Of the Uses of Central Banks: Lessons from History
International Monetary Policy Regimes: Historical Perspectives
Catherine Schenk, Tobias Straumann

Introduction

Exchange rate regimes throughout the 200 years of central banking have vacillated along a continuum between the two extremes of either fixed exchange rates or the complete neglect of the external value of the currency in a freely floating environment. These trends reflected the development of economic theory as well as the practical constraints on international monetary choices posed by the environment in which international exchange operated. How did central banks participate in these broad trends? The traditional role of central banks, as they emerged by the mid-nineteenth century, left little formal role for central bankers in the determination of exchange rate regimes. Central banks were charged with maintaining internal price stability, issuing currency and promoting well functioning financial and/or money markets, but the choice of regime itself tended to be statutory and political, leaving the delivery of the exchange rate system as an adjunct to central banks' responsibility for price stability. Behind the scenes, the archival record demonstrates the periodic importance of the informal influence of central bankers in guiding the shape of the global monetary system. Central bankers shared particular characteristics that enhanced their informal influence and made them the guardians of expertise about monetary matters. First, they often had the closest relationships with the constituents of the foreign exchange market in the form of banks and other financial institutions because of their roles as discounters and supervisors. Moreover, in most countries they were not subject to the political cycles of democratic regimes and so spanned government tenures in a way that lifted them above immediate political pressures. Being unaccountable directly to parliaments or voters also allowed opportunities for personal and private cooperation and communication, which facilitated their influence compared to democratically accountable politicians. In times of crisis, central bankers were frequently able to meet quickly and resolve obstacles cooperatively in ways that political actors were not able to achieve. The historical record also reveals frequent episodes of conflict between central banks and governments over the priority of price stability over growth with attendant implications for the exchange rate regime. This chapter traces the broad trends in international monetary policy, emphasizing the heterogeneous nature of the global system and then seeks to

establish the nuanced role of central banks and the determinants of the waxing and waning of their influence.

1. Evolution of the International Monetary System

From a bird's eye view, the most important changes in the evolution of international monetary policy regimes over the past 200 years have been the transitions from fixed to floating exchange rates (and back again), and from exchange rate targeting to inflation targeting. Due to a combination of central bank independence and more reliable inflation forecasting, many central banks find themselves able to manage fiat money without producing high and persistent inflation. This shift can hardly be overestimated. As the Mundell-Fleming trilemma made clear in the early 1960s, central banks cannot have sustained independent control of their monetary policy under a fixed exchange rate regime when capital markets are free and open. When stable exchange rates were the goal (i.e. for most of the past 200 years) capital markets needed to be controlled or monetary sovereignty abandoned. The trilemma is complicated by the usual situation where responsibility for the exchange rate regime is separated from the responsibility for monetary and price stability. Governments (on advice from Treasury officials) usually choose the exchange rate regime and delegate price stability to central banks. Historically, the preference in the trilemma has been monetary sovereignty, which led to alternating periods of open and closed capital markets, combined with fixed and floating exchange rates. The emphasis on independent monetary policy has also privileged the role of central banks, which are mainly responsible for delivering price stability through controlling monetary and credit conditions. As the theoretical and practical understanding of how monetary policy operates became more refined from the 1970s, the rationale for fixed exchange rates became more narrowly focused on regimes that sought to 'import' policy credibility through the exchange rate system by pegging to the dollar or Euro, or to support and enhance economic integration (for example in Europe).

Inflation targeting requires a floating exchange rate regime in the globalized economy of the 2000s, and the benefits of this flexibility in the financial crisis of 2008 vindicated this choice. At the outbreak of the crisis the US and UK quickly turned to monetary expansion to forestall a rerun of the Great Depression with disregard for their exchange rate. IMF advice to emerging market economies with strong fundamentals was to copy the advanced economies'

countercyclical policies and loosen monetary and fiscal policies.[1] In 2013 the Bank of Japan embarked on an even more ambitious programme of monetary expansion (Abenomics) to encourage recovery. Conversely, the fate of Ireland and the Southern European members of the Euro zone provided evidence of how detrimental the lack of monetary policy autonomy can be in the short run. In other words, the triumph of floating exchange rates seemed like the best solution for the world economy.

From a worm's eye view, the grand narrative from the top appears to be somewhat overblown. It is true that most major countries have a floating exchange rate, but by no means all of them. Among the ten largest economies, no less than three, namely France, Germany, and Italy, have abandoned their monetary policy autonomy in favor of the European Central Bank. China, the second largest economy in the world, still has a tight grip on the capital account and deliberately manages its exchange rate against a basket of currencies. Brazil introduced capital controls when spillover effects from US quantitative easing made its currency appreciate at a rapid rate. Conversely, other middle-income countries, like India, imposed controls to stop capital outflows and constrain the decline of their currency. In large parts of Africa, Asia and the Americas, fixed or pegged exchange rates remain the rule. An ideological or theoretical shift has occurred, but it has been less than universal in practice. Table 1 shows a stylised version of the solutions to the Trilemma since 1870. Looking more closely, economic historians have shown that heterogeneity in the international monetary system was the norm, not the exception. The century from 1870s to 1970s was characterized by a consensus that stable exchange rates were optimal, but that short term environmental factors periodically made this goal unattainable. After each derogation from stable rates, there was an effort to return to the status quo ante. The acceptance of floating exchange rates as a legitimate long term policy took over 100 years to develop.

Table 1: Solutions to the Trilemma

	Fixed Exchange Rates	Open Capital Markets	Monetary Policy Sovereignty
1870-1914	X	X	
1919-1931	X	X	X
1931-1939			X

[1] Ghosh, Atish R. and Crowe, Christopher and Kim, Jun Il and Ostry, Jonathan D. and Chamon, Marcos, 'IMF Policy Advice to Emerging Market Economies During the 2008-2009 Crisis: New Fund or New Fundamentals?' (June 1, 2011). Journal of International Commerce, Economics and Policy (JICEP), 2011.

1945-1973	X		X
1973-1985		X	X
Emerging Market Economies 1975-99	X	X	
USA		X	X
Eurozone	X	X	
Rest of Europe		X	X
China	X		X

The 19th century

Between the end of the Napoleonic Wars and the 1870s when the classical gold standard emerged, there were at least four different monetary regimes. Britain, the center of the world economy, was the head of the gold group, in association with its dominions, colonies that maintained strong trade and financial relations with the UK. The lead monetary institution was the Bank of England, which gradually developed into a modern central bank. Important political and theoretical foundations were laid during the Restriction period lasting from 1797 to 1821, when the convertibility of Bank of England paper money was suspended without recourse to inflationary pressures despite substantial borrowing to fund the Napoleonic wars. After the resumption of gold convertibility in 1821, the Bank Charter Acts of 1833 and 1844 strengthened the Bank of England's role within the British payment system, and in the course of the 1840s and 1850s it learned to act as a lender of last resort, as Bagehot (1873) later would define it (Bignon et al. 2012).

The silver group was bigger, but had no strong financial center or lead central bank. It comprised Austria, the German states, the Netherlands and the Scandinavian countries. Outside of Europe, Asia was firmly on silver (China, India and Japan) while in the Americas only Mexico opted for this standard. The strong position of silver in Asia was a result of the sustained drain of American and European silver to the developed industrial centers in the Far East. For example, until the early 19th century, Britain ran a trade deficit both against China and India (Findlay and O'Rourke 2007). The third group was on a bimetallic standard, with France serving as its center and Belgium, Italy, and Switzerland as its associates. In the mid-1860s, the group gave itself some rules concerning the silver content of the 5-franc coin by constituting the Latin Monetary Union. In 1868, Greece and Spain joined. And finally, between 1862 and 1879 the US operated on a fiat standard without convertibility with gold or silver. Of course, the different metallic standards were related to support international

exchange and the Banque de France managed to maintain a stable relation between the price of gold and silver (Flandreau 2004). But it would be misleading to speak of a uniform international monetary international regime (Ugolini 2010). Moreover, by 1870, when the classic gold standard is usually agreed to have begun, there were only ten central banks in the world, all in Europe.

Even during the classic gold standard, there was less uniformity than one would think. Some countries had fiat currencies, and several large East Asian countries remained on the silver standard for several decades, notably Japan until 1897, India until 1895, and China and Indonesia into the 1930s. Until the 1890s, roughly 50 percent of the world population lived in a country with a silver standard. These economies tended to be poorer, without access to substantial gold reserves to create a credible peg for the gold value of their currencies, and to have decentralized monetary systems that inhibited adoption and defence of a common standard. Countries that remained on a silver standard had a depreciating currency during the first era of globalization of trade, migration and investment as the gold standard spread from Britain to other European states and colonies from the early 1870s, and the gold price of silver fell. There were positive externalities from a shared regime and the very spread of the gold standard destabilized the value of silver, making bimetallic and silver standards difficult to sustain.

It is still a puzzle why monetary policy converged in the 1870s. It was not based on an international agreement, but emerged almost spontaneously. To be sure, there were attempts to erect a common architecture, although the international monetary conference of 1867, initiated by France, did not bring any major results. But in the liberal 19th century there was a strong consensus toward stable exchange rates to minimize frictions in international trade and investment while achieving price stability. In 1871, with fresh gold reserves from its war indemnity from France, Germany decided unilaterally to abandon the silver standard in favor of the gold standard. The Nordic countries swiftly followed, and in 1873 both France and the USA took decisive steps towards the gold standard without consultation with other major powers. The international monetary conference of 1878, initiated by the US to try to restore the role of silver after discoveries in Nevada, failed like its predecessor. Two further conferences in 1881 in Paris and in 1892 in Brussels were equally unsuccessful. The attempt to adopt of a common ratio between gold and silver did not find much acceptance; Germany did not even attend the gathering in Paris. Bimetallism was hurriedly abandoned as the gold

price of silver fell and the classic gold standard became the ideal for modern, open economies seeking monetary stability while taking part in the first era of globalization.

The era of the Gold Standard coincided with the spread of central banking. Between 1850 (with the founding of the Banque Nationale de Belgique) to 1913 (with the founding of the US Federal Reserve System) a further seven central banks of issue were created to consolidate national currencies and promote price stability by engaging in the new global monetary system. The German Reichsbank, for example, was created in 1876 to unify the currency and deliver the rules of the gold standard, which had been adopted formally from 1871. The Bank of Japan, the first central bank outside Europe, opened in 1882 but had a rival in the Yokohama Specie Bank, which managed metallic reserves and international transactions. Japan only joined the gold standard in 1897 after a war indemnity in gold was won from the Chinese government. The USA lacked a central bank until 1913, which impeded the coherence of national monetary policy. The USA formally joined the gold standard in 1900, finally giving up the fight for silver based on the silver mines of Nevada. Moreover, not all central banks were equal in the system. The Bank of England was dominant with the depth and breadth of financial and commercial markets in London, which meant it was in a better position to attract money by increasing the discount rate than the Banque de France or the Reichsbank.

The forty years of the classic gold standard were not without currency and banking crises, and this prompted some cooperative action among central banks. The gold standard had a depressive effect on many countries in the early 1890s including the UK, France and the USA. Reinhart and Rogoff identify 24 banking crises in high and middle income countries during the period of high capital mobility from 1880-1914 (Reinhart and Rogoff, 2009: 344-45). A severe depression in 1893 in the USA was accompanied by stock market declines, bank failures and unemployment which lasted until 1897. Heavy US borrowing in 1906-7 drained gold from the Bank of England, but a damaging rise in interest rates was avoided through loans from the Banque de France and German Reischbank (Toniolo 2005, p.15). Another episode of central banks cooperating to stabilize the system was the 1890 sovereign debt crisis focused in Latin America, which nearly brought down the great London finance house of Barings (Mitchener et al., 2008) and nearly pushed Britain off the gold standard. Argentina issued bonds payable in gold or in sterling in London, but was not itself on a metallic standard. After investing borrowed funds in infrastructure projects, the government

found itself unable to service these debts in an environment of inflation and a depreciating peso. Barings had to be rescued by the Bank of England, which arranged gold loans from the Banque de France and Russia's central bank. But these concerted efforts at cooperation were a response to exceptional strains rather than a key function of the every day operation of the Gold Standard. Flandreau (1997) has argued that for the most part central banks acted in their own national interest.

The Interwar Years

The onset of the First World War in 1914 suspended the classic gold standard as international trade and payments was disrupted by conflict. After the war, there was a concerted effort to return to 'normal' by restoring the gold value of currencies. Repeated international conferences brought government officials together to discuss the redesign of the international monetary system. The delegates at the Genoa International Economic Conference in 1922 explicitly recommended that central bank cooperation was a vital aspect of a prospective new gold standard and that this should be institutionalized in a convention or 'entente'.[2] This new focus on central bank independence and cooperation to manage the international monetary system particularly reflected the views of the Governor of the Bank of England Montagu Norman, and the Benjamin Strong, first Governor of the Federal Reserve Bank, who together promoted close relations and cooperation. In Britain, Norman joined with the UK Treasury to push the inexperienced Chancellor of the Exchequer Winston Churchill to return speedily to the gold standard in 1925 (Boyce, 2005; 222-23). In the wake of financial and political conflict of the incomplete peace of 1919, however, the outcome was a haphazard inconsistent adoption of a pegged gold exchange standard, which relied more on sterling and other national currencies as foreign exchange reserves. Exchange rates reflected political targets/posturing rather than economic realities. Thus, sterling and the lira were pegged at their pre-war parities despite significant changes in their global economic standing. The French franc was stabilized at a greatly devalued rate compared to 1900, prompting inflationary pressures and the accumulation of reserves. Politics over-rode economic reality and central bankers left to try to manage the system were unable to fend off market pressures that led ultimately to a global banking and financial crisis in 1931, ironically just after the

[2] Papers relating to International Economic Conference, Genoa, April-May 1922, London: HMSO, p. 60.

founding of the Bank for International Settlements seemed to be fulfilling the central bank association that was the 'dream of Genoa' (Toniolo, 2005; p. 20 quoting Bank of England's Charles Addis in 1929).

In the contagious financial crisis of the 1930s the mood shifted radically and states abandoned the struggle to fight the market, instead allowing their exchange rates to shift to capture short term trade advantage through 'competitive devaluation'. But this period is best interpreted as an era of currency blocs: the sterling bloc, gold bloc etc. rather than an era where inflation targeting or truly floating exchange rates were tolerated. As is well known, the degree of heterogeneity in the interwar years was particularly high. Officially most countries were supporting and adopting the gold exchange standard in the course of the 1920s, with the exception of the US which had never abandoned the link to gold during World War I. But between 1918 and 1939, the gold exchange standard endured only five years: in 1926 France led the way by stabilizing the franc and by 1931 Germany, Norway. Sweden, Canada, Japan, Denmark, Finland, Hungary and the UK went off gold. Several countries including Norway (May 1928-September 1931) and Japan (December 1930-December 1931) had an even shorter experiment with this regime.

Even within these five years, the experience of the core countries was diverse. France and the US accumulated ample gold reserves and had greater leeway in their monetary policy because of the enhanced credibility of their central banks' ability to defend the gold value. By contrast, Germany and the UK were fully constrained by the gold exchange standard. Germany was burdened by a high share of foreign debt, partly because of the Versailles peace treaty, partly as a result of reckless borrowing by public authorities and commercial banks. The price for the political stability of the Weimar Republic was generous public spending. Great Britain was burdened by its internal debt and the overvalued exchange rate (estimated to be c. 10%). The discount rate of the Bank of England was always higher than the rate of the Federal Reserve as the Bank of England sought to defend the overvalued pound.

Countries of the periphery left the gold standard earlier than core countries, mainly because from 1925 the dramatic fall of commodity prices worsened their terms of trade. Australia and New Zealand (devalued in March and April 1930 respectively) as well as Argentina, Brazil, Paraguay and Uruguay went off gold before the main European states did. Many African and Asian countries were still part of colonial empires that operated through

currency boards and precluded any autonomy in monetary policy. Finally, the silver standard continued to play a role in China. Until the US devalued in 1933, the silver price was decreasing, thus making Chinese exports more competitive. As a result of the US silver repurchase Act of 1934, however, silver prices started to increase rapidly, pushing China into a deep recession which was only finished when the silver standard was abandoned in 1935.

Like the pre-war Gold Standard, the interwar gold exchange standard was accompanied by the opening of new central banks. The First World War prompted a surge of state-building that included a desire to have national central banks as part of the apparatus of independent policy-making. Central banks were also an important tool to operate the inter-war gold exchange standard. Governor Montagu Norman of the Bank of England promoted a network of central banks modeled on the Bank of England that could cooperate to deliver 'orthodox' policies aimed at monetary and exchange rate stability. His vision was supported by the Financial Committee of the League of Nations, which sent missions to a range of central European states in the mid-1920s as part of the general spirit of creating a coordinated international monetary system. Sir Otto Niemeyer and other officials from the Bank of England toured a range of emerging markets to advise on monetary policy, 'sound money' and to promote the establishment or reform of independent central banks. His advice proved controversial, for example, in Australia where his recommendations of austerity to restore exchange rate stability and allow the national debt to be serviced were greeted with indignation (Attard, 1992; 82). Latin and South American states looked to the USA and Edwin Kemmerer of the Federal Reserve Bank toured a range of countries from 1917-1931 advising on the organization of central banks, including Colombia, Chile, Ecuador, Bolivia and Peru (Singleton, 2011; 60). Table 2 shows a range of central banks designed by the League of Nations and Bank of England advisers. In the end, these central banks lasted much longer than the international monetary system that they were designed to deliver.

Table 2: Central Banks and International Missions in the Inter-war Period

Countries	Year	Mission	Outcome
South Africa	1920	Sir Harry Strakosch	South African Reserve Bank
Austria	1923	League of Nations	Austrian National Bank
Poland	1923	League of Nations	Reorganised National Bank into central bank

Free State of Danzig	1923	League of Nations	Bank of Danzig
Hungary	1924	League of Nations	National Bank reorganized into central bank
Czechoslovakia	1926	League of Nations	National Bank of Czechoslovakia
Estonia	1927	League of Nations	National Bank reorganized into central bank
Bulgaria	1928	League of Nations	National Bank reorganized into central bank
Greece	1928	League of Nations	Central Bank of Greece
Australia	1930	Sir Otto Neimeyer	Commonwealth Bank reorganized into central bank?
New Zealand	1930	Sir Otto Neimeyer	Central Reserve Bank of NZ 1934
Brazil	1931	Sir Otto Neimeyer	Bank of Brazil reorganized into central bank
Canada	1933	Lord Macmillan, Sir Charles Addis	Bank of Canada
India	1933	Sir Ernest Harvey, W.H. Clegg	Central Reserve Bank of India
El Salvador	1934	F.F.J. Powell	Central Reserve Bank of El Salvador
Argentina	1935	Sir Otto Niemeyer	Central Bank of Argentine
China	1935	Sir Frederick Leith-Ross	Currency reform: sterling/dollar peg
Egypt	1936	Sir Otto Niemeyer	National Bank of Egypt reorganized into central bank

Bretton Woods

The damaging political as well as economic effects of the apparent ‘currency wars’ of the 1930s prompted a return to the doctrine of stable exchange rates after the interregnum of the Second World War. The Bretton Woods system was based on a consensus built during the war that international capital markets were dangerous to orderly global integration, that international trade liberalization was the primary means to ensure sustained economic growth and that stable exchange rates encouraged economic cooperation and reduced transactions

costs (Chwieroth, 2010). Importantly, the blueprint for Bretton Woods was not led by central banks but by Treasury officials in the UK (John Maynard Keynes) and USA (Harry Dexter White). This reflects the heightened political atmosphere in which Keynes and White developed their plans for the postwar monetary system. The failure of economic cooperation and coordination in the interwar period and the damaging flows of hot money that characterized the European financial crisis of 1931 were to be avoided through a managed stable exchange rate with convertibility of currencies for current account purposes but a sustained reliance on capital controls to ensure greater national monetary independence. Rather than focusing on the mainly self-interested actions of national central banks established during the gold standard eras, this new system created a distinctive specialist international monetary institution to monitor stable exchange rates. The International Monetary Fund (IMF) was designed to ensure the international economic cooperation that was essential to a lasting world peace, in contrast to US isolationism and currency wars of the 1930s. Central bankers were excluded from the formal governance of the system, which was led by the Executive Board of the International Monetary Fund – itself made up of nominees from among state bureaucracies. But, as we shall see, the flaws in the system led to a new role for the Bank for International Settlements to provide supporting apparatus that drew central bankers back to the core of the international monetary system.

During the era of the Bretton Woods system we find a similar degree of heterogeneity as during the interwar years. Formally, all core countries were part of the system between 1947 and 1973; only Canada in the 1950s really experimented with a floating exchange rate at this time. But while the Bretton Woods regime may have been based on a common set of rules, there was hardly any year in which these rules were followed by all major members. And neither China nor the Soviet Union and its satellites – a huge share of the global population – were participating in the Bretton Woods system in the first place. There were frequent adjustments in the values of international currencies against the dollar that undermined the credibility of the system (e.g. devaluation of all European currencies 1949, DM revaluation 1961, sterling devaluation 1967, franc devaluation 1969, DM float 1962). Within the Bretton Woods regime, regional or currency-based systems emerged as it became clear that the comprehensive international payments system based on convertible currencies would be delayed indeterminately. Among European states the European Payments Union provided a clearing system based on gold and dollars from 1950-1958 that facilitated a form of

convertibility of European currencies. Current account convertibility was only achieved at the end of 1958 for most European currencies (Kaplan and Schleiminger, 1989). At the same time, the UK was the centre of the sterling area group of countries from 1945-1972, which pooled their foreign exchange reserves at the Bank of England and operated exchange controls against the dollar in return for freer access to the London capital market (Schenk, 2010). These countries included major primary product producers such as Australia, New Zealand and South Africa as well as oil producers in the Middle East such as Kuwait, Iraq and Persian Gulf States. British colonies such as Hong Kong, Singapore, Malaysia, Nigeria and Ghana, Kenya and Tanganyika operated currency boards linked to sterling. French colonies and former colonies in Africa operated currency boards based on the franc and formed the Franc Area.

Controlled capital markets and pegged exchange rates focused attention on defending balance of payments equilibrium during the building of comprehensive welfare states in many European countries and the liberalization of trade flows. Germany's interwar experience of hyperinflation meant that the Bundesbank was particularly averse to inflation and pressed its influence over the government to restrain any risk to price stability in their expansionist policy. Paradoxically, however, the Bundesbank also vigorously resisted adjusting the DM exchange rate to combat inflationary pressure, and was over-ruled by the West German government in the early 1960s (Neumann, 1999: 297-8). The Bank of England was also wedded to the importance of a stable exchange rate as the foundation of the financial leadership of the City of London as well as a constraint on successive government's tendency toward inflationary growth policy. This led to a series of sometimes heated battles between the Bank of England and the government (Schenk, 2004). Central bankers tended to be strong advocates of exchange rate stability both because they believed this led to more orderly international markets and because fixed rates exercised discipline over government economic policy.

Flaws in the operations of the IMF created opportunities for central bankers to reassert their influence over the governance of the international monetary system. Current account convertibility was generally delayed for 12 years beyond the inauguration of the IMF, so the system of multilateral payments designed at Bretton Woods could not come into practice. It took much longer to establish the conditions for freeing up exchange controls than had been anticipated in 1944. Borrowing from the IMF was also constrained by uncertainty about the

conditionality that might be imposed and the flow of Marshall Aid from 1947. The IMF Executive Board and staff became a large bureaucratic organization focused on annual inspections of each countries' exchange controls and lacked the spontaneity and flexibility to deal with the periodic crises that threatened the pegged exchange rate regime. Meanwhile, G10 central bank governors were meeting monthly at the Bank for International Settlements in Basel to discuss issues of mutual interest. This provided an alternative forum for the exchange of information about foreign exchange market intervention and coordinated support among central banks (Toniolo, 2005). Without being exposed to public scrutiny in their discussions or publicity for their operations, the Board of Governors of G10 (plus Switzerland) central banks were able to respond more nimbly to strains in the system.[3] There were two main routes through which the central bankers at Basel co-operated; lines of credit and the Gold Pool.

In March 1961, when the fixed US$ gold price of $35/oz came under pressure, the Federal Reserve Bank benefited from bilateral loans and sales of gold organized through the BIS. Three months later a more concerted line of credit (peaking at $904 million) was offered to support the Sterling exchange rate and a second support scheme was organized in the summer of 1963 ($250 million) (Toniolo, 2005; 382-3). The subsequent easing of market pressure and quick repayment of the arrangements persuaded central bankers that through concerted cooperation they could defend the international monetary system from attack by speculators. Sterling was a particular beneficiary of these schemes (Schenk 2010), but other currencies including the Lira (1964) were also supported through successive lines of credit organized quickly (sometimes overnight by telephone) among central bankers. In addition (and sometimes in concert) the US Federal Reserve engaged in substantial bilateral swaps with a range of central banks in Europe and beyond to provide extra liquidity, beginning in 1962 with a $50 million swap line with the Banque de France. By 1978 the Fed's swap network had grown to a total of $30 billion (Toniolo, 2005; 387). What is particularly important about these networks of cooperation the support the international monetary system is that they did not require parliamentary approval and were not always made public in the way that inter-governmental loans were required to be.

[3] Countries included Sweden, UK, France, Belgium, Netherlands, Italy, USA, Canada, Japan

As the international monetary system came under increasing pressure, the focus of attack was on sterling and the arrangements to support that currency were enhanced (Schenk, 2010; Ch.8). In June 1966 the Bank of England negotiated a 'Group Arrangement' of swap credits for up to $600 million from other G10 central banks at Basel. The facility was under-used and easily renewed in March 1967. But this time the entire amount was drawn in the crisis that preceded the devaluation of sterling in November 1967. A second 'Group Arrangement' in 1968 (known as the Basel Agreement) became much more public and the terms of the credit were more onerous. This time, the Bank of England's creditor central banks required the British government to negotiate agreements with major sterling holders to maintain the ratio of sterling in their reserves. This could only be achieved through a guarantee of the dollar value of these reserves. An elaborate network of 34 Sterling Agreements was quickly concluded in order for the Bank of England to claim the $2 billion line of credit. Although at its height the British drawing was only $600 million, the psychological effect of this cushion of credit was believed to have quietened the market and restored credibility to the sterling exchange rate until the summer of 1972. While central banks did not have a statutory role in the operations and support for the international monetary system, it was clear that they established institutional frameworks to allow it to be sustained through the 1960s.

The second major effort of coordination among G10 central banks was initiated by the IMF and government Treasuries. Concerned about the diverging market price of gold from the fixed price, the British and American governments developed a plan in 1961 for G10 central banks to cooperate to stabilize the London gold market. Toniolo (2005; 375-81) relates how central bankers were initially reluctant to engage in 'fixing' the market, but were eventually persuaded by the Americans. Each participating central bank earmarked an agreed amount of gold to be used by the Bank of England to intervene in the London market. In the first few years the scheme worked fairly well and deals were modest, but as confidence in the US dollar waned after the devaluation of sterling in November 1967, sales of gold escalated and the pool suspended operations in March 1968. Thereafter, the market price of gold was allowed to diverge from the fixed $35/oz and the underpinning of the Bretton Woods system was fatally weakened.

The Board of Governors of the BIS has continued to be the major institutional forum for central banks to develop relationships which allow a coordinated response to changes in the international monetary system, but several developments have affected how it operates. The

formation of the European Central Bank as the monetary authority for the Eurozone, the continuation of bilateral relationships, the G7 Finance Ministers and Central Bank Governors' summits starting in 1976, and the expansion of the BIS Board of Directors to 21 members. Recognizing that the G10 no longer reflected the globalized economy of the 2000s, the BIS broadened its Board of Directors from 12 to 21 in 20xx to include the central bank Governors of Belgium, France, Germany, Italy, the UK and the US (plus an extra representative from each of these countries) and an additional 9 elected governors of other central banks. This expansion makes the organisation more representative, but it has also altered the practical nature of the meetings, the informality and traditions of the cooperative structures in place since the financial crisis of 1931.

Other multilateral and bilateral cooperative institutions for central banking operate alongside the BIS. Bilateral central bank cooperation through central bank swaps continues to be an important element of the management of the international monetary system. For example in December 2007 the Federal Reserve authorized bilateral swap facilities with 14 central banks to sustain liquidity when there were strains in global short term dollar funding markets. The dollar swap lines were predominantly used with the ECB, Swiss National Bank and the Bank of England in 2008-9.[4] In a multilateral forum, the G7 summits of Finance Ministers and central bank governors arose out of a desire to moderate 'excessive' volatility and 'disorderly' exchange rates that were blamed for 'adverse implications for economic and financial stability'. At each summit the participants reassert their commitment to market determined exchange rates but also signal their determination to 'cooperate as appropriate'.[5]

After Bretton Woods

Central bankers' various schemes to prop up the Bretton Woods pegged exchange rate system ultimately failed with the suspension of dollar-gold convertibility in 1971. The renewed commitment to pegged exchange rates through the Smithsonian Agreement in December of 1971 showed the tenacity with which governments of the G10 sought to avoid floating exchange rates. Within six months, however, sterling was floating and the system

[4] http://www.federalreserve.gov/newsevents/reform_swaplines.htm

[5] Quotations from the 2013 G7 Ministers and Governors' statement.

crumbled over the next nine months until the Yen and European currencies floated against the dollar from the spring of 1973. Nevertheless, members of the IMF only formally abandoned the claim for a pegged exchange rate regime in 1976, ushering in a new era where the dominant paradigm for the USA (as leader of the global economy) has been benign neglect of the dollar exchange rate. Paul Volcker used his tenure as President of the Federal Reserve to operate an aggressive monetary policy that successfully cut inflation in the USA and contributed to wider systemic stability, beginning the era of the Great Moderation of lower price and growth volatility that characterized the next twenty years. But the separation of exchange rate policy from monetary policy persisted in creating tensions. For example in the early 1980s, the appreciation of the dollar prompted Volcker to press the Treasury to authorize an intervention in the foreign exchange market, but they resisted and Bordo has shown the Volcker rejected a unilateral central bank intervention without Treasury participation (Bordo, 2010; 8). The attempts to moderate exchange rate volatility were left to the G5 finance ministers in the Plaza Accord of 1985 and the Louvre Accord of 1987 rather than central banks.[6]

Outside the G5, other groups of countries were set adrift by the float of the dollar and this prompted a more stratified global non-system. Developing economies faced particular obstacles to adopting floating exchange rates with relatively thin local foreign exchange markets and vulnerability to seasonal instability due to dependence on primary product production. Also, the 'seal of approval' Bordo identified for peripheral states in the classic 19th century that enhanced their ability to borrow in global capital markets appeared to persist for emerging and developing economies a century later. Thus many countries continued to peg their exchange rates to the dollar as a commitment mechanism. When pegging to a depreciating dollar became uncomfortable in the inflationary era of the 1970s, some opted for adjustable pegs or pegged to trade weighted baskets (Schenk and Singleton, 2014). But the penchant for pegged rates was not restricted to emerging markets.

The integrated economic institutions of Western Europe made these states unable to sustain exchange rate volatility during the 1970s and 1980s and they moved inexorably toward monetary union through a series of institutional frameworks starting with the Snake in 1972 and finishing with the Euro in 1999. For Norway and Sweden, the period of floating did

[6] G5=US, UK, Japan, Germany, France

not begin until the 1990s. Sweden adopted inflation targeting immediately after the EMS crisis of 1992-93, while Norway waited even longer. On the other hand, Switzerland belongs to the early floaters of 1973, but introduced a temporary exchange rate floor against the DM in the fall of 1978 and again against the Euro in the late summer of 2011. Intermediate solutions are still popular and possible.

During the 1990s, a consensus emerged that countries should adopt either a 'hard peg' that had strong credibility through a currency board of currency substitution, or they should freely float their exchange rate (Swoboda, 1986). This bi-polar view reflected the repeated failures to defend pegged rates against market attack and the mixed record of experiments with sterilized intervention in foreign exchange markets. Direct operations by central banks in the foreign exchange market alone seemed to have at best short term effects; to be more effective they required buttressing monetary policies. By the time the Euro was launched, however, financial and currency crises in emerging markets stretching from the Mexico in 1994 to the Asian Financial Crisis of 1997, the Rouble crisis of 1999 and the Argentinian crisis of 2002 had caused most of these countries to resort to floating exchange rates. In particular, the collapse of the Argentinian currency board cast doubt on the bipolar solution. Indeed, the IMF argued in 2004 that emerging markets with pegged exchange rates performed less well in terms of inflation or growth because they were more vulnerable to currency and financial crises.[7] With no support for intermediate regimes, emerging market economies were urged to follow the USA in a free float, but most exhibited a so-called 'fear of floating'. While many claimed to float, in fact the incidence of intervention and capital control was more prevalent in practice. By 2009 the IMF analysis based on de facto regimes (rather than de jure) determined that economies with a formal pegged rate regime had a better record for inflation. But growth performance was better with an intermediate system, for example by not adopting a bilateral peg to another currency. Central banks were able to use the exchange rate peg to anchor inflationary expectations but this constrained their range of macroeconomic tools and made their economies more vulnerable to currency and financial crises.

Among Emerging Markets, the share of countries that have a pegged or a managed floating exchange rate is still far higher than the share of countries with a freely floating exchange rate. According to the IMF de facto classification for the year 2007, 98 had a pegged

[7] Ghosh, Ostry, and Tsangarides

exchange rate[8], 4 a crawling peg, 56 a floating exchange rate, and only 16 a freely floating exchange rate (table 3).

Table 3: IMF de facto classification of exchange rate regimes for emerging markets for the year (Source IMF 2009)

Emerging markets with freely floating exchange rate	Emerging markets with Manage floating exchange rate	Emerging markets with pegged exchange rate
Brazil	Columbia	Hungary
Chile	Peru	Qatar
Korea	Czech Republic	United Arab Emirates (UAE)
Mexico	Egypt	China
Philippines	Russia	
Poland	India	
South Africa	Indonesia	
Turkey	Malaysia	
	Thailand	
	Malaysia	

Note: no classification for Taiwan.

3. Regime Transition

Economic historians have invested a great amount of intellectual energy into explaining why the international monetary system has been so heterogeneous and why the big shift from fixed to floating did not come until the 1970s. Today, the consensus view is that the uneven evolution of democracy across time and space accounts for an important part of the story (Eichengreen 1996). In the 19th century, suffrage was limited or even fully suppressed. New Zealand was the first state to introduce universal suffrage for all adults in 1893, but most European nations introduced male suffrage from the mid-19th century (France and Switzerland1848; USA, 1870; German Empire 1871; Norway, 1898; UK 1918). Women were restricted in their voting powers in Europe well into the 20th century. Governments in Europe were mainly concerned with internal and external security and property rights, although states in emerging economies in North and South America, for example, were also preoccupied with development of infrastructure such as railroads, which depended on open capital markets. A consensus that the state was responsible for the economic welfare of populations began to develop, but was not well established until the end of the century. This

[8] Including regional agreements like the West African Economic and Monetary Union.

left most monetary authorities relatively free to pursue deflationary policies in order to maintain a metallic standard. The combination of exchange rate stability and free capital movements was the chosen combination, at the expense of an independent monetary policy.

In the 20th century, by contrast, universal suffrage became the norm in Western countries and the trauma of the First World War altered expectations about the responsibilities of the state for welfare. At the same time greater fiscal debt and price instability strengthened the reorientation towards domestic policy goals and the importance of monetary policy sovereignty. In emerging markets, the democratic transition tended to be later. Prior to the 1980s, democratic reform was inhibited by authoritarian regimes, e.g. Brazil, Indonesia, Russia, South Korea, Singapore, Taiwan. The dilemma between exchange rate stability and an independent monetary policy in these countries was dampened by capital controls. On the other hand, the growth agendas of these 'newly industrializing countries' in the 1980s were supported by trade integration, making capital controls increasingly porous. With the transition towards democracy and the liberalisation of capital movements starting in the late 1980s, authorities began to be confronted with the same trilemma as Western governments in the early 1970s. After several failed attempts to maintain exchange rate stability in the face of economic and political turmoil, some countries shifted to floating exchange rates.

Yet, not all parts of the historical development can be explained by the spread of democracy. Most notably, the palpable absence of successful episodes with floating exchange rates prior to 1973 requires a broader framework. Neither in the early 1920s nor in the 1930s, when the trilemma was effective in many Western countries and when there was plenty of room for new experiments, do we see a true regime shift. As late as 1990, only the US, Japan, Australia, New Zealand, and Switzerland had a floating exchange rate. Germany, whose central bank practiced monetary targeting, operated a floating regime against the currencies outside of the European Monetary System (EMS), but a high share of its trading partners had linked its currency to the Deutschemark (DM). The UK was part of the European Monetary System of pegged exchange rates while Norway and Sweden maintained a unilateral peg against the DM.

Why was the transition to floating exchange rates delayed so long? It was certainly not due to the lack of economic theory. Early versions of price level targeting were developed in the beginning of the 19th century, and towards the end of the 19th century several economists,

notably Knut Wicksell and Irving Fisher, devised well developed frameworks that explained the relationship between monetary policy and the business cycle (Laidler 1999). They showed that a commodity standard was not the best framework for monetary policy. Therefore, there must be other reasons that explain the reluctance to embrace floating exchange rates.

There are at least three strands of literature that need to be taken into account in order to explain why the shift to floating came rather late in the 20th century. The first one has fundamentally revised our notion of how fixed exchange rate regimes were working in the past. While the textbook version suggests a high degree of rigidity, a number of historical studies have shown that fixed exchange rate regimes were remarkably flexible, as long as the credibility of the metallic regime was high. In particular, they have discovered that the classical gold standard functioned like a target zone (Bordo and Flandreau 2003, Bordo and Macdonald 2012). When the exchange rate fell toward the lower limit (gold point), central banks were not necessarily forced to raise interest rates, as investors drove the exchange rate back to par, expecting that the central bank would ultimately react. In anticipating a tightening of monetary policy, short-term capital movements replaced the reaction and allowed 'automatic' stabilisation or at least gave the central bank some breathing space. Of course, the principle of convertibility acted as a constraint. But the notion that monetary policy was on autopilot has no historical foundation. Central banks would have behaved very differently if they had strictly obeyed the rules of the game.

Recent studies have also revised our notion of how bimetallism works. According to conventional wisdom, Gresham's law acted as a destabilising force so that France eventually abandoned it. The new view convincingly argues that bimetallism was in fact well operating (Friedman 1990, Flandreau 2002). The new view also emphasises that the co-existence of different monetary regimes prior to the 1870s – gold standard, silver standard, bimetallism and fiat standard – had a stabilising effect. When a country on the gold standard was suffering from a drain of reserves, central banks that were operating a silver, fiat or bimetallic standard could more easily borrow gold than after the 1870s when the gold standard became universal (Flandreau 1997).

Moreover, it is important to recall that monetary authorities deployed a number of strategies to enlarge their freedom of action, and in the course of the 19th century they became ever more skilful. In good times, they increased the level of metallic and foreign

exchange reserves well above the legal minimum in order to pursue an accommodative stance in times of crisis – for example the Banque de France notoriously maintained a particularly high gold cover ratio (Eichengreen 1992, Irwin 2010). Central banks used their holdings of bonds and bills to sterilize capital inflows (Øksendal 2012, Ögren 2012, Ugolini 2012). Another way to dampen the shocks to the financial and monetary system was to delay capital movements. And finally, the authorities could suspend the gold standard when a financial crisis was particularly severe – for example in the UK in 1847, 1857 and 1866. The gold standard was a contingent rule (Bordo and Kydland 1995, Bordo and Rockoff 1996).

As for the recent period, many economists have shown that small open economies with a dominant trading partner can reap benefits from pegging their currencies (Klein and Shambaugh 2010). And some economists have argued that small open economies and emerging markets have a different set of choices than countries like the US and Japan or the euro zone. They are facing a dilemma rather than a trilemma, because they are subject to huge capital inflows and outflows depending on the US interest rate. Whatever exchange rate regime they choose, their monetary autonomy is very limited (Shambaugh 2004, Rey 2013). In short, there are good reasons why a country has chosen and maintained a fixed exchange rate regime. We should not be surprised that the shift from fixed to floating did not occur more rapidly or consistently than the trilemma suggests.

A second strand of literature highlights the importance of financial maturity for the choice of the exchange rate. Countries with a high share of debt denominated in a foreign currency have fewer choices available compared to countries with debt denominated in their own currency (Eichengreen and Hausmann 1999, Bordo and Flandreau 2003). In the 19th century, countries of the periphery always sought fixed exchange rates and tried to avoid devaluations in order to have access to international loans and to stabilise the real value of their foreign debt denominated in a foreign currency. As is well known, they repeatedly failed to maintain exchange rate stability, but the fact that after each failure they made another attempt demonstrates the importance of this factor.

The variety of financial maturity also explains the eclectic reaction to the Great Depression of the 1930s. Countries with a high share of foreign debt denominated in a foreign currency introduced capital controls, while countries with debts in their own currency devalued. The former group comprises the losers of the First World War that had financed their

reconstruction and stabilised the legitimacy of democracy with foreign loans. As for Germany, some economic historians may have been right in questioning the wisdom to avoid devaluation, but there is no doubt that the fear of an exploding foreign debt was a crucial argument for the government in Berlin (Ritschl 2013). The high share of foreign debt also helps to explain why the crisis-stricken countries of the euro zone have never seriously considered restoring their national currencies. The euro may be their currency, but from a macroeconomic perspective the euro is a foreign currency (De Grauwe 2012). Likewise, some Eastern European countries that are not member of the European Monetary Union maintain a fixed exchange rate against the euro because of their high share of euro debt. Finally, the decline of foreign debt denominated in a foreign currency helps to explain why some Latin American have shifted to floating exchange rates in recent years (De la Torre et al. 2011). As a result, the pass-through of depreciations has markedly been reduced.

A third strand attributes an important role to economic ideas. This is particularly evident in the formation of the European Monetary Union (Gros and Thygesen 1992, James 2012). Plans to have a united Europe with a common currency are almost as old as the concept of Europe itself. Furthermore, the single market launched in the mid-1980s seemed to require the stabilisation and eventual abolition of exchange rates. Understandably, the idea to create a level-playing field in order to foster competition was not seen as compatible with frequent devaluations by the weaker members of the European Union. During the 1980s, the fiscal cost of compensating farmers for exchange rate changes through the Common Agricultural Policy's single European price system was a strong impetus to stabilizing European exchange rates more permanently. Of course, not every country in Europe shared this conviction. Within the EU, Denmark, Sweden and the United Kingdom still have a floating exchange rate. Iceland, Liechtenstein, Norway, and Switzerland participate in the single market without being member of the European Union. Still, the euro is first and foremost a result of a powerful intellectual tradition that has pooled monetary policy into the European Central Bank, leaving national central banks with a more limited range of influence. National central banks now have responsibility for monetary operations and collection of statistics but not for the development of policy.

The influence of economic ideas is also visible in the more distant past. In the 19th century, there was a strong consensus in favour of metallic regimes. It was deemed immoral to devalue the currency. This bias towards fixed exchange rates endured in the 20th century.

The postwar stabilization after 1918 resembles what happened after the Napoleonic Wars and the American Civil War. Exchange rates may have floated, but the goal of monetary policy was to bring the currency back on to a metallic standard. The debate after 1918 echoed in many ways the Bullionist debate more than a hundred years earlier, when English politicians, bankers and economists debated the pros and cons of convertibility. In 1925, William Acworth published a book about financial reconstruction in England after the Napoleonic Wars and pointed out the many parallels, in particular the deflationary policy necessary to stabilise sterling at the pre-war parity.

The historical record suggests that the authorities are conservative with respect to any regime change and that their preference was usually in favour of stable or pegged exchange rates. During the inter-war world economic crisis, centre-right politicians as well as Social Democrats and labour union officials were reluctant to abandon the gold standard, even though the monetary straitjacket reinforced the slump (Eicengreen and Temin 2000). The most notorious example is the slow dissolution of the gold bloc in the 1930s. Every independent observer predicted that it was a futile exercise to maintain the existing parity after the UK and the US left the gold standard in September 1931 and April 1933 respectively. But France together with Belgium, Italy, the Netherlands, Poland, and Switzerland defended their deflationary policies until the domestic political support had crumbled (Feinstein, Temin and Toniolo 1997). When the interwar gold standard collapsed in the 1930s, the authorities aimed at minimising exchange rate fluctuations. Floating was seen as harmful to trade. Accordingly the international monetary system after 1933 looked more like a prototype of the Bretton Woods system than a system of floating exchange rates (Urban and Straumann 2012). Sterling broke the peg to gold in September 1931, but most of Britain's main suppliers of food and raw materials retained their peg to sterling as part of the sterling bloc. There is a debate on whether or not Sweden's experience with price level targeting from 1931 to 1939 qualifies as a regime change (Berg and Jonung 1999, Straumann and Woitek 2009). We are sceptical, but even if we accept that Sweden was a pioneer, it would have been an exception confirming the rule. The usual reaction of monetary authorities to external shocks was a gradual adjustment.

As for the post-war period, even in Canada, which is widely noted as adopting formally a floating exchange rate regime from 1950 to 1962, there is clear evidence of significant intervention by the Bank of Canada to stabilize the nominal exchange rate (Siklos 2009).

From August to December 1971, despite the growing consensus among professional economists, policy-makers and central bankers clung tenaciously to the pegged exchange rate regime, going through considerable contortions to replace it at different exchange rates under the Smithsonian Agreement. This patch on the system was short-lived with the float of sterling in June 1972 and of European currencies and the Yen in February/March 1973. Even the float of sterling was only meant to be temporary until a (defendable) new equilibrium rate could be found; it was chosen because the government did not think that another pegged rate would be credible (Schenk 2010). In Switzerland, neither the monetary authorities nor the executives of the large commercial banks and the exporting sectors believed that a floating exchange rate would be appropriate for the country. The regime change was not voluntary, but a result of free capital movements and non-membership in the European Economic Community (Straumann 2010).

The same kind of logic took its course in Scandinavia in the early 1990s. Until 1992, Sweden aimed at joining the European Union and ultimately the European Monetary System. The EMS crisis of 1992 forced the monetary authorities to abandon the unilateral peg against the DM. Again, the combination of free capital movements and non-membership in the European Union did not leave them any choice but to devalue. Even after the devaluation, floating was seen as a temporary solution. Only when it became obvious that a floating exchange rate had its advantages and a popular vote of 2003 rejected joining the Euro zone, the authorities accepted it as a permanent solution. Norway waited even longer with the regime change. After the devaluation of 1992, Norges Bank was still charged with stabilizing the exchange rate vis-à-vis the Ecu. Only after big swings of the oil price made it increasingly difficult to combine a stable exchange rate with a monetary policy aimed at stabilizing prices and the business cycle, Norges Bank unilaterally abandoned the peg in the late 1990s (Kleivset 2012). Accordingly, the government adjusted the legal framework to the new practice and introduced inflation targeting. Ideas, not interests were the predominant reason for this striking reluctance to embrace floating exchange rates.

The Role of Central Banks

How "useful" have central banks been for the evolution of the international monetary system? The Norwegian example suggests that they have frequently exerted a crucial influence when a

country altered its exchange rate regime. And there are other episodes that have been invoked to reveal their important role. Perhaps the most famous example is Britain's restoration of the gold standard in 1925.The Chancellor of the Exchequer Winston Churchill is said to have followed the advice given by Bank of England governor Montagu Norman when he decided to bring sterling back to the pre-war parity. In a similar vein, it was the Bundesbank that convinced the German government to leave the Bretton Woods system in March 1973 (Emminger 1986).

A closer historical examination suggests, however, that these episodes may overstate the power of central banks in shaping the international monetary system. In every country at every point in time, the final choice of a regime has always been in the hands of the government. It may be true that the governor of the Bank of England convinced the chancellor to restore the gold standard at the pre-war parity, but there were other voices in the Treasury that also supported this policy. In the end it was Churchill, not Norman who made the final decision. Likewise, the Bundesbank would never have taken the decision to let the DM float against the US Dollar, if the then finance minister Helmut Schmidt had not favoured it for some time. And sooner or later it is likely that the Norwegian government would have abandoned the idea of a stable exchange rate anyway. Norges Bank probably only accelerated the decision making process.

More generally, there is no major turning point in the history of the international monetary regime in which a central bank made a crucial difference (Capie et al. 1994). Britain's return to the gold standard in 1819 was decided by the Parliament, and it was the government that suspended the gold standard in 1914. Likewise, as we have seen, the government decided to bring sterling back to the pre-war parity. The Bank of England was helpless in avoiding the 1931 devaluation and subsequently lost its reputational influence for several decades. Similarly, the 1992 exit from the European Monetary System (EMS) was due to market forces and not the result of a new strategy concocted at Threadneedle Street. The Banque de France has never been fully independent and France's decision to limit silver coinage was taken by the government, not the central bank. As in Britain, the suspension of the gold standard in 1914, the resumption of convertibility in the 1920s and the devaluation in the 1930s were all government affairs. Similarly, the Banque de France was completely disempowered in the following decades and remained strongly integrated into the government until the introduction of the euro in 1999. In Germany, the decision to adopt the gold standard after the Franco-

Prussian War was taken before the Reichsbank was founded. In the first half of the 20th century a central bank could not have been more powerless than in Germany. After 1949 the Bundesbank held a strong position, but The Snake, the European Monetary System and the Euro were the result of decisions taken by the government, in some cases against the advice of the Bundesbank. Likewise, the opposition of the then Bundesbank President Karl Otto Pöhl against technical aspects of the German monetary unification was rejected by Chancellor Helmut Kohl. The role of central banks in choosing the exchange rate regime was even secondary where central banks enjoyed a particularly high degree of independence like in Switzerland. Founded in 1905, the Swiss National Bank (SNB) had no saying when the franc went off gold in 1914, went back to gold in 1925 and was devalued in 1936. Likewise, the 1971 revaluation was a decision taken by the government. The shift to floating in January 1973 was executed by the SNB, but only after consultation with the Federal Council.

In the United States, the Federal Reserve was irrelevant when in April 1933 Franklin Delano Roosevelt decided to devalue the dollar. The main architect of the Bretton Woods system was Harry Dexter White of the Treasury, not Fed Chairman Marriner S. Eccles, and the accord was made effective by Congress. Throughout the 1950s, 1960s and 1970s the Treasury remained the leading institution when it came to questions of the international monetary regime. The timing of the end of the Bretton Woods system in August 1971 appears to have been mainly determined by President Nixon and his hawkish Treasury Secretary John Connally, although in early planning for the suspension of gold convertibility in 1969 the future Chair of the Federal Reserve Bank, Paul Volcker led a working group on contingency planning that called for unilateral action if a negotiated realignment of exchange rates could not be negotiated (Schenk, 2010; 318).

Even if central banks had exerted more power in these crucial moments, the outcome may not have been different, because their views mostly followed a broader consensus. It is true that, because of their mandate and the conservative character of monetary policy, central banks have always been particularly cautious with regard to regime change. But they were hardly outside of the consensus. As we have mentioned above, the belief in the benefit of a metallic standard was overwhelming in the period between the end of the Napoleonic Wars and the 1930s when the interwar gold standard was dissolved. Montagu Norman was not the only one to support the pre-war parity; a large part of the population endorsed this policy. The same is true for the five small European countries that had survived the war without

occupation and followed the UK in their exchange rate policy. Central bankers such as Nicolai Rygg of Norges Bank shared the opinion held by a large majority of politicians and voters who were against inflation and devaluation. Likewise, the aversion against flexible exchange rates and competitive devaluation that served as an important motivation for the construction of the Bretton Woods system in 1944 was shared both by central banks and government officials. In the 1960s, central bankers were against shifting to floating exchange rates when the Bretton Woods system began to crumble, just like the overwhelming majority of governments. In the late 1960s, a senior official of the Swiss National Bank told Milton Friedman that flexible exchange rates would be too volatile to handle, "because the stream of goods is superseded by streams of capital which obey other laws." In Scandinavia, central bankers maintained this view until the early 1990s, in accordance with their governments. Only when it came to European monetary integration can we observe divergent views between the central bankers and the politicians. In this case, the very future of national central banks was under threat from the political impetus to every closer monetary integration.

Yet, while central banks were secondary with respect to regime choice, we have shown that they were highly "useful" regarding regime management. In particular, when the system was destabilised by a severe financial crisis, their actions mattered greatly. They provided liquidity to the banking system, shipped gold, silver or exchange reserves abroad, pooled reserves, established swap and credit lines, or shared important information. Judging from the result, we could easily conclude that they were highly successful in the 19th century, while they utterly failed in the 20th century. For, the metallic standards between 1815 and 1914 proved stable, whereas the interwar gold standard, the Bretton Woods system and the European monetary arrangements were only temporarily successful. The first impression is misleading, however. As we have explained earlier sections, stabilising a fixed exchange rate regime in the 20th century was much more challenging than in the 19th century, as the spread of democracy after 1918 reinforced the call for an independent monetary policy and the size and liquidity of global financial markets dwarfed the resources at the control of central banks.

Accordingly, the fixed exchange rate regimes of the 20th century normally ended because of divergent national priorities and not because central banks mismanaged financial crises. A clear exception is the failure of the Federal Reserve to contain the banking panics of the 1930s. Instead of pursuing an expansionary monetary policy to stabilise the money supply, it concentrated on keeping the monetary base constant (Friedman and Schwartz 1963, Meltzer

1963). Admittedly, the US banking system was particularly weak due to the high share of unit banking, but there is no doubt that the Fed could have done more to mitigate the negative macroeconomic consequences of the banking crises in the early 1930s (Carlson and Mitchener 2009, Calomiris 2011). But the global financial crisis of 1931 had more complex origins. The German crisis of 1931, the biggest financial crisis in Europe, resulted from its high share of foreign debt, a weak banking system and a revisionist consensus within the political elite. Hans Luther was perhaps not the best central banker in German history, but he had no room of manoeuvre because a run on the German currency was developing (James 2013, p. 125). Open credit lines provided by France, the UK or the US may have made a crucial difference, but central bankers were inhibited by the political obstacles to offering a major credit to Germany. And once the German crisis escalated, sterling quickly followed. The combination of an overvalued currency, the political costs of austerity, and a drain of foreign reserves as a result of the international liquidity crisis forced the Bank of England and the government to suspend the gold standard.

As for the end of Bretton Woods, there little evidence that central banks were responsible. Indeed, as we have shown above, they went great lengths to stabilise the Bretton Woods system by intensifying their cooperation like never before (Toniolo 2005). But it helped only to postpone the day of reckoning, because policy goals diverged between the core countries. Likewise, the failure of the Snake in the 1970s was due to divergent economic policies among the constituent government. The German state was determined to reduce inflation, while the governments of France, Italy and the UK sought to boost employment by expansionary fiscal and monetary policy. The EMS crisis of 1992/93 was a direct result of the asymmetries between the re-united Germany and the rest of the EMS. Germany's boom required a restrictive monetary policy, while most other member countries were already in recession, demanding an expansionary monetary policy.

When we look at the numerous financial crises of the 19th century, we can identify several instances in which central banks or more broadly monetary authorities reinforced the crisis instead of containing it. Prior to 1850, even the most experienced central banks at the time, the Bank of England and the Banque de France, were struggling with how to contain a financial crisis. In many cases, they rationed the credit during the crisis, thus acerbating the downturn. Only in the 1850s and 1860s did they find their role as a lender of last resort (Bignon et al. 2012). But as already mentioned, the UK government suspended convertibility

in 1847, 1857 and 1866 because of the financial panic. Furthermore, in the 1850s and 1860s the Bank of England and the Banque de France failed to cooperate. Instead they were driving their discount rates up in order to attract gold. Likewise, Germany's shift to the gold standard went with some international friction. In 1873, the Bank of England decided to push up its discount rate to 9 percent towards the end of the year in order to stop the flow of gold from London to Berlin (Flandreau 1997). Only in two cases, in 1890 and 1907, did central banks act swiftly to contain a financial crisis. Whether or not this was due to a cooperative spirit, remains disputed among economic historians (Eichengreen 1992, Flandreau 1997). But there is no doubt that central banks contributed to the survival of the international monetary regime.

5. Conclusion

This survey has emphasized the important tensions between the central bank's responsibility for setting and delivering monetary policy while the choice of exchange rate regime is outside its direct control. The international monetary system has also affected the nature and extent of central banks. Thus, the spread of central banking has been traced to the origins of the 19th and early 20th century pegged or fixed exchange rate eras. The management of national currencies emerged as an important policy instrument and central banks were required to operationalize the pre-war and inter-war gold standards in most countries. In the interwar period, the hope expressed at Genoa for greater central bank cooperation to manage the regime chosen by governments was not realized. But when exchange rate stability was restored under the Bretton Woods system, central bank cooperation became essential to the operation of the system. Some of the range of operations devised by central bankers to prop up the fixed exchange rate system, such as bilateral swap networks have out-lived the international monetary system they were designed to support and the BIS continues to have an important role in bringing central bankers together to exchange views and information confidentially. Once fixed exchange rates were abandoned in favour of inflation targeting in the context of globalized capital markets, central bank independence became more prevalent. In this way, the configuration of the international monetary system continues to affect the nature of central banking institutions.

References

Attard, B. ‘The Bank of England and the Origins of the Niemeyer Mission, 1921-30’, *Australian Economic History Review,* vol. 32, March 1992, no. 1, pp. 66-83.

Berg, Claes & Jonung, Lars, 1999. "Pioneering price level targeting: The Swedish experience 1931-1937," Journal of Monetary Economics, Elsevier, vol. 43(3), pages 525-551, June.

Bordo, M.D., O.F. Humpage and AJ Schwartz, US foreign exchange market intervention during the Volcker-Greenspan era, NBER Working Papers, 16345, 2010.

Bordo Michael D. & Kydland Finn E., 1995. "The Gold Standard As a Rule: An Essay in Exploration," Explorations in Economic History, Elsevier, vol. 32(4), pages 423-464, October.

Bordo, Michael D. & MacDonald, Ronald, 2012. Credibility and the International Monetary Regime: A Historical Perspective, Studies in Macroeconomic History, Cambridge and New York: Cambridge University Press.

Bordo, Michael D. & Rockoff, Hugh, 1996. "The Gold Standard as a “Good Housekeeping Seal of Approval”," The Journal of Economic History, Cambridge University Press, vol. 56(02), pages 389-428, June.

Calomiris, Charles, 2011. “Banking Crises and the Rules of the Game”, in Monetary and Banking History: Essays in Honour of Forrest Capie, edited by Geoffrey Wood, Terence Mills, and Nicholas Crafts, Routledge, 2011, 88-132.

Capie, Forrest & Fischer, Stanley & Goodhart, Charles & Schnadt, Norbert, 1994. The Future of Central Banking. The Tercentenary Symposium of the Bank of England, Cambridge and

Carlson, Mark & Mitchener, Kris James, 2009. "Branch Banking as a Device for Discipline: Competition and Bank Survivorship during the Great Depression," Journal of Political Economy, University of Chicago Press, vol. 117(2), pages 165-210, 04.

Chwieroth, J.M. (2010) Capital Ideas: the IMF and the Rise of Financial Liberalization, Princeton University Press.

De la Torre, A, A Ize, and S Schmukler (2011), Financial Development in LAC: The Road Ahead, Washington, DC: World Bank.

Eichengreen, Barry & Hausmann, Ricardo, 1999. Other People's Money: Debt Denomination and Financial Instability in Emerging Market Economies, Chicago: The University of Chicago Press.

Eichengreen, Barry & Temin, Peter, 2000. "The Gold Standard and the Great Depression." Contemporary European History 9, 2 (2000), pp. 183-207.

Eichengreen, Barry (1992) Golden Fetters. The Gold Standard and the Great Depression 1919-1939, Oxford and New York: Oxford University Press.

Eichengreen, Barry, 1996. Globalizing Capital. A History of the International Monetary System, Second Edition. Princeton: Princeton University Press.

Emminger, Otmar, 1986. D-Mark, Dollar, Währungskrisen : Erinnerungen eines ehemaligen Bundesbankpräsidenten, Stuttgart : Deutsche Verlags-Anstalt.

Feinstein, Charles & Temin, Peter & Toniolo, Gianni, 1997. The European Economy between the Wars, Oxford: Oxford University Press.

Flandreau, Marc & James, Harold, 2003. Introduction, in Marc Flandreau, Carl-Ludwig Holtfrerich, Harold James (eds.), International Financial History in the Twentieth Century: System and Anarchy, Cambridge: Cambridge University Press, pp. 1-17.

Flandreau, Marc, 1997. "Central Bank Cooperation in Historical Perspective: A Sceptical View," Economic History Review, Economic History Society, vol. 50(4), pages 735-763, November.

Flandreau, Marc, 2002. "Water Seeks a Level": Modeling Bimetallic Exchange Rates and the Bimetallic Band," Journal of Money, Credit and Banking, Blackwell Publishing, vol. 34(2), pages 491-519, May.

Flandreau, Marc, 2004. The Glitter of Gold: France, Bimetallism and the Emergence of the International Gold Standard 1848-1873, Oxford and NewYork: Oxford University Press.

Friedman, Milton & Schwartz, Anna, 1963. A Monetary History of the United States, 1867-1960, Princeton: Princeton University Press.

Friedman, Milton, 1990. "Bimetallism Revisited," Journal of Economic Perspectives, American Economic Association, vol. 4(4), pages 85-104, Fall.

Grauwe, Paul De, “The Governance of a Fragile Eurozone,” Australian Economic Review 45 (3), pp. 255-268, September 2012.

Gros, Daniel & Thygesen, Niels, 1992. European monetary integration, London : Longman.

Irwin, Douglas A., 2010. “Did France Cause the Great Depression?, ”NBER Working Papers 16350, September.

James, Harold, 2012. Making the European Monetary Union: The Role of the Committee of Central Bank Governors and the Origins of the European Central Bank, Cambridge (Mass.): Harvard University Press.

James, Harold, 2013. “The 1931 Central European Banking Crisis revisited”, in Essays in Modern German and Austrian Economic History, edited by Hartmut Berghoff, Jürgen Kocka, Dieter Ziegler. Cambridge: Cambridge University Press, pp. 119-132.

Kaplan J. and Schleiminger, G., *The European Payments Union; financial diplomacy in the 1950s*, Oxford, 1989.

Klein. Michael W. & Shambaugh, Jay C., 2010. Exchange Rate Regimes in the Modern Era, Cambridge (Mass.) and London: The MIT Press.

Kleivset, Christoffer, 2012. “From a fixed exchange rate regime to inflation targeting. A documentation paper on Norges Bank and monetary policy, 1992-2001”, Norges Bank Working paper 13/2012.

Laidler, David, 1999. Fabricating the Keynesian Revolution

Meltzer, Allan H., 2010. "A History of the Federal Reserve, Volume 2, Book 1, 1951-1969," University of Chicago Press Economics Books, University of Chicago Press.

Michael D. Bordo & Marc Flandreau, 2003. "Core, Periphery, Exchange Rate Regimes, and Globalization," NBER Chapters, in: Globalization in Historical Perspective, pages 417-472, National Bureau of Economic Research, Inc.

Mitchener, Kris James & Weidenmier, Marc D., 2008. "The Baring Crisis and the Great Latin American Meltdown of the 1890s," The Journal of Economic History, Cambridge University Press, vol. 68(02), pages 462-500, June.

Ögren, Anders, 2012. Central Banking and Monetary Policy in Sweden During the Long Nineteenth Century, in Lars Fredrik Øksendal and Anders Ögren (eds.), The Gold Standard Peripheries: Monetary Policy, Adjustment and Flexibility in a Global Setting, Basingstoke: Palgrave Macmillan.

Øksendal, Lars Fredrik, 2012. “Freedom for Manouevre. The Gold Standard Experience of Norway, 1874-1914”, in Lars Fredrik Øksendal and Anders Ögren (eds.), The Gold Standard Peripheries: Monetary Policy, Adjustment and Flexibility in a Global Setting, Basingstoke: Palgrave Macmillan.

Reinhart, Carmen & Rogoff, Kenneth, 2009. This Time Is Different: Eight Centuries of Financial Folly, Princeton: Princeton University Press.

Ritschl, Albrecht, 2013. “Reparations, Deficits, and Debt Defaults, “ in Nicholas Crafts and Peter Fearon, The Great Depression of the 1930s: Lessons for Today, Oxford: Oxford University Press, pp. 110-139.

Schenk, Catherine, 2010. The Decline of Sterling: Managing the Retreat of an International Currency, 1945–1992, Cambridge: Cambridge University press.

Siklos, Pierre L., 2009. "Not quite as advertised: Canada's managed float in the 1950s and Bank of Canada intervention," European Review of Economic History, Cambridge University Press, vol. 13(03), pages 413-435, December.

Straumann, Tobias & Woitek, Ulrich, 2009. "A pioneer of a new monetary policy? Sweden's price-level targeting of the 1930s revisited," European Review of Economic History, Cambridge University Press, vol. 13(02), pages 251-282, August.

Straumann, Tobias, 2010. Fixed Ideas of Money: Small States and Exchange Rate Regimes in Twentieth-Century Europe, Cambridge and New York: Cambridge University Press.

Swoboda, Alexander (1986), “Credibility and Viability in International Monetary Arrangements,” *Finance and Development* 23, pp.15-18.

Toniolo, Gianni, 2005. Central Bank Cooperation at the Bank for International Settlements, 1930-1973, Cambridge and New York: Cambridge University Press.

Ugolini, Stefano, 2012. "The origins of foreign exchange policy: the National Bank of Belgium and the quest for monetary independence in the 1850s," European Review of Economic History, Oxford University Press, vol. 16(1), pages 51-73, February.

Urban, Scott & Straumann, Tobias, 2012. "Still tied by golden fetters: the global response to the US recession of 1937-38", Financial History Review, , Volume 19, Issue 1, April 2012, pp. 21-48.

Vincent Bignon & Marc Flandreau & Stefano Ugolini, 2012. "Bagehot for beginners: the making of lender-of-last-resort operations in the mid-nineteenth century," Economic History Review, Economic History Society, vol. 65(2), pages 580-608, 05.

Wicker, Elmus, 1996. The Banking Panics of the Great Depression, New York: Cambridge University Press.