the Bank of France remained convertible into specie throughout the war (Bordo and White, 1991). During the 1848 revolution, there was a temporary suspension of the convertibility of notes known as the *cours forcé*, but by 1850 convertibility had been re-established at the initial parity. The *cours forcé* had a permanent impact in that the government forced the merger of small note-issuing banks with the Bank of France, which thereafter had a monopoly of the note issue.

From the early 19th century German States issued paper money for fiscal reasons (although Holtfrerich (1989; 226) asserts that Saxony issued paper money to facilitate commerce). In the 1830s Saxony and Bavaria both permitted the establishment of private note-issuing banks, and by the mid 1850s there were 30 note-issuing banks in operation across the different German states. The largest was the Prussian Bank (a reorganized version of the Royal Bank of Prussia created in 1765). In 1846, the Royal Bank of Prussia (created in 1765) was reorganized and allowed to raise capital from private shareholders

⁷ This paragraph draws on Goodhart (1988).

and issue notes. Its notes had a virtual monopoly of the circulation of notes in Prussia and by 1856, were also acceptable for government payments.⁸

The United States had twice chartered incipient central banks, the First and Second Banks of the United States, but each time political opposition had defeated attempts to renew their charters, and after 1836 there was no federally chartered bank. The individual states created banks which issued notes under a variety of regulations, in all cases committing to redeem the notes in specie coin.⁹ As in the other countries severe financial crises in 1837, 1839 and 1857 led to general suspensions of convertibility of bank notes (and deposits) into coin.

By 1850 then, the principle that the monetary unit should not be arbitrarily redefined was accepted, paper money was widely used and (except in the US) its issue was not independent of the state. Suspension of convertibility and depreciation of the value of paper money had replaced debasement as a mechanism for war finance, but par resumption was the norm.¹⁰ But most countries were on bimetallic standards, and while France and the UK were unified, Germany was a state yet to emerge and there was no national bank note system in the US.

First steps - the classical gold standard

We turn now to the transition from the orderly chaos of 1850 to the more homogenous gold standard world of 1880. The gold standard had many layers. At one level – the clearest – each country defined its unit of account in terms of a weight of gold and the result was a set of fixed exchange rates across countries (see Table 2). This fixed rate system reflected national decisions, not international agreements, and has consequently been described as ‘spontaneous order’.¹¹ At a second level we can ask whether either the evolution or existence of the gold standard were truly spontaneous, or did they reflect actions of governments taken with an eye to the realpolitik of international affairs.

Table 2 here

The monetary changes reflected a number of forces that affected all economies. The falling price of gold after the gold discoveries in Australia and California in the late 1840s necessarily meant that the

⁸ Tilly (1966, 157).

⁹ Legler, Sylla and Wallis (1987) argue that the states earned seignorage revenue either directly by note issue, or indirectly by taxing note issues, or reductions in the interest on state debts.

¹⁰ Bordo and Kydland(1995)

¹¹ Gallarotti(1995)

bimetallic equilibrium of 1850 would be challenged as gold the cheaper metal, drove out silver according to Gresham's law. This drove both international efforts at monetary co-operation (to standardize the bimetallic ratio and the weight and fineness of gold and silver coins) and adoption of the monometallic gold standard. National unification in Germany (and Italy) and military needs (the U.S.) and successes (Prussia) were also critical. The growth of international capital markets used to finance wars and capital infrastructure expanded the significance of the international monetary system, and the growing role of central banks and substitution of paper money for metal altered the role of states in money provision.

International interactions and the shift to gold

The UK had suspended the free minting of silver and introduced token silver coins in 1816 thereby making the pound sterling a gold currency. By 1880, France, Germany and the US had all done the same creating a system of fixed exchange rates across these four currencies.

In the early 19th century, the monetary systems of France, Belgium, Switzerland and Italy were all based on similar coins – a silver coin containing 5 grams of 90% fine silver and a gold coin containing 6.45 grams of 90% fine gold. In France these were the 1 franc and 20 franc coins and in all four countries the coinage embodied a ratio of gold to silver of 15.5:1. California gold production in the 1850s drove down the relative price of gold (to 15.2 by 1859) and thus tended to drive silver out of circulation.¹² The resulting scarcity of small-denomination coins led each country to introduce 'token' silver coins – that is, small denomination coins with limited legal tender, with silver content value less than their face value, and not allowing the free (i.e. unlimited) minting of silver.

The token silver coins were first issued by Switzerland which issued coins containing 80% fine silver in 1860. Italy began minting 83.5% fine silver coins, in 1862. In 1864 the French also issued fractional coins, with 83.5% silver. In all cases, the *weight* of the silver coins were kept at their traditional levels – pro rata with the silver franc – and the reduction in intrinsic value was accomplished only by a reduction in fineness. In 1865 the Belgians, who issued no token silver coins but whose silver circulation entirely consisted of the tokens of the others, called a convention to agree on a standardization of the token coinage. The resulting agreement, effective in 1866, created the Latin Monetary Union (LMU): under the agreement each country would emit subsidiary (i.e. less than 1 franc) 83.5% fine silver coins, which

¹² This is an example of Gresham's Law – bad (i.e. overvalued) money drives out good (i.e. undervalued). There is an extensive debate over when and why Gresham's Law held. See Selgin (2003) for a survey.

would be legal tender in each country up to 50 francs.¹³ Each country agreed to limit the issue of tokens to 6 francs per capita, and their public treasuries would accept the coins regardless of origin within the LMU.¹⁴

The LMU may have been more important in providing a forum for explicit discussion of international monetary co-ordination than for the Treaty itself. The Treaty standardized the token coinage, but the Conference provided a forum for discussing wider monetary co-operation and changes and also adoption of a gold standard across the four countries – a proposal that was rejected. Switzerland, Belgium and Italy all sent delegates to the conference who advocated for multi-lateral adoption of a gold standard, however, the French representative, possibly influenced by the wishes of the Bank of France, rejected any such switch.

The success of the LMU conference encouraged Emperor Napoleon III to convene an International Monetary Conference in 1867 with the goal of creating a universal coinage. In some ways this was a remarkably ambitious agenda – a common money amongst major (and many minor) Western powers. In other ways it was not such a big step.¹⁵ The conference concluded by recommending that the 5 franc gold coin become the basis of each country's monetary system, with accompanying 25 franc coins (which would have been worth about \$5) and 15 franc coins worth 10 florins. But the enthusiasm of the delegates was not matched by their principals. In England, the proposed 3.5% reduction in the gold content of the pound, needed so that the pound equalled \$5 or 25 francs, was considered tantamount to fraud (Kindleberger (1984, p.66)). The French thought the proposed 25f and 15f coins were at odds with their decimalist ideals. But above all, in 1870 the Franco-Prussian war intervened, ending any thoughts of Franco-Prussian co-operation.

The Franco-Prussian war, with its stark Prussian victory, had monetary consequences in addition to ending Franco-Prussian co-operation. The Prussian victory presaged German unification, under the Prussian lead, and consequent monetary unification of Germany. The need for a monetary transition coupled with the wealth transfer imposed on France, enabled the Germans to adopt a gold standard.¹⁶

¹³ Note that granting legal tender to another country's full bodied coins was common.

¹⁴ See Redish (2000) Chapter 6, and Reti (1989) Chapter 33.

¹⁵ Bagehot noting the potential benefit of a common unit of account, noted "Of course all English bankers *can* turn francs into pounds, and some think they *will*; but few ever do" cited in Kindleberger (1984, 66).

¹⁶ 'Why' Germany adopted gold, as opposed to 'how', is a debated question, and involves both the choice of monometallism over bimetallism and the choice of gold rather than silver. Holtfrerich (1989) argues that German policy makers had argued for a gold standard from the early 1860s; Reti (1998) argues for the importance of

The resulting increase in demand for gold, and sale of silver, combined with US silver discoveries, led to a fall in the relative price of silver to gold. This in turn, led the French and the Scandinavians to close their mints to silver to avoid a capital loss on their silver holdings.

The US had financed the Civil War (1861-65) by issuing legal tender irredeemable government notes, 'Greenbacks', and by effectively limiting the bank note issue to a newly created set of national banks that were required to buy federal government bonds to back their notes. In 1879 the *cours forc e* ended and the Greenbacks were convertible into specie. Furthermore, by the Coinage Act of 1873, gold had become the sole specie that was freely minted and the US was *de facto* on the gold standard.

Thus by 1880, each nation had adopted a domestic unit of account that was defined as a fixed weight of gold, effectively creating a system of fixed exchange rates (see Table 2). The creation of the gold standard did reflect interactions between the leading economies, but not co-ordination – indeed rather negative interactions. During the gold standard era there were a series of international monetary conferences that were called by the United States to propose a return to a bimetallic standard, but these did not lead to any co-ordinated, or domestic, policy initiatives.¹⁷

The changing role of central banks

In addition to the evolution in coinage practice, the role of central banks had evolved (except in the US) and the role of the State in creating and managing money with it. Although the central banks were privately owned they held a privileged position in the financial system and in the second half of the 19th century, the duty to function as a lender of last resort was emerging as one of costs of that privilege. The archetypical definition of the lender of last resort is Walter Bagehot's in *Lombard Street* – lend freely to solvent but illiquid banks (i.e. on good collateral) at a 'high' interest rate.¹⁸ This will stave off a liquidity crisis and, the emphasis on lending only on good collateral reduces the potential for moral hazard. As illustrated in detail in the recent work of Bignon et al. (2012) both the Bank of England and the Bank of

Britain's hegemonic status and prior adoption of gold; Gallarotti (1995) argues for the status of gold as a more valuable metal.

¹⁷ The International Monetary Conference in 1867 was the highpoint of state-led monetary co-operation before World War I. The US called a second IMC in 1878 with the explicit goal of engendering international bimetallism – considered to be a stable bimetallic regime since all nations would adopt the same gold:silver ratio – but most delegates only came on the grounds that they would not consider such a scheme, and the conference did not lead to any change in monetary standards. Similar results attended the conferences held in xx and xx.

¹⁸ Bignon et al. (2012) note that Bagehot used the word 'high' rather than the commonly attributed 'penalty' rate. They argue that the goal was to encourage the borrowers to lend amongst themselves before going to the central bank.

France adopted the role of lender of last resort between 1850 the 1880ies. See also Hautcoeur et al. (2012)

The question of the extent to which the international financial system was an ‘automatic/self-adjusting’ system vs. managed system is a familiar chestnut.¹⁹ In the mythical automatic version, the values of units of account were established by independent nations and then trade and finance flowed driven solely by the actions of private agents. How far and in what form reality diverged from that myth is debated. In 1944 (30 years after the end of the Classical gold standard and writing to explain the failure of the interwar gold exchange standard) Nurkse articulated tools that a central bank could use to enhance the workings of the gold standard: use the discount rate to offset gold flows and expand or contract the (paper) monetary stock. In later work, Bloomfield (1959) showed that these tools were not generally used by England or France (and the US had no central bank). This did not mean that central banks were irrelevant.

As noted above, in the mid-19th century, when the Bank of England faced both an internal and external gold drain they asked the Chancellor of the Exchequer to allow the gold reserve to go below the legal limit. By the end of the century, before doing this the Bank was more likely to look for international allies. During the Baring crisis, the Bank of England asked the Russian State bank for a loan of £800,000 in gold, and in 1907, the Bank of France shipped 80 million francs in gold to England (Kindleberger, 1984; 281).²⁰ Eichengreen (1984, 1992) has argued that central bank co-operation, and the credibility of the standard that it brought, ensured that capital flows were stabilizing.

The effectiveness of the informal interaction of central bankers lies in sharp contrast with the ineffective international conferences that governments attended to discuss changing monetary standards.

World War I and the post war reestablishment of the gold standard

The war transformed European economies and politics. From the outbreak of the war the gold standard was suspended in the European countries and as in earlier wars the monetary system was harnessed as an instrument of the state.²¹ In the European countries, to varying extents, money creation was used to

¹⁹ Notably, and eloquently, put by Keynes (1930) who argued that the British attributed their success under the international gold standard to their laissez faire policies when they should have realized it reflected their hegemony: London “was so predominant that the Bank of England could almost have claimed to be the conductor of the international orchestra”.

²⁰ However Flandreau (1997) and Bordo and Schwartz (1998) view central bank cooperation as largely episodic.

²¹ ; Kindleberger p.291 on Bank of England Lender of Last Resort operations.

finance the war – and even when debt was used the fact that it was nominal debt changed the incentives for post-war monetary stability: Countries with high debts could reduce the real value of that debt by inflation. For contemporaries the biggest challenge for a restoration of the gold standard was the potential that there would be a major deflation. Deflation would come about in part because resumption at the pre-war parity would necessitate undoing the war time inflation. Perhaps even more of a concern was that if money demand per unit of GDP had not changed during the war, and (real) GDP of countries on the gold standard was much higher, then the restoration of the gold standard at the pre-war parity would imply a lower price level.²²

The political environment changed both because of the spread of the franchise and because policymakers had learned from the experience of a ‘managed’ economy during the War (a lesson to be learned a fortiori after World War II). The franchise was extended in both Germany and the UK. In the UK the Representation of the People Act in 1918 allowed women over 30 to vote, and all men (without property qualifications). It is estimated that the proportion of the population over 20 that were eligible to vote rose from 29% to 75%. In Germany, with the creation of the Weimar Republic, the franchise was extended to all men and women 20 years of age and over, so that the proportion of the adult population eligible to vote rose from 39% to 98%.²³ As a consequence of the extension of the franchise, it became harder to allow the gold standard adjustment mechanism to work automatically. A balance of payments deficit would lead to gold outflows, declining money supplies, deflation and in the face of nominal rigidities falling real income and rising unemployment. With an expansion of the suffrage it became harder to justify this mechanism when the unemployed had the right to vote.

Restoration of convertibility

The UK, France and Germany had all suspended convertibility of their currencies during the war and in all three countries the default expectation of the post-World War I period was a return to the gold standard. But the different experience during the war affected the timing and parity that were under discussion. England had financed half its war expenditures with taxes and was the least fiscally challenged. France and Germany had only financed 13-14% implying large outstanding monetary liabilities of (nominal) debts. In addition Germany was saddled with reparations payments. The choice of

²² In terms of the Quantity equation, $MV=PY$: if output (Y) had risen and the stock of gold (M) and velocity (V) were unchanged, then the price level (P) would have to decline.

²³ In France universal suffrage of men over 21 was granted in 1848, and women were not give the vote until 1945. In the US the franchise was determined at the state level and impediments to the enfranchisement of African-American and poor white voters continued until the 1960s. Data: Flora et al. (1983)

parity became a question of wealth distribution – how much of the nominal value of the debt should be written down (Eichengreen, 1992).

Following the war, the instinctive reaction of British politicians and economists was a return to gold at the old parity. The Cunliffe Committee created in 1918 assumed this goal (Moggridge 1972, 18) in the interim report, and although the final report acknowledged that monetary systems did not need a gold base, stated “We have found nothing in the experience of the War to falsify the lessons of previous experience that the adoption of a currency not convertible at will into gold or other exportable coin is likely in practice to lead to overissue and so to destroy the measure of exportable value and cause a general rise in all prices” (Cunliffe 1919 – cited in Redish 1993). While there was five years of debate, in 1925 convertibility was in fact re-established at the traditional parity.²⁴

The return to gold was not expected to be painless as the challenge of a relative (to pre-war conditions) scarcity of gold was foreseen. Central bankers also saw the need to co-ordinate as offering the opportunity to replace the ad-hoc cooperation of the pre-war era with a more formal system. That ambition led to monetary conferences under the auspices of the League of Nations in Brussels in 1920 and in Genoa in 1922, but these were ultimately unsuccessful in large part because of the absence of the United States (largest gold holder and international creditor) and because of the unfinished business of war debts and reparations. Although many countries adopted a gold exchange standard as suggested at the Genoa Conference when they restored gold standard convertibility.

At the conclusion of the war the Treaty of Versailles stated that reparations would be imposed on Germany, with the amount to be determined later. In January 1921 the Reparations commission determined that amount, which was reluctantly accepted by Germany in May 1921. The payment of reparations had consequences for all four powers as the payment of reparations was largely how France intended to repay war debts to England, which provided the funds for the British to repay the US.

Germany’s recalcitrance in paying the demanded reparations led the French to occupy the Ruhr valley in January 1923, which in turn led the German miners to go on strike and exacerbated the financial difficulties of both the French and Germans. The already fiscally challenged German government funded its resistance by borrowing from the Reichsbank, essentially printing money, to the point where the

²⁴ The decision to return to gold at the old parity is one of the most notorious policy decisions of the twentieth century, in part because of Keynes’ polemical critique, *The Economic Consequences of Mr. Churchill*. The pre-war parity overvalued the exchange rate by more than 10% (the precise number is debated) and led to a prolonged slump for the British Economy. See Moggridge 9 19690.

mark became worthless (See figure 1). The consequence of the rising (and expected to rise) inflation rate was a flight from the mark which exacerbated their decline in the purchasing power of Reichsbank notes (i.e. inflation outpaced monetary growth). Figure 2 illustrates the extremity of the situation. On 15 October 1923 a monetary reform created the Rentenmark with a trillion (10^{12}) old marks per new mark issued by the Rentenbank. The law limited the amount of note issue and the amount that could be loaned to the government. There was a dramatic halt to inflation, budget deficits and monetary growth. More importantly, reparations were suspended and under the Dawes plan made more manageable in amount and aided by a US loan.²⁵

Slightly before the outbreak of war in Europe, the US established a central bank. The hostility to a monolithic monetary power that had precluded the survival of earlier institutions also shaped the structure of the new bank. The Federal Reserve System comprised the Board (located in Washington not New York) and the powerful regional Federal Reserve Banks.²⁶ The U.S. polity opposed a European style central bank and ended up with a federal system. Federal Reserve Banks were owned by the member banks (national banks and any state banks that chose to opt in) in the district– the dividends on shares were limited. Member banks were expected to (and after 1917 required to) hold their cash reserves at their regional Federal Reserve Bank. The Federal Reserve system was intended to eliminate the frequent banking panics that characterized the National Banking system and to operate quasi-automatically.²⁷ The Federal Reserve would use its tools to iron out the seasonal in short-term interest rates that aggravated financial instability. Also each Reserve Bank would rediscount eligible self liquidating commercial paper with its member banks and thereby automatically stabilize the business cycle and prevent financial crises. The Board in Washington would coordinate the discount rate policies set by the Reserve banks .

The US did not enter World War I until 1917 and Federal Reserve note convertibility was not suspended (but a gold export embargo was imposed from April 1917 to April 1919) But the needs of war finance did challenge the new institutions and the lines between private bank and central bank was clearly decided in favour of the public role , e.g. the Federal Reserve was allowed to conduct open market operations and discount government securities so that by the end of the War government securities dominated the

²⁵ The Rentenmark was backed by land (Kindleberger, 326). After the monetary system was stabilized, in April 1924, the Rentenbank was replaced by a new Reichsbank.

²⁶ Prior to 1935 the Regional Feds all had *Governors* denoting high status in central bank circles; in 1935 they were demoted to *Presidents* and the members of the Federal Reserve Board were given the title of Governor.

²⁷ Rockoff and Walton p.414

Fed's portfolio. All the belligerents' balance sheets became exposed to credit risk and their independence was greatly compromised .

The return to the gold standard, at any parity, similarly had distributional consequences, since the gold standard equilibrium required prioritizing external adjustment over internal, indeed, the smooth functioning of the gold standard relied on credible commitment to such prioritization.

The restoration of gold convertibility began when Britain returned to gold at the pre War parity of \$ 4.86 in April 1925 followed by the Commonwealth countries and many others in succeeding years. The restored gold standard was a gold exchange standard under which central banks would hold their international reserves in the form of foreign exchange(in dollars or sterling) and gold. The typical gold reserve ratio was 35%. The U.S. and the U.K. as reserve center countries would hold all of their international reserves in gold. Most countries also prohibited their citizens from holding gold coins and they held their gold reserves in bullion. These measures were instituted in response to a perceived gold shortage.²⁸By 1928, the gold standard was in place in all four countries, but it was short lived.

The gold exchange standard was posited as having three fatal flaws: the adjustment problem in which surplus countries like France and the U.S. were unwilling to allow their money supplies to expand with rising gold reserves and deficit countries like Britain were forced to deflate; the liquidity problem that there was insufficient gold to finance the growth of world trade leading to deflationary pressure; and the confidence problem that Britain had insufficient gold reserves to back the holding of sterling reserves by the rest of the world and eventually there would be a run on sterling forcing Britain to leave the gold standard. This was aggravated by efforts by France to undermine Britain's position as an international reserve country by converting its sterling holdings into gold.²⁹

The gold exchange standard collapsed following the onset of the Great Depression in 1929. A series of banking crises across the continent of Europe led to speculative attacks on the reserves of central European countries and then Britain in 1931. In the face of deflation and depression central banks converted their foreign exchange reserves into gold .³⁰

Breakdown of the gold (exchange) standard

²⁸ League of Nations 1930

²⁹ Eichengreen 1992 and Bordo 1993.

³⁰ Bernanke 2000.

In hindsight, Britain's departure from gold in October 1931 was a game changer – as evidence that the pre-World War gold standard was indeed humpty dumpty and 'couldn't be put back together'; that the nominal anchor would from then on be man-made. This is misleading in many ways: the nominal anchor was always man-made, or at least state-made, and the break which was indeed the beginning of the end of the gold standard, was perceived at the time as one of the temporary suspensions of convertibility which were an understood feature of the regime.

We return below to the big picture analysis but first describe the management of the new regime and how states managed their internal and external monetary roles.

The basic chronology is as follows: in May 1931 the failure of Credit Anstalt in Vienna led to a banking crisis, a rescue attempt by the BIS and several CBs failed leading to a currency crisis and Austria imposed capital controls and froze foreign deposits, the crisis spread to Germany, in July 1931, in the face of a banking crisis and a speculative attack on the mark. Germany imposed capital controls in the face of a loss of foreign reserves. Germany's decision put pressure on the reserves of the Bank of England because of the exposure of British investment banks to Germany and Austria. The British government faced high unemployment rates and a budget deficit and rather than impose 'austerity' chose to suspend the gold standard. This led, in turn, to pressure on the US but the US held large gold reserves and the Fed raised its discount rate by an unprecedented amount to withstand the immediate shock. But the real appreciation of the dollar (relative to the pound) and higher interest rates, worsened the domestic economy, weakened the solvency of the banks and worsened an ongoing banking panic. Eighteen months later, in (April 1933) after a serious banking panic and a run on the dollar, the US suspended gold convertibility.

The same story played out in France. With large gold reserves – and an initially undervalued exchange rate – France could withstand the immediate shock of others leaving gold. The serious political difficulties of resuming gold in 1926 also deterred the government from exposing itself to a return to an inconvertible currency. In 1933, there was a gold bloc, of France, Belgium, Netherlands and Switzerland, but by 1936 France was alone and in political chaos.

While the abandonment of the gold standard opened the door to the possibility of a system of floating exchange rates, no-one went through it. The pound floated from October /Sept? 1931 to the spring of 1932; the dollar floated from April 1933 to January 1934. The mark maintained its gold parity, but only through the imposition of rigorous foreign exchange controls.

The collapse of the gold standard as the device for co-ordinating exchange rates led to a rash of multi-lateral and bilateral initiatives. The World Monetary and Financial Conference in 1933 was a continuation of the series of conferences around the Reparations question but Roosevelt's decision to unilaterally rule out a return to the previous gold parity precluded any hope of cooperation. In response Britain arranged with the Commonwealth countries to create the sterling bloc.

By 1934, the pound and US dollar had stabilized and the U.S. returned to a managed gold standard at a new devalued gold parity of \$35 per ounce. Both countries benefitted from the now overvaluation of the franc. When it became clear in 1936 that the French would suspend convertibility, the US and UK, fearful of a large devaluation of the franc, worked with the French government for a co-ordinated arrangement. The resultant, Tri-Partite agreement, in which each country would coordinate intervention in their exchange rate with the franc to prevent a disorderly devaluation, was not a formal international agreement but rather three national statements, but they were co-ordinated statements and it may have been the first managed international financial system.

Bretton Woods and the move towards a managed international monetary system

The perceived problems of the interwar system which were viewed as contributing to the breakdown of the international economic order leading to World War II led the allies (Britain and the U.S.) to plan for a new international monetary regime.³¹ The new regime was intended to overcome the flaws of the gold standard, which had placed a straitjacket on stabilization policy and was an engine for transmitting depression and deflation globally, and floating exchange rates which were perceived as leading to excessive volatility and the collapse of the franc in the 1920s.

The Bretton Woods agreement, worked out at Bretton Woods New Hampshire in July 1944, represented a compromise between the British Plan of John Maynard Keynes and the American Plan drafted by Harry Dexter White. The Keynes Plan posited an international central bank to provide a new global currency called bancor which would provide global liquidity and help deficit countries like the UK get back on their feet after the war. The White Plan posited a pegged exchange rate system anchored on gold, an international credit union and protections for surplus countries like the US.

The compromise that became the Bretton Woods Articles of Agreement created an adjustable peg system in which members parities were defined in terms of dollars and the dollar was defined in terms

³¹ See Bordo (1993) and the other chapters in Bordo and Eichengreen (1993)

of gold at \$35 per ounce. The dollar was perceived as the key international currency (with sterling having a secondary role). Each member could adjust its peg when faced with a fundamental disequilibrium (caused for example by a productivity shock). Members were encouraged to impose capital controls and to use domestic monetary and fiscal policy to maintain internal balance (full employment). The International Monetary Fund was established as an international credit union to which each member subscribed an initial quota in gold or dollars. It was to be used to provide temporary credit to members undergoing a current account deficit.

It took until the end of 1958 for the European countries (Japan in 1962) to declare current account convertibility to allow the Bretton Woods System (BWS) to fully function. The System functioned quite well until the mid 1960s, delivering an expansion of trade, rapid real growth and low inflation, but began to unravel after 1965.³² Like the Gold Exchange standard in the 1920s it was plagued by three fatal flaws: a) the adjustment problem where the deficit countries (e.g. UK) bore the brunt of adjustment and in the face of nominal rigidities, faced falling real income and rising unemployment. Consequent expansionary stabilization policy would then lead to a currency crisis and a rescue by the IMF and G10; b) the liquidity problem in which (like the 1920s) there was a perceived gold shortage made up by the use of the dollar as the principal source of global liquidity. The U.S. as the key international reserve provider would run persistent balance of payments deficits to provide the dollars to the more rapidly growing countries of continental Europe and Japan. c) As outstanding dollar holdings increased relative to the US monetary gold stock so did the likelihood of a run on the dollar creating a confidence problem as in the interwar. The resulting Triffin (1960) dilemma meant that the U.S. had to either follow contractionary monetary policy leading to global deflation or else there needed to be created a new reserve asset. This dilemma dominated international discussion throughout the 1960s and in the end leading to the creation of the SDR (paper gold) in 1970.

Other stresses on the BWS system were: the decline in the role of sterling as an international reserve currency and the periodic sterling crises (1959, 1963, 1966, 1967) ended by ever more massive rescues until the final devaluation in 1967 and the ignominious exit of sterling; the spoiler role played by France in a repeat of its behaviour in the 1920s. This time the French resented the hegemonic role of the U.S. in the IMS and from 1963 to 1968 (when France itself had a massive crisis) tried to undermine the dollar; The U.S. began following an inflationary policy in 1965 to finance the Vietnam War and the Great Society. This fostered global inflation and put increasing pressure on the surplus countries of Europe and

³² For the evidence see Bordo (1993).

Japan who joined the French in resisting the U.S. hegemony; the growth of the international financial markets which increasingly were able to overcome capital controls, raising the likelihood of currency crises.

The Bretton Woods system collapsed in a series of crises from 1968 to 1971. The U.S. instituted a panoply of controls and techniques to stem the loss of gold beginning with the Gold Pool in 1961, the Interest Equalization Tax in 1963, the Federal Reserve Swap network, Roosa bonds and threats to withdraw U.S. troops from Germany, to no avail. In the face of rising inflation the British and French began converting their dollar holdings into gold in 1971 leading President Nixon to close the gold window on August 15.

In the next two years continuous high level negotiations between the Americans and the other advanced country players led to an attempt to restore the par value system with the Smithsonian agreement of December 1971 in which the U.S. devalued the dollar and Germany and Japan revalued their currencies. The reconstituted system only lasted a few months. A series of currency crises ended in the spring of 1973 with the major countries abandoning their Bretton Woods pegs and the world shifted permanently to a managed floating exchange rate regime under which the fundamentals of growth and inflation determined the equilibrium exchange rate and central banks intervened to smooth perceived volatility.

Sequel: From the Managed Float to the Euro.

The major advanced countries learned to operate in the non system of floating exchange rates just as they had learned to operate under the classical gold standard. It took the Great Inflation of the 1970s to instill the lesson of the importance of adhering to stable and predictable monetary rules. The 1970s was characterized both by high and variable inflation and volatile exchange rate movements. There were on going attempts to coordinate monetary, fiscal and exchange rate policies at annual Summit meetings between the G7 and two major conferences (the Plaza in 1986 and the Louvre in 1988) to try to reverse a strong and then a weak dollar. The evidence is mixed on whether these arrangements were successful(Funabashi 1990, Bordo, Humpage and Schwartz (2012).

One major attempt to construct a Bretton Woods like managed system was the development of the European Monetary Union. The idea for European integration emerged after World War II leading to the creation of the EEC in 1957. It was strongly believed that economic integration would permanently end

the problem of European wars. One key component of the European Common Market was the Common Agricultural Policy (CAP) which instituted a series of price controls, subsidies and transfers amongst the members of the EEC. The CAP instituted based on the Bretton Woods parities of the EEC member states was challenged by the move to floating. This problem plus a strong preference by France for fixed exchange rates led to several attempts by the Europeans to reconstitute a Bretton Woods like system(with widened bands and periodic realignments amongst the EEC members) in The Snake and the Tunnel System of the 1970s and the European Monetary System in the 1980s(James 2012) .

Neither of these systems avoided periodic crises as had occurred under Bretton Woods, reflecting a fundamental misalignment between the hard currency policies of Germany(also the Netherlands and Austria) and the softer policies followed by Belgium , Italy and France. The Maastricht Treaty of 1992 was designed to eliminate the currency crisis problem by instituting the permanently fixed exchange rates of a monetary union. Ignoring the lessons of history that successful monetary unions were closely linked to a fiscal union and a political union(Bordo and Jonung 2000, Bordo, Jonung and Markiewicz 2011 Bordo and James 2009), the framers of Maastricht believed that the members would maintain fiscal discipline and that the monetary union would endogenously lead to greater real integration and convergence of productivity differentials.

The plan seemed to work in the environment of rapid global growth in the 2000s . Subsequently following the Financial Crisis of 2007-2008 and the Great Recession, serious growth differentials and fiscal strains among the members have emerged. A series of sovereign debt crises and banking crises is leading to the realization that the lessons from the history of successful monetary unions may be correct after all and that a fiscal union with tight constraints on the members fiscal balance will be required to make the EMU project successful. To do this will require that the members of the euro zone give up considerable political sovereignty. The future will reveal if this will really happen.

Conclusion

This paper has described the evolution of the International Monetary System from the” spontaneous order” driven specie standard of the early nineteenth century to the slightly more managed gold standard to the even more managed interwar gold exchange standard to the man-made Bretton Woods system and its successors in Europe. Bretton Woods collapsed in the early 1970s and has been succeeded by the Managed Floating non system. Although there have been periodic attempts at policy coordination, the present float has evolved to look a lot like the gold standard. The key to the gold

standard's success was the credible adherence to the convertibility of national currencies to gold. The key to the success of managed floating is the credible adherence by central banks to a credible low inflation target or rule.

The European Monetary Union has several of the elements of the man-made Bretton Woods system: the failure of the adjustment mechanism between Germany and the peripheral countries ;the lack of liquidity in the periphery; and the threat to confidence in the euro from the high costs of Germany bailing out the defaulting periphery. Its current crisis has considerable resonance to earlier attempts to create an artificial international monetary system. It will be interesting to see how long the Eurozone system will survive.

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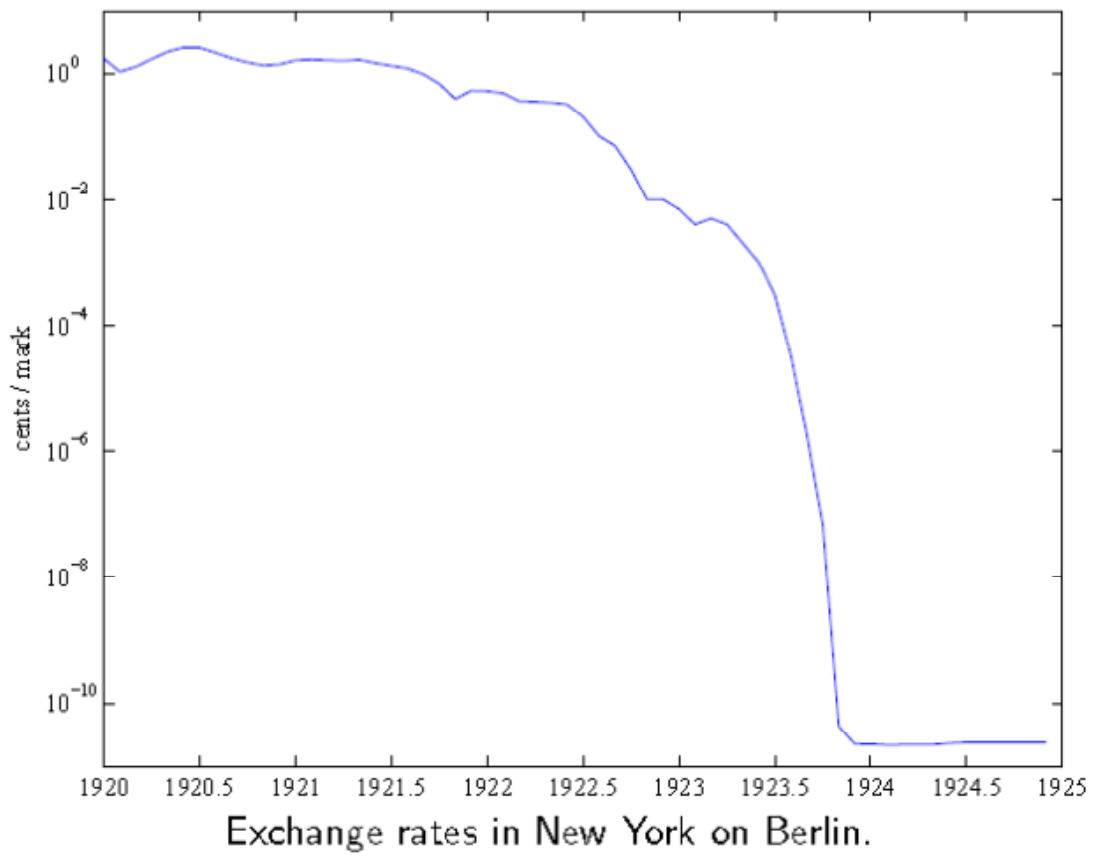
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Figure 1



Source: Francois Velde.

Table 1
Coins and units of account in effect in 1850

		Base Coin	Value of coin	Metal	Fine weight(gms) per ut of account
1803	France	1f	1f	silver	4.50/f
		20f	5f	gold	0.29/f
1834	US	\$1	\$1	silver	24.06/\$
		\$10	\$10	gold	1.505/\$
1717	UK	Guinea	£1.1	gold	7.32/£
1838	Germany	Vereinmunze	2 thaler	silver	16.70/th

Sources: US, UK, France, Redish (2000); Germany Holtfrerich (1989).

Table 2
Mint parities under the Classical gold standard, 1880 -

	Germany	France	Britain	US
Coin:	20 marks	20 francs	1 pound	\$10
gms fine gold:	7.166	5.806	7.322	15.046
	mark	franc	pound	dollar
1 mark =	1			
1 franc =	0.308	1		
1 pound =	20.43	25.22	1	
1 dollar =	0.238	0.193	0.205	1
	1 mark =	1 franc =	1 pound =	1 dollar =
mark	1			
franc	3.241	1		
pound	0.048	0.40	1	
dollar	4.199	5.183	4.866	1

Sources: Sources: US, UK, France, Redish (2000); Germany Holtfrerich (1989).