Proposals for Full-Reserve Banking: A Historical Survey from David Ricardo to Martin Wolf

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ABSTRACT

Full-reserve banking, which prohibits private money creation, has not been implemented since the 19th century. Thereafter, bank deposits became the dominant means of payment and have retained their position until today. The specific contribution of this paper is to provide a comprehensive outlook on the historical and contemporary proposals for full-reserve banking. The proposals for full-reserve banking became particularly popular after serious financial crises.

Keywords: full-reserve banking, government money, history, proposal.

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1 INTRODUCTION

Under full-reserve banking (FRB) private money creation is prohibited. Today it would mean that banks could no longer create new money in the form of bank deposits in the process of bank lending. In other words, every deposit would be backed by government money (i.e. cash, central bank reserves and government securities). As there would be only government money circulating, FRB is also sometimes referred as sovereign money or full-money. FRB aims at separating the payments system from the financing system as well as monetary policy from credit policy.

FRB has been proposed and even implemented as a solution to financial instability a number of times in the past. Thus, the idea of monetary reform should be seen as a historical continuum. In the UK the Bank Charter Act of 1844 prohibited private money creation through fractional-reserve banking by requiring that bank notes (which were the prevailing means of payment) should be fully-backed by government money. The National Acts of 1863 and 1864 achieved the same goal in the US.

The prohibitions, however, did not include bank deposits, which slowly became the dominant means of payment. In the 1930s, the Chicago Plan was almost adopted in the US, but the FRB idea was watered down in the Banking Acts of 1933 (better known as the Glass-Steagall Act) and 1935. Instead of preventing private money creation in the form of bank deposits, the Banking Acts separated commercial and investment banking, provided deposit insurance and improved government's control over monetary policy and money supply. Currently, there are no examples of economies where the majority of money does not come into existence as a consequence of bank lending.

Now, in the aftermath of the Global Financial Crisis (GFC), preventing private money creation in order to ensure financial stability has once again become a topical issue. For instance, Martin Wolf (2014a; 2014b), the chief economics commentator at the *Financial Times*, supports FRB openly; the UK parliament recently debated on money creation; Switzerland is preparing a referendum on FRB; and Iceland's Parliamentary Working Group (2014) is considering how to implement FRB into practice.

The premise of this study is that the banking system is in the heart of global (financial) capitalism. FRB could offer a mechanism to reduce the influence of banks and thus change the power relations within global capitalism. In other words, FRB could have significant structural effects on society when financialization and the influence of the financial sector would be reduced. FRB would also foster democracy as new money would not be allocated by banks to most profitable objects, but instead it would be allocated through democratic decision-making of the parliament. In contrast to the nationalization of the whole banking system, FRB would only nationalize money creation while credit allocation would mostly be left to the private sector.

In this paper I will focus on the FRB proposals put forward in the US and UK. The reason for this is that the US and UK are in the heart of global (financial) capitalism and since the Second World War have been a key influence setting global financial standards through international institutions such as the International Monetary Fund (IMF) and the Bank for International Settlements (BIS).

The specific contribution of this paper is a comprehensive mapping exercise to the history of full-reserve banking proposals. Such a survey on historical and contemporary proposals for FRB has not been made before – especially including the recent new wave of FRB proposals sparked by the GFC.

This paper is structured as follows. In Chapter 2 I will present the first FRB proposals staring from David Ricardo. In Chapter 3 I will move to the Chicago Plan outlined in 1930s during the New Deal banking reforms before discussing the FRB proposals of the latter half of the 20th century in Chapters 4 and 5. In Chapter 6 I will present the recent new wave of FRB proposals following the GFC. Finally, I will draw some concluding remarks in Chapter 7.

2 FIRST STEPS

The first proposal for FRB can be traced back to David Ricardo. In 1823, Ricardo (1951) drafted a "Plan for the Establishment of a National Bank" in which he argued that money creation should be separated from lending by requiring the issuing department to hold 100 % in gold reserves. Ricardo's plan was a 100 % reserve plan, but as reserves it accepted only gold. The plan was published in 1824 six months after his death. According to Phillips (1994a), Ricardo's plan served as a guideline for the Bank Charter Act of 1844.

As described in the introduction, Bank Charter Act passed in the UK in 1844 and it effectively implemented FRB. The act required full-backing of bank notes, which were the dominant means of payment at the time, but it did not cover bank deposits. Hence, over time banks were able to substitute bank notes with bank deposits. This slowly led to deterioration of FRB.

The National Currency Act of 1863 and the National Banking Act of 1864 implemented FRB requirement for all national banks in the US. According to McCallum (1989, 318), these acts required national bank notes to be 111,11 % backed by government bonds (so it was even more than *full*-reserve banking as it imposed a 111,11 % reserve requirement). Later, according to White (1983, 11), Congress imposed a 10 % tax on any new issuance of bank notes by state-chartered banks. This led banks, both national and state-chartered, to reduce the issuance of bank notes. As in the UK, the US banks were, nevertheless, able to undermine the reform by increasing their issuance of demand deposits.

Ludwig von Mises (1912) presented his brief proposal for FRB arguing that there are two reasons why FRB should be adopted. Firstly, the use of fiduciary money (i.e. it represents dual sides of a balance sheet) would be destabilizing and, secondly and more importantly, human influence on the credit system should be eliminated. As cash and central bank reserves are also fiduciary money, it is quite obvious that von Mises is arguing for a full-reserve gold standard (or some other metal standard). Thereby, the FRB proposal of von Mises resembles substantially Ricardo's proposal almost a century earlier.

Frederick Soddy was a Nobel Prize winner in chemistry in 1921, but he was also an economist. Soddy (1926) pointed out the difference between real wealth (buildings, machinery etc.) and virtual wealth (money and debt). Real wealth is subject to inescapable entropy law of thermodynamics (depreciation), while virtual wealth is subject only to laws of mathematics (compounding at the rate of interest instead of depreciating). As a solution to this imbalance Soddy (1926) suggested FRB. Soddy's economic views, however, were largely ignored by his contemporaries, but were later applied by ecological economists as Daly (1980) revived Soddy's idea of FRB.

Even though it was implemented in the 19th century both in the UK and US, FRB was unable to endure as near-monies emerged and finally replaced bank notes as a dominant means of payment. These near-monies, especially bank deposits, continue to occupy the position of the main means of payment. Many have drawn the conclusion from this that FRB is impossible or at least very problematic as it would inevitably lead to emergence of other near-monies, which would ultimately replace also bank deposits. This, however, has not stopped others from developing proposals for FRB, which would also account for near-monies.

3 CHICAGO PLAN

During Roosevelt's New Deal banking reforms FRB re-emerged in the form of the Chicago Plan. The Chicago Plan was presented as a way out of the Great Depression as well as providing a long-term reform of the financial system.

This chapter is divided into three sections. First, I outline proposals for FRB. Second, I present legislative initiatives implementing the FRB principle. Third, I describe academic reactions to FRB.

3.1 PROPOSALS

The first version of the Chicago Plan was provided by Knight et al (1933) in the Chicago Memorandum of March 1933. The memorandum was from Garfield Cox, Aaron Director, Paul Douglas, Albert Hart, Frank Knight, Lloyd Mints, Henry Schultz and Henry Simons and it was signed by Frank Knight. All were members at the University of Chicago. Later Douglas became a senator and is still known in economics for Cobb-Douglas production function. The recipient of the memorandum was Henry Wallace, the Secretary of Agriculture.

In short, the proposal would require FRB in currency and central bank reserves, which would be backed by government debt in the books of the Federal Reserve Banks. The detailed proposal included 1) federal ownership of the Federal Reserve Banks, 2) giving Congress the sole power to grant charters for deposit banking, 3) two-year transition period for deposit banking, 4) creation of new type of deposit bank institution with 100 % reserve requirement in notes and deposits at the Federal Reserve Banks, 5) abolition of reserve requirements for Federal Reserve Banks, 6) replacement of private credit with Federal Reserve Bank credit within two-year transition period, and 7) restricting currency to only Federal Reserve notes. The objective of the proposal was reflation (term coined by Irving Fisher to indicate inflation after deflation) of wholesale prices by 15 percent, until a long-run currency-management rule would be established. As a long-run currency-management rule the group proposed different versions of the stabilization of the money supply (either total quantity M, total circulation MV, or per-capita total circulation MV/N; where M is the money supply, V is the velocity of circulation and N is the number of inhabitants).

The Chicago Memorandum of March 1933 was distributed immediately after the Emergency Banking Act had passed. According to Phillips (1994a), Wallace handed the Chicago Plan to President Roosevelt in two and half weeks after his inauguration. The Chicago Plan was sent to a number of recipients including John Maynard Keynes. According to Phillips (1994a), Keynes briefly expressed his interest in the plan, but did not elaborate his views in more detail.

The second version of the Chicago Plan was provided by Simons et al (1933) in the Chicago Memorandum of November 1933. The memorandum was signed by the same group, but, according to Phillips (1994a), it was evidently written only by Henry Simons. The revised Chicago Plan included the same items as the March 1933 version, but added a simple rule for monetary policy and a price-level target set by Congress. It was argued that monetary policy should be subject to a rule instead of being discretionary. The goal could be, for instance, price stability, steady growth of money supply or some other goal specified by Congress. The proposal did not include deposit insurance nor central bank discount window. In addition, the proposal rejected the gold standard.

Proponents of FRB can also be found within the US administration. In 1934, Secretary of Treasury Henry Morgenthau appointed Jacob Viner to assemble a group to come up with ideas in money, banking and public finance. The group was referred to as the "Freshman Brain Trust". It included among others Lauchlin Currie and Albert Hart, who were openly advocates of FRB, and Jacob Viner who was at least sympathetic to it. Later in that year Currie became a personal assistant to the governor of the Fed, Marriner Eccles.

Lauchlin Currie submitted his proposal for FRB to Morgenthau. In Currie's (1934) proposal banks would initially meet the 100 % reserve requirement with a non-interest-bearing note from the Federal Reserve Banks. The note could be left outstanding indefinitely or alternatively the note could be retired over a period of time from 5 to 20 years by turning over government bonds to the Federal Reserve Banks. As the discount window would be abolished, the money supply could only be affected with open market operations. Currie (1934) was against an independent monetary authority as he argued that democracy should apply to monetary policy as well. Another proposal for FRB emanating within the administration came from Gardiner Means (1933) who was working at the Department of Agriculture.

According to Phillips (1994a), Currie had a major influence on the administration version of the Banking Act of 1935. He did not, however, suggest FRB to be included in the administration version of the bill as he saw it politically unacceptable. Phillips (1994a) argued that Currie compromised on the 100 % reserve goal, and in the end his compromise prohibited any possibility of such a reform to be achieved in the future. Nevertheless, Currie was able to include in the administration version of the bill that the Federal Reserve Board would have unlimited power to alter the reserve requirements with the view of they being eventually raised to 100 %. Senator Carter Glass, however, was able to rewrite the bill in Congress to limit the Fed's ability to change reserve requirements higher than 30 %. It goes without saying that this prohibited any attempt to raise the reserve requirement to 100 %.

President Roosevelt and Irving Fisher, according to Phillips (1994a), were frequently in touch. Roosevelt requested Fisher to provide comments on his economic policies. Fisher first became aware of FRB as he was handed the Chicago Memorandum. Fisher was working on his own version of FRB and provided a draft of his book *100 % Money* to Roosevelt. Afterwards, Fisher urged

Roosevelt to consider the proposal a number of times. Roosevelt and Fisher continuously exchanged letters on FRB and Roosevelt even showed some interest in it, but he was not willing to embrace the reform as the bankers were opposing it. Nevertheless, Roosevelt forwarded Fisher's draft to his Secretary of Treasury Henry Morgenthau.

In 1935, Irving Fisher published his own version of FRB. Fisher's (1935) book *100 % Money* was largely in line with the Chicago Plan, but it somewhat differed in its policy target. Fisher proposed a price-level stabilization rule instead of stabilization of monetary aggregates. Fisher (1935) argued that the FRB system would 1) end bank runs; 2) reduce bank failures; 3) reduce government debt; 4) simplify the monetary and banking system; 5) eliminate great inflations and deflations; and 6) mitigate booms and depressions.

3.2 Legislation

During the New Deal reforms legislation to implement FRB was introduced. FRB was already made possible in the Emergency Banking Act of 1933. The act permitted banks to offer deposit accounts backed with cash, central bank reserves or government bonds. In other words, these deposit accounts operated according to the FRB principle. There were, of course, other deposit accounts as well and, thus, only a small fraction of deposits became fully-backed by government money. For the banks the full-reserve requirement of these accounts was easy to satisfy as the Fed flooded the banking system with excess reserves by changing its policy to issue reserves against almost any assets of the banks.

The idea of FRB was also practiced without legal obligations on bank-level. According to Phillips (1994b), John M. "100 %" Nichols put the theory fully into practice by successfully operating a bank according to the FRB principle for over a decade. According to O'Hara and Easley (1979, 744), funds in the postal savings accounts could only be invested in government securities or placed in solvent national banks. Thus, also the postal saving system can be seen as a limited implementation of FRB.

There were also bills to fully implement FRB nationwide. According to Phillips (1994a), Henry Simons outlined and Robert Hemphill drafted a bill, largely based on the Chicago Memorandums, for Senator Bronson Cutting and Congressman Wright Patman. They introduced the bill S. 3744 "A bill to regulate the value of money" (H.R. 9855) in 1934. The goal of the bill was to correct the shortcomings of the Banking Act of 1933, which did not address the problem of the availability of credit and how to effectively control the money supply. As Phillips (1994a) put it: "Deposit insurance made banks 'safe' not by direct restrictions on their assets, but rather by the promise that the government would guarantee a percentage of the deposits in all banks, good and bad." In other words, deposit insurance succeeded in stopping bank runs, but it did not address the second primary function of banks: funding the capital development of the economy.

The bill would have made as lawful money cash and bank deposits fully-backed with either central bank reserves or government securities. The bill proposed 1) to segregate demand from savings deposits; 2) to require banks to hold 100 % reserves against their demand deposits; 3) to require banks to hold 5 % reserves against savings deposits; 4) to set up a Federal Monetary Authority (FMA) with full control over the supply of currency, the buying and selling of government securities, and the gold price of the dollar; 5) to have the FMA take over enough bonds of the banks to provide 100 % reserves against demand deposits; and 6) to have the FMA raise the price level to its 1926 level and keep it there by buying and selling government bonds.

Senator Cutting was, according to Phillips (1994a), personally disliked by President Roosevelt. This was one reason why the bill did not gain the support of the administration and, consequently, did not pass. Later, however, the bill was reintroduced as S. 2204. A significant blow to the FRB legislation came in May 1935, during the fierce debate over the Banking Act of 1935, when Senator Cutting died in an airplane crash. For the last time proposal for FRB was introduced by Senator Nye, but his amendment was defeated. The Banking Act of 1935 was a watered down version of Cutting and Patman's bill and – although reforming some aspects, for instance, allowing the Federal Reserve to alter reserve requirements and making deposit insurance permanent – it did not reform money to become fully-backed by government money. Although the Chicago Plan was not adopted, it did have a significant influence on the New Deal legislation. To sum up, Banking Acts of 1933 and 1935 gave the government better control over monetary policy and the money supply, but not full control over the money supply.

Phillips (1994a) gave four reasons why the FRB proposal was not adopted: 1) administration blundered in the handling of the banking legislation as it did not keep up to date Senator Glass; 2) the public was ill-informed; 3) Senator Cutting died; and 4) the Banking Act of 1935 was not believed to be the final New Deal banking legislation. Phillips (1994a) added that bankers were against the Chicago Plan as it was seen to reduce their profits. They resisted any changes to the status quo, unless it could be demonstrated that the new system would be even more profitable. Whittlesey (1935, 23) was pretty much of the same opinion as he saw that the proposal was opposed because free services of banks would no longer be free as well as bank owners would lose their main source of profits.

3.3 ACADEMIC REACTIONS

Only after the Banking Act of 1935 had passed, the Chicago Plan started to generate widespread academic interest. Most academic discussions were sympathetic to the plan: there were concerns about transition and details, but the goals were widely seen as desirable.

For instance, Douglas (1935), Whittlesey (1935), Hart (1935), Graham (1936) and Higgins (1941) advocated FRB but they emphasized different reasons. Hart (1935) argued that truly effective monetary control would be the main argument in favor of the reform, while Graham (1936) saw that the right to issue fiduciary money should be morally the prerogative of the government. Higgins (1941), on the other hand, argued that FRB would provide an automatic check on investments in excess of voluntary savings, which would mitigate the possibility of inflationary booms.

Angell (1935) merited the FRB scheme for making deposit insurance redundant. He was, however, critical of Fisher's and Currie's versions of the proposal, although he was sympathetic to the idea of FRB in general. The substance of the critique of FRB will be discussed in more detail in Chapter 4. In Angell's (1935) version the government would place a lien on the total assets of the banks equal to the value of new currency received and service charges would be avoided by banks paying a specified amount to a common pool and then receiving money from the pool relative to their demand deposits.

Lehman (1936, 37) argued that FRB would be desirable should the monetary system be build from scratch. The advantages of FRB would be eliminating bank runs and abolishing the destruction of demand deposits due to bank failures. However, he argued that the system was already made run-proof by deposit insurance and the widening of the discount window. Thus, he concluded that there is no point in adopting monetary reform anymore.

Hayek (1937) revived the proposal for FRB in gold. In his pure gold standard proposal deposits should not be backed with government money, but only with gold. Otherwise Hayek's proposal resembled the original Chicago Plan.

Watkins (1938) argued that FRB was in the middle of nationalization of the banking system and complete self-regulation. Both extremes would yield unwanted consequences. Watkins (1938, 44) cited Keynes: "Those (monetary) reformers, who look for a remedy by creating artificial carrying-costs for money through the device of requiring legal-tender currency to be periodically stamped at a prescribed cost in order to retain its quality as money, or in analogous ways, have been on the right track." Watkins (1938, 44) argued that FRB would be the analogous way that Keynes meant as it would raise service charges.

Douglas et al (1939) circulated a paper, which claimed that FRB was supported by nearly 300 economists while disapproved by only 43 economists. The paper was written by Paul Douglas, Irving Fisher, Frank Graham, Earl Hamilton, Willford King and Charles Whittlesey and it included many of the previous features of the FRB proposals. According to Allen (1977, 586), two years later the group also included John R. Commons and the supporters had grown to some 400 economists.

Although FRB might sound as a radical solution now, at the time it was presented as a moderate alternative to radical solutions such as the nationalization of the whole banking system (see e.g. Simons 1948, 332-333; Douglas 1935, 184-187; and Watkins 1938, 11). Now, it might also sound peculiar that demands for FRB came from the University of Chicago of which economics department is known for laissez faire policy prescriptions. According to Phillips (1994a), the founders of the Chicago School of Economics – Frank Knight, Henry Simons, Jacob Viner and Lloyd Mints – were indeed proponents of laissez faire in industry, but at the same time they did not question the right of the government to have an exclusive monopoly on money creation.

4 POST-WORLD WAR II

After the Second World War the atmosphere for reform was again propitious. Congressman Jerry Voorhis introduced a bill H.R. 3648 in 1945 to create a Monetary Authority and constitute it as the sole creator of money. According to Phillips (1994a), Voorhis worked closely with Fisher who had received until 1946 over 1100 positive responses out of 4662 members of the American Economic Association willing to endorse FRB (with no response from most of the members). However, the end of the political possibilities for FRB came already in 1946 elections, when Congressman Jerry Voorhis from California was defeated by Richard Nixon.

In the academia FRB was, nevertheless, not abandoned. After Irving Fisher died, Henry Simons (1948) continued to argue for FRB and Lloyd Mints (1950, 186-87) came out with his proposal.

Maurice Allais presented his version of FRB in 1948 in French. His views were not published in English until 1987 in Allais (1987). Allais (1987, 525) criticized fractional-reserve banking for: 1) the creation and destruction of money by private banks; 2) sensitivity of the credit mechanism to short-term economic fluctuations; 3) the basic instability engendered by borrowing short and lending long; 4) the distortion of income distribution by the creation of “false claims”; 5) the impossibility of control over the credit system; and 6) the inefficient control of the aggregate money supply.

As a remedy Allais (1987) suggested FRB, where all money creation would be the business of the state. Allais’s proposal resembled previous versions of the 100 % plan, but it differed in some important respects. He argued that banks should be required to borrow long and lend short, whereas at the time (and still now) they borrowed short and lent long.

Friedman (1948) suggested eliminating the private creation of money and the discretionary control of the money supply by the monetary authority. This would also mean the elimination of the discount window. Friedman (1948) argued that the chief function of the monetary authority should be to create money to meet government deficits, or destroy money when the government has a surplus. In a later proposal, however, Friedman departed from this view.

Friedman’s (1960) later proposal departed from the Chicago Plan by demanding that interest should be paid on reserves. This was the case because FRB would be, according to Friedman (1960), effectively a tax on the banking system. Friedman (1960, 74) argued that paying interest on reserves would reduce the incentive to evade the full-reserve requirement and to create near-monies. Friedman (1960, 65) also argued that holders of money balances and holders of government securities should be equally compensated. Friedman (1960, 70) saw “no technical problem of achieving a transition from our present system to 100 % reserves”.

Friedman (1969, 83) agreed on Simons’s FRB plan, but for different reasons. Friedman’s (1969, 83) aim was to reduce government interference with lending and borrowing and to allow greater freedom in the variety of borrowing and lending arrangements.

Rothbard (1962) argued that the central bank should be abolished and we should adopt a free-banking system. However, as the only eligible asset to back deposits, Rothbard suggested gold. In other words, he proposed a pure gold standard, that is, FRB in gold. Rothbard’s proposal is thus very similar to Hayek’s (1937) proposal.

5 TURN OF THE MILLENNIUM

After Friedman, FRB lost its interest in the academia and among policy-makers for a couple of decades. Proposals for FRB were, however, revived in the turn of the millennium, which generated more creative proposals such as deposited currency, narrow banking, Islamic banking and the idea to use mutual fund shares as the "reserve". Of course, there were also more traditional proposals including government money or gold as the asset to back deposits.

James Tobin's (1985; 1987) deposited currency proposal included the establishment of a currency functioning according to the FRB principle, while allowing other deposits as well. Thus, Tobin's (1985; 1987) deposited currency can be seen as limited or optional FRB. In other words, only a fraction (which size would be determined by the actions of various economic agents) of demand deposits would function according to the FRB principle. In Lainà (2015) I have made a similar proposal to allow central bank accounts for all economic agents in Finland. The main objective behind Tobin's (1985; 1987) proposal was to reduce the need for deposit insurance as it is subject to abuses. Deposited currency would be so safe that it would not need to be insured.

The turn of the millennium also saw proposals for "narrow banking" (sometimes called core banking), term coined by Litan (1987). Narrow banking resembles very much FRB. Yet, narrow banking differs from FRB in that it allows any "safe" asset to be the balancing item of bank deposits. The safe assets can be anything from central bank reserves to traditional bank loans such as mortgages – depending on the proposal. FRB allows only government money (cash, central bank reserves and government securities) as the balancing assets of bank deposits and, hence, it is one (the strictest) type of narrow banking. Litan (1987), Kareken (1986) and Spong (1996) labeled their proposals as narrow banking, although they would qualify as FRB proposals as they would impose similar restrictions on bank assets.

While Hotson (1985) and Schemmann (1991) wanted to carry out the Chicago Plan in a more modern context, Gordon Getty, according to Ferguson (1993), wanted to replace the financial system controlled by the Fed with a parallel system of mutual funds. Mutual fund shares would be effectively money backed by the asset portfolio. There would be no government insurance and no guarantee of par value clearance. This would be a full-reserve system, but not in government liabilities. Phillips (1994a, 187) remarked that one crucial problem in Getty's proposal is that it would require government money as a unit of account.

Islamic banking was also discussed as an alternative way to organize the monetary system. According to Phillips (1994a, 208-209), Islamic banking, which forbids charging interest, is a FRB system. Khan (1986, 1988), Khan and Mirakhor (1985) and Doak (1988) provide a detailed discussion on the connection between FRB and Islamic banking.

In 1998 Huerta de Soto (2009, ch. 9) proposed FRB following a very liberal line of argumentation of the Austrian school. He proposed a FRB system which would offer total freedom of choice in currency; implement free-banking; and abolish central banking. Thus, Huerta de Soto's proposal built especially on the FRB proposals of Ludwig von Mises (1912), Friedrich Hayek (1937) and Murray Rothbard (1962) who opposed any monetary system in which the government would have significant influence on monetary policy either through interest rates or the quantity of money. As Hayek (1937) and Rothbard (1962) demanded FRB only in gold, Huerta de Soto (2009, 739) made the same argument although after the initial transition to pure gold standard he was willing to accept "the spontaneous and gradual entrance of other monetary standards" as well.

Rowbotham (1998) concentrated on a holistic analysis of the current monetary system and on the reasons for monetary reform, but he also presented his version of how to concretely implement it. According to Rowbotham (1998), the fraction of government money should be gradually increased. He argued that new government-created money should be issued either through government spending or basic income. Rowbotham (1998, 275) recognized as the only possible adverse impact of FRB if everybody had saved so much that they all could decide simultaneously to live off their savings and not work. Nevertheless, he saw this as a very unlikely scenario.

Huber and Robertson (2000) presented a very detailed proposal for FRB. Their main argument was that seigniorage revenue should be restored as the sole privilege of the government. Hence, all new money would be issued as public revenue and it would be spent into circulation by the government. According to Huber and Robertson (2000), possible advantages of FRB would include greater equity and social justice; reduction in inflationary tendencies; greater economic stability, improvement in the safety of money; removal of distortions; reduction in incentives for environmentally unsustainable development; and transparency.

6 AFTERMATH OF THE GLOBAL FINANCIAL CRISIS

The GFC sparked a new wave of proposals for and academic research on FRB. Recently, Martin Wolf (2014a; 2014b), the chief economics commentator at the *Financial Times*, supported FRB openly; the UK parliament debated on money creation; Switzerland is preparing a referendum on FRB; and Iceland's Parliamentary Working Group (2014) is considering how to implement the idea into practice. FRB has indeed become a timely topic again.

First in this chapter I outline the contemporary proposals for FRB. Then, I describe legislative initiatives and civil movements advocating FRB. Finally, I present academic modeling of FRB.

6.1 Proposals

Positive Money probably presents the most detailed version of FRB so far in Jackson and Dyson (2012). The proposal is written in the UK context and it has been endorsed by *Financial Times* columnist Martin Wolf (2014a). Kolehmainen et al (2013) is my co-authored proposal which adapts Positive Money's proposal for Finland.

Jackson and Dyson (2012) argue that money should be an asset of the holder, but not a liability to anybody. Contrary to previous FRB proposals, Jackson and Dyson (2012) suggest that deposits should be treated off-balance sheet in accounting. That is, all deposits would be held in custody at the central bank (although they also provide an alternative treatment where deposits would be held on-balance sheet at the central bank). They argue that coins in the US are actually treated in this way even today.

The transition from the current banking system to FRB would be done in an overnight switchover in Positive Money's proposal. Jackson and Dyson (2012) adopt Currie's (1934) proposal that demand deposits would be replaced in the balance sheets of banks with a "conversion liability", which banks would have to repay to the central bank over a 10–20 year period of time. The objective of the conversion liability would be to reclaim seigniorage revenue from previously issued deposits back to the government. Thus, their proposal is in line with Huber and Robertson's (2000) previous proposal.

In Jackson and Dyson's (2012) system there would be two types of bank accounts: current accounts called as "transaction accounts" and savings accounts called as "investment accounts". Jackson and Dyson (2012) introduce as a catch-all requirement that a bank must be able to repay the total sum of its current accounts at any time. This would effectively prevent any money creation by banks.

Jackson and Dyson (2012) propose that an independent body would decide how much new money should be created in order to prevent political abuse. The newly created (destroyed) money would simply be added to (subtracted from) the government's budget and, subsequently, a political body such as the parliament would decide how the newly created money would be used (collected). Basically, there are four alternatives: increase government spending, cut taxes, make direct payments to citizens or pay down the national debt. Monetary policy target would be unaffected unless decided otherwise. That is, the independent body responsible for money creation would target inflation.

Jackson and Dyson (2012) give four main objectives that their proposal is supposed to accomplish. It should provide a stable money supply, reduce debt, re-align risk and allow banks to fail. Furthermore, they argue that their proposal should be able to tackle high unemployment, unaffordable housing, growing inequality and financial instability. According to Jackson and Dyson (2012), their proposal should also eliminate the growth imperative responsible for environmental degradation and allow more democratic decision-making (through parliament and savings accounts) on what sectors of the economy would receive funding.

Kotlikoff (2010), on the other hand, suggests a variant of FRB in which each pool of investments made by a bank would be turned into a mutual fund. This would mean that there would be no maturity mismatch between bank's assets and liabilities. Bank of England's former governor Mervyn King (2010) discusses FRB and shows cautious support for it – especially for Kotlikoff's version.

Herman Daly (2013) followed the arguments of Frederick Soddy (1926) and Lauchlin Currie (1934). He justifies FRB by arguing that it would better service a non-growing or de-growing economy. In addition, he argues that seigniorage revenue should entirely go to the government. In his version of FRB monetary policy should be subject to parliamentary decision-making instead of being independent.

Mayer's (2013a) proposal concentrates in the euro area and turns the establishing order of the EU Banking Union upside down. EU Banking Union means the establishment of Single Supervisory Mechanism (SSM), Single Resolution Mechanism (SRM) and common deposit insurance scheme for the euro area (and an opt-in possibility for non-euro area EU states). Until now only SSM has been achieved as the ECB took over financial supervision of the largest banks from national supervisors in November 2014. SRM, which may require laborious change of the EU Treaties, is only being planned. Moreover, common deposit insurance has been postponed into the indefinite future.

Mayer (2013a) argues that the EU Banking Union should have been established starting from common deposit insurance, then SRM and finally SSM. Instead of governments guaranteeing bank deposits, Mayer suggests that FRB should be adopted to make deposit insurance obsolete. After that, according to Mayer (2013a), establishment of SRM and SSM would be more straightforward and the EU Banking Union would be more functional.

In addition, Mayer (2013b) provides seven accounting options for the central bank how new money can be brought into circulation under FRB. For example, new money could be issued through negative equity. This would mean changing only the liabilities side of the central bank's balance sheet when issuing money. As the central bank cannot go bankrupt, it can operate with negative equity without any problems.

As bank deposits are run-prone liabilities of banks, Cochrane (2014) argues that banks should be funded 100 percent with equity. According to Cochrane (2014), obstacles of FRB can be overcome with technology as everybody can sell assets (such as equities) and obtain fully-backed money instantly. Cochrane (2014) sees capital requirements as inefficient regulation and proposes taxing short-term bank debt instead in order to test whether run-prone liabilities are really worth having around. Furthermore, Cochrane (2014) argues that the central bank should include everybody as its counterparties when issuing reserves.

Besides supporting Positive Money's FRB proposal in Wolf (2014a), Martin Wolf also came out with his own proposal. Otherwise Wolf's (2014b) proposal resembles to a large extent Positive Money' FRB proposal but it would also strongly increase capital requirements.

6.2 LEGISLATION AND CIVIL MOVEMENTS

After Congressman Jerry Voorhis was defeated by Richard Nixon in 1946 elections, there had not been any legislative initiatives to implement FRB in the US until the GFC. However, in 2011 Congressman Dennis Kucinich introduced a bill H.R. 2990 "National Emergency Employment Defense Act" (NEED Act) to implement FRB in the US. The draft version of the bill was known as the American Monetary Act. The bill, however, failed to pass.

In the UK, a member of parliament, Douglas Carswell, introduced in 2010 a short bill "Financial Services (Regulation of Deposits and Lending)" which, in effect, would implement FRB in the UK. Unsurprisingly, the bill did not pass. Positive Money (2013) has drafted a much more detailed bill to implement FRB in the UK, but it has not been introduced yet.

The UK parliament, nevertheless, debated on money creation for the first time in 170 years on 20 November 2014. The debate was titled as "Money Creation & Society". Although no voting on legislation followed the debate, it certainly raised the awareness of the monetary system and its alternatives among the members of the UK parliament.

In Iceland the parliament is considering how to concretely implement the idea of FRB into practice. Iceland's Parliamentary Working Group (2014) is preparing a report on the issue and it will be published in the near future. The report might even lead to legislation which would implement FRB in Iceland.

Worldwide there are a number of political parties, NGOs and civil movements demanding FRB. Reforming money to function according to the FRB principle is one of the main goals of the following political parties: Money Reform Party (UK), Canadian Action Party (Canada), Humanwirtschaftspartei (Germany) and Democrats for Social Credit (New Zealand). In Switzerland, Vollgeld-Initiative (Sovereign Money Initiative in English) is a project preparing a referendum on adopting FRB.

International Movement for Monetary Reform is an umbrella organization for national NGOs and civil movements propagating the idea of FRB. In addition to Positive Money in the UK, there are many national NGOs and civil movements advocating FRB, for instance, American Monetary Institute (US); Progressive Money (Canada); Sensible Money (Ireland); Fair Money (Australia); Positive Money NZ (New Zealand); Monetative (Germany); MoMo (Switzerland); Ons Geld (Netherlands); Monnaie Honnête (France); Moneta Positiva (Italy); Dinero Positivo (Spain); Boa Moeda (Portugal); Dinero Justo (Puerto Rico); Positiva Pengar (Sweden); Gode Penge (Denmark); Betra Peningakerfi (Iceland); and Suomen Talousdemokratia (Finland).

6.3 ACADEMIC MODELING

Although recent years have seen a revival of interest in FRB, it has been modeled little so far and with mixed methods. Indeed, it has never been formally modeled until the GFC. After the GFC, FRB has been modeled in a dynamic stochastic general equilibrium (DSGE) framework, in a system dynamics framework and in a dynamic multiplier framework. Regardless of the diverse modeling approaches, according to the results, the consequences of adopting FRB seem to be widely positive. Next, I will briefly go through these modeling results.

Benes and Kumhof (2012) conducted their study at the IMF and used the methodology of neoclassical economics – dynamic stochastic general equilibrium (DSGE) modeling – to reach the same conclusions as Irving Fisher (1935) almost eight decades earlier. According to Benes and Kumhof (2012), FRB would 1) provide better control of the money supply and bank credit, which are a major source of business cycle fluctuations; 2) eliminate bank runs; 3) reduce public debt; and 4) reduce private debt. Furthermore, they found that output would increase by almost 10 percent and inflation could be dropped to zero without causing any problems. Later, Benes and Kumhof (2013) revised their paper but the results remained unchanged.

Yamaguchi (2010) modeled the NEED Act, and later refined the modeling in Yamaguchi (2011; 2014), using accounting system dynamics approach. Yamaguchi (2010; 2011; 2014) found that, in stark contrast to the current monetary system, under FRB government debt can be liquidated without triggering recession, unemployment or inflation.

Flaschel et al (2010) and later Chiarella et al (2011) show in a dynamic multiplier framework that FRB provides a more stable financial environment than the current fractional-reserve banking system – even if appropriate monetary policy is conducted. Furthermore, they show that under FRB sufficient loan supply can be guaranteed (and that bank runs do not occur, which should be obvious, since the logic of FRB makes bank runs redundant). The methodology of these two papers is based on stocks and flows but not in the same sense as in Godley and Lavoie (2012).

7 CONCLUDING REMARKS

This paper provided a comprehensive outlook on historical and contemporary proposals for FRB. FRB was first proposed by David Ricardo in 1823. Ricardo's proposal served as a guideline for the Bank Charter Act which implemented FRB in the UK in 1844. Two decades later, FRB was also implemented in the US. Nevertheless, bank deposits slowly replaced bank notes fully-backed with government money. Since then, bank deposits have remained the dominant means of payment.

The FRB proposals became particularly popular after serious financial crises. Especially, the Great Depression and the GFC sparked a number of proposals for FRB. The supporters of FRB included many prominent economists such as Irving Fisher, Milton Friedman and James Tobin. One of the most recent proposals came from Martin Wolf, the chief economics commentator at the *Financial Times*.

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