The Economics of Full Reserve Banking: Recent Developments and Critiques

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Abstract

Following the Great Depression (1929-1933) and the Great Financial Crisis (2007-2009) a call to reform the banking sector arose. There was evidence that the banking sector, and their poor decisions, was a principal cause of two of the biggest economic crises. One such reform was the Full Reserve Banking (FRB) proposal, originating in the 1930s with the Chicago Plan. The Plan proposed forcing banks to hold 100% of deposits as reserves to prevent another financial crisis. Full Reserve Banking is the subject of this dissertation. The Chicago Plan and two modern full reserve proposals are discussed. The workings of the banking sector and the role of central bank are present to provide context and contrast to the Full Reserve Banking reforms. The following section discusses the Great Financial Crisis and illustrates the need for reform in the banking sector. Full Reserve Banking is defined and three proposals for FRB are presented, the Chicago Plan of the 1930s, the Sovereign Money proposal from 2012 and the Narrow Banking plan of 2009. Some critiques of FRB are discussed. These critiques are provided alongside a discussion of whether Full Reserve Banking is a viable option. The critiques that are raised do focus on the technical economics of the FRB proposals, rather the discussion presented the undesired consequences of FRB and the viability of implementing FRB is evaluated.

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1. Introduction

The financial sector has seen considerable growth in many Western economies post World War II. The consequences of the Great Financial Crisis of 2007-2009 displayed how large the reach of the industry is, and how actions taken by a few important role players, can harm the general public. It is due to the consequences of the Great Financial Crisis that the notion of reforming the banking sector came about. The call for reform occurred in the 1940s as well, after the Great Crash. It was here that Full Reserve Banking (FRB), the broad term for the proposed banking reform and the subject of this dissertation, originated.

The Great Crash ended a period of expansion and growth in the USA in the 1920s where credit was easily available, and the money supply grew. The subsequent Great Depression was an economic event of unprecedented dimensions (Temin, 2000). The years 1929-1933 held a stock market crash, a banking crisis, and a collapse of commodity prices. Friedman and Schwartz (1963) contended that the primary propagation mechanism of the Depression was the contraction in the US money supply, together with banking panics. There were three banking crises in that short period, and it was the failure of two large banks, the Bank of the United States and Caldwell and Company, that caused most of the problem. These banks had undergone rapid credit expansion in the 1920s and collapsed under the pressure of the recession (Temin, 2000: 307). A response to the recession was to say that the root cause was bad banking practice and that stricter regulations should be imposed to prevent future crises. Regulation was introduced in The Glass-Steagall Act (1933) however, a more severe suggestion was that bank deposits should be fully backed by bank reserves, Full Reserve Banking, an approach proposed in the Chicago Plan.

The Chicago Plan was proposed by Henry Simons, Irving Fisher and others, to prevent another crisis. It proposed requiring banks to hold 100 per cent reserves. This would simultaneously curb the possibility of reckless lending, and eliminate the risk of bank runs, thereby eliminating the possibility of another banking crisis.

However, The Chicago Plan was not implemented; the system of fractional reserves remained intact, and the following century has seen ongoing cycles of recession and recovery.

The last half-century saw numerous innovations in the financial sector. New financial instruments, like derivatives and asset-backed securities, were developed and investment banking grew. Whilst boom and bust cycles continued and government bailouts of failing financial firms were common. In the 1980s the US government covered the bad debts incurred by US banks, bailing-out banks that were deemed 'too big to fail'. The resulting implicit guarantee of government rescue added moral hazard to the problem. The large banks could ignore risk, while their profits and salaries rose.

The innovation in financial products, with the repeal of Glass Steagall, created the conditions for the 2007-9 Great Financial Crisis (GFC). Hedge funds reported extensive losses, the investment bank Lehman Brothers failed in September 2008, and the American Insurance Group (AIG), a firm providing insurance on financial products, failed. This led to a 'modern-day bank run' as investors tried to secure their assets. Consequentially, savings were lost, government bailouts of failing firms cost the taxpayer, unemployment increased and the value of assets, especially housing, fell.

Just as in the 1930s when economic crises sparked a call for reform, the GFC revived the idea of banking sector reform. One of the reforms proposed, just as the Chicago economists had proposed 80 years earlier, was to eliminate the fractional reserve system and to force banks to hold 100 per cent of deposits as reserves.

There are significant critiques of FRB and, critically, it remains untested. The reform, it's mechanisms and benefits that proponents claim will maintain financial stability, is purely theoretical. The main critique is that different full reserve baking proposals lack coherence. Another critique is that a possible consequence of FRB is the potential for the growth of non-bank financial institutions, called shadow banks. FRB plans are heavily criticised for restricting the access of funds in an economy. In addition, the financial stability claimed by FRB's proponents is not guaranteed. The final critique discussed, is that under an FRB system, especially the Sovereign Money proposal, monetary policy will need to be radically transformed.

To complement the above critiques, it is important to mention that the implementing Full Reserve Banking requires a complete overhaul of the banking sector. This is unlikely to occur, especially for a reform with no evidence to support its claims.

The objective of this dissertation is to present FRB and explain the relevance of FRB plans in addressing the causes of the great financial crisis. To provide an overview of the literature, three FRB proposals are outlined and the final section a critique of FRB is presented. It should be acknowledged that the FRB proposals are unlikely to be implemented and that this discussion is based on an interesting, and relevant, counterfactual.

2. The Workings of the Current Banking System

This section will provide context for the analysis of Full Reserve Banking by explaining the workings of the current monetary system. It focuses on the creation of money by the commercial banking system and the present role of central banks.

It is not the state or the central bank that create most money in circulation rather it is commercial banks. Money is a financial asset that is created by commercial banks whenever a loan is approved. This is different to the common view that savings of businesses and households dictate the bank's ability to lend money (McLeay *et al.*, 2014b; Tobin, 1963)

The double-entry accounting system means that every debit value has a corresponding and simultaneous credit value. For a bank, a new loan is an asset, but it is also liable to make a payment for it. Therefore, the individual bank has not created money, but once the payment has been made the bank still has the asset on its books, and a second bank likely has a new deposit. The second bank can now make a loan against that deposit. This 'money multiplier process' is how the banking system creates money.

The current system requires legally dictated, minimum reserves- a fraction of the bank's assets. Regulations dictate the proportion of total assets that must be held as cash balances or prescribed liquid assets. Such reserve requirements ensure solvency of commercial banks (Black, Hashimzade & Myles, 2012). Everyday banking activities change the value of assets and liabilities on a bank's balance sheet, simultaneously changing the capital needed to satisfy its reserve requirement. Therefore, if a bank does not have enough funds to meet the requirement, it can borrow from other banks at the interbank 'overnight rate' (e.g. LIBOR in the UK), or from the Reserve Bank, either by discounting bills (discount or Repo rate) or by borrowing (bank rate). The latter two are the interest rates used by central banks to indirectly control the money supply and to achieve the inflation target (Board of Governors of the Federal Reserve System, 2020).

The European Central Bank (2019) explains that banks can borrow funds from the central bank to meet reserve requirements. The lender of last resort should provide funds if other sources have been exhausted. The central bank would act as lender-of-last-resort if a commercial bank in good standing lacked the liquidity to meet demands for withdrawals.

A final point about the fractional reserve system is that money creation tends to be pro-cyclical. The decision to issue a loan is based on the bank's expected profits which are influenced by the phases of the business cycle. Therefore, numerous deposits are created during expansionary phases but few during periods of cyclical contraction (Poteat & Zarlenga, 2016:11). This accords with the Keynesian idea of 'animal spirits' – if expectations are positive, bankers are more willing to lend money, but if a recession is believed imminent banks are less willing to lend and may even begin to call in loans (Akerlof & Shiller, 2009). By design the process of money creation has an inherent tendency to cause "overheating" when the economy is performing well, and to exacerbate recessionary periods.

3. The Great Financial Crisis Relevance of Full Reserve Banking

It is due to the Great Financial Crisis (GFC) that Full Reserve Banking was revived, the crisis has been the most powerful motivator of banking reform in the past decade. An important cause of the crisis was the level at which banks were leveraged, and the level of credit extended by the banks especially after the increase in securitisation. Full Reserve Banking aims to create financial stability by restricting the actions of banks.

This section will discuss motivations stemming from the GFC and the structure of the financial sector at that time. The discussion here is focussed on USA, where the crisis originated. The crisis was exacerbated and spread internationally because of the reach of the US Dollar and its characteristic as a reserve currency.

The GFC was the main prompt behind Robert Kay's FRB "Narrow Banking" proposal (Kay, 2009). Kay argued that, since the structure and activities of the financial sector were the causes of the crisis, they would need to be reformed. He suggested that the GFC was a direct and indirect result of losses incurred by financial services companies in speculative dealing, specifically in property and in wholesale financial markets (Kay 2009: 14). The obvious profit-seeking behaviour of banks was not concerned with the provision of services applicable to the business needs of customers (Kay, 2009: 15).

The pro-cyclicality of the banking industry was explained in the previous section. Essentially, banks lend more during upturns but restrict funding in downturns. Simultaneously, banks compete to expand their market shares and their size. The result was undue volumes of credit, much of it directed into the property and asset markets rather than into physical investment (Turner, cited in Dyson *et al.,* 2016: 1352).

A central feature of the 2007 crisis was the perception that the big financial institutions were "too big to fail" i.e., that the failure of such a bank would have so considerable an impact on the financial sector and the economy that failure would be intolerable. Consequently, the authorities provide an implicit guarantee of the large banks' continued survival (Soussa, 2000). Such perceived guarantees create moral hazard. Moral hazard occurs when individuals lack incentive to guard against risk because they are protected from its consequences (Oxford

Learner's Dictionary, 2022). In the context of banks, there was moral hazard since there was an implicit guarantee of government assistance if they were to fail, therefore banks engaged in risky behaviour. Banks could take on the excess risk because the downside risk, i.e. that they will fail, is eliminated by the authorities' guarantee (Soussa, 2000).

However, the guarantee was not absolute: in September 2008 Lehman Brothers investment bank *was* allowed to fail. The resulting chaos in the financial markets may explain why the Federal Reserve bailed out the other failing banks. However, according to Mishkin (2011), even if Lehman Brothers was not allowed to fail, the events that followed its collapse were equally significant contributors to the crisis: the collapse of AIG, a financial insurance provider, the run on the Reserve Primary Fund, a money market fund, and the difficulty in passing the Troubled Asset Relief Plan in US Congress. This combination of factors, all stemming from poor decisions by financial houses and banks, suggests a need for reform.

A contributor to the GFC was the fact that, in the 2000s, banks were excessively leveraged and benefited from a large retail deposit base. This deposit base created the expectation that the bank's liabilities were guaranteed by the central bank through the lender-of-last-resort function since the government would not allow the public to lose savings. This expectation proved correct when in 2007 banks began to fail and were bailed out. Therefore, central banks were not just lenders-of-last-resort when retail banks needed reserves, but also the guarantors of the financial system. According to Du Plessis (2011: 13), the financial sector was no longer operating under the profit and loss "set of rules"; rather the rules were profit and bailout. This undermined the need for prudent screening of loans and suitable risk management. Additionally, effective screening and monitoring of creditors is costly, as is the retention of substantial capital to guard against losses. Both actions are unnecessary if a bailout is almost guaranteed (Du Plessis, 2011: 12). The fact that banks had expanded their balance sheets excessively were the principal causes of their failure.

Securitisation, a financial innovation that allowed banks to trade interest rate risk and credit risk was a contributing factor. It was a process whereby loans, specifically mortgages, were bundled together as a mix of good and bad loans and sold as a kind of 'bond'. The buyers of these mortgage-backed securities (MBS) relied on rating agencies to provide the risk status of the assets. By trading in MBS banks made large profits by selling debt, some mortgages were

at high risk of default i.e., subprime. The risky loans were made, but they were bundled together and sold as another safer-rated product and reclassified. This reclassification of risky loans allowed banks to invest in high-risk assets while the risk was not reflected in financial statements. MBS appeared as assets of investment banks and the problem spread throughout the financial system as more firms bought these assets.

Du Plessis (2011: 8) argues that it was the promotion of homeownership and following credit-fuelled housing-bubble that caused the rise in sub-prime mortgages. In the US mortgages on residential property are supported by government institutions called Fannie Mae and Freddie Mac. These institutions act as an intermediary- buying mortgages from financial firms that deal directly with retail banks and potential homeowners. The mortgages acquired by Fannie Mae and Freddie Mac are bundled and sold as property investment portfolios.

Fannie Mae and Freddie Mac were willing to buy mortgages from originators and resell them to investors with the assurance of no credit risk, as both institutions would buy back defaulted mortgages. This is how Mortgage-Backed Securities (MBS) were created and how they transformed risky mortgages into sought-after risk-free assets. The credit risk Freddie Mac and Fannie Mae were exposed to were controlled by strict guidelines dictating which mortgages qualified to be securitised called 'Standard Conforming Loans' (Du Plessis, 2011).

Since the Standard Conforming Loans criteria restricted the available mortgages to a small class of potential homeowners, reforms were instituted to allow for inclusion of a class of sub-prime mortgages. These did not adhere to the criteria by size, credit record, income or wealth of the applicant and to reflect the higher risk, adjustable credit and market related rates were allowed on mortgages. These had greater flexibility to reflect the higher risk of applicants with low credit scores and mortgage originators could deal in the 'subprime market'. In addition to the higher rates charged, high-risk mortgages were funded by lenders who repackaged them into pools and sold to investors. The risks were distributed among investors by the nature of the new financial product, MBS, which provided a large portion of funding of subprime mortgages (Duca, 2013). The graph below, taken from the US Financial Crisis Enquiry Commission, depicts this. Securitization was the main source of funding for

sub-prime mortgages: in 2006 subprime mortgages made up 23.5 per cent of the mortgage market.

Subprime Mortgage Originations

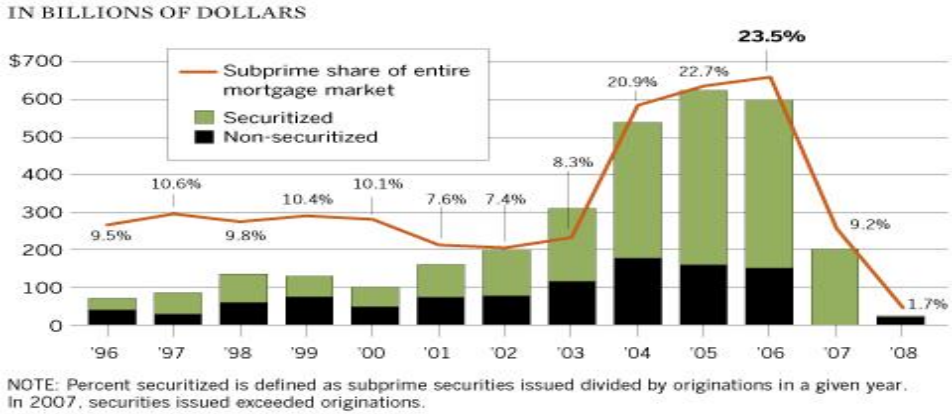

Figure 1: Subprime Mortgage Originations
(Source: United States of America Financial Crisis Inquiry Commission, 2011)

Du Plessis (2011, 8) further explains that mortgage and sub-prime mortgage finance expanded greatly after the Tax Reform Act of 1986. Now, tax deductions were applicable to mortgages on a primary and additional home, but no longer to consumer credit. There were also macroeconomic conditions that contributed to the boom in mortgage lending in the US. There was growth in the nineties, stable conditions and political and social pressures to increase homeownership. The result was a property boom, which was financed by sub-prime mortgages which were packaged and sold as MBS.

It was securitisation, like the creation of MBS, that enabled credit and interest rate exposure, previously contained within the commercial banks, to be eliminated through the markets. Securitisation undermined the traditional concept and role of the bank. When the Glass-Steagall Act of 1933, the legislation separating commercial and investment banking, was repealed in 1999, affiliations between banks and securities firms were no longer restricted (Maues, 2013) and banks were allowed to sell debt for a profit, packaged as an innovative financial instrument.

This leads back to the "too big to fail problem" that, for proponents of Full Reserve Banking even supervision would not eliminate. Pessimism about regulation is echoed by Dow *et al.* (2016:2), who state that market forces failed to preserve financial stability because of distorted incentives. For this reason, most FRB proposals eliminate the lender-of-last-resort function of

the central bank, usually by initiating a deposit guarantee scheme, where deposits are guaranteed, but the banks that hold them are not, forcing banks to accept the consequences of their risk exposure (Dow *et al.,* 2016:2).

There is a view that instability is inherent to financial markets due to the underlying uncertainty of asset prices. The investor judgements on which financial markets operate are often cyclical and biased. Confidence in asset valuations encourages leveraging and credit expansion by banks toward both productive and unproductive investments when prices are expected to rise. There was a naïve view of future stability, which added to the fragility of the market and prompted its eventual collapse (Dow *et al.,* 2016:3). Credit expansion was allowed because of poor regulation.

While there were rules to regulate financial services, they were ineffective. Rules, like the Glass-Steagall Act in the USA, were intended to stop banks from getting into situations where they might fail (Maues, 2013); however, these rules were lifted and replaced by ineffective supervision. Kay (2009) describes the Basel rules, (on international banking standards) that linked the amount of capital banks were required to hold to the risk level of their respective investments, as "worse than useless" in achieving stability. Indeed, there is evidence that Basel I and Basel II, the rules to which Kay (2009) referred, were ineffective before the crisis.

Basel I regulations came into effect in 1992. The aims of the Basel regulations were, first, to require banks to maintain enough capital to absorb losses without causing systemic problems. Second, the regulations aimed to level the international playing field to avoid competitive conflict (Atkinson & Blundell-Wignall, 2010). The rule dictated various ratios of capital requirements according to weighted risk factors. Basel II was introduced in June 2004. The problem with Basel I had been the regulatory arbitrage component. That meant that a bank's off-balance-sheet position was supposed to be subject to a credit conversion factor (CCF) when calculating the risk-based capital adequacy measure. Thus, the CCF dictated that an off-balance-sheet position would end up on-balance sheet. However, what happened was that banks could keep assets off balance sheets to avoid holding the required capital. The result was that banks could easily accumulate capital exceeding the regulatory minimum requirements because the regulatory value was undervalued. This allowed for unconstrained risk-taking behaviour (Atkinson & Blundell-Wignall, 2010).

Basel II contained a more complicated risk-weighting approach, but the new approach encouraged portfolio holdings of assets with low risk weightings, such as government bonds, mortgages, and interbank lending. The aim was to incentivise banks to economise on capital and expand their business into lower weighted areas. Unfortunately, the risk-weighting method evolved simultaneously with credit default swaps, a financial instrument that allowed banks to offset risk by exchanging it for 'safer' risk. Thus, the fundamental idea of capital weights was undermined. Another problem with the Basel System is the procyclicality of the regulation (Atkinson & Blundell-Wignall, 2010). This procyclicality of regulation exacerbated the problems of the already procyclical banking industry.

In summary, the GFC showed a clear need for reform of the banking sector. The roots of the GFC lay in the irresponsible creation of debt (money) by banks. Controlling loan creation could help promote financial stability. The consequences for the taxpayer of bailing out a failed industry, and the poor performances by the sector's regulators and supervisors, explain many of the calls for fundamental change. It was this call that revived the debates on Full Reserve Banking as an option to solve the problem and eradicate future crises. However, for reasons that will be discussed in later sections, the likelihood of its implementation remains minimal.

Full Reserve Banking

Full Reserve Banking is one of many proposals to reform the banking system. The calls for reform are responses to the instability inherent in the current system, which stems from the commercial banks' capacity to create credit and money (Dow *et al.*, 2016). This led some theorists to argue that complete reform would be needed to ensure stability. Full reserve banking (FRB) would provide such a complete reform.

4.1 Definition of Full Reserve Banking.

As already explained, the bulk of narrow money (M1A) is created by commercial banks issuing loans and creating deposits in their balance sheets. Currently, in the fractional reserve system, money as a medium of exchange is made up of transferable bank deposits and cash. Banks are legally required to hold a fraction of assets as reserves.

By contrast, Full Reserve Banking requires that the deposits of commercial banks are 100 per cent backed by cash, Central Bank reserves, or short-term government bonds (Pfister, 2020). In essence, full reserve banking prohibits the creation of private money (Lainà, 2015:1).

The idea originated with the 1930s Chicago plan, first presented by Simons in the 1930s after the Great Depression. The Chicago Economists' proposal to have fully-backed money argues that all money would either be issued by the Central Bank or arise as deposits held by commercial banks, which would be backed by 100% reserves of Central Bank money (Fontana & Sawyer, 2016). Two recent additions to plans for FRB are Sovereign Money (Dyson *et al*. 2014), and the revival of Narrow Banking (Kay, 2009).

Most FRB advocates see the proposal as a solution to financial instability. A cause of instability, argue FRB advocates, is that much of the spending financed by bank money creation is directed into investments, namely the financial and property markets, where it increases the amplitude of the trade cycles (Dyson, Hodgson & van Lerven, 2016). Another advantage

claimed for FRB is that it could help achieve sustainable economic growth[1] and a steady-state economy (Fontana & Sawyer, 2016; Farley *et al.,* 2015).

It should be noted that there has never been an existence of a full reserve banking system. Therefore the proposals and benefits are purely theoretical. My opinion is that FRB provides an interesting counterfactual to discuss and analyse, but it is unlikely to be implemented.

4.2 Proposals and Proponents of FRB

Original Chicago Plan (1933)

The original Full Reserve Banking proposal was the 1930s Chicago Plan, proposed by Henry Simons, Irving Fisher and other prominent monetarists. The plan was prompted by the Wall Street Crash of 1929, and the subsequent Great Depression. The original plan was proposed by Simons in 1933 and an amended version was written by Paul Douglas, Irving Fisher, Frank Graham, Earl Hamilton, Wilford King and Charles Whittlesey in 1939.

The contention was that the fractional reserve banking system hampers effective control by the monetary authority over the volume of circulating medium. Hence, it is desirable that any bank or agency holding demand deposits be required to keep a dollar of reserves for each dollar of deposits, so deposits represent money held in the bank in trust for the depositor (Douglas, et al. 1939:22). This means that scrupulously-run banks cannot go bankrupt from a run on deposits.

The original Chicago economists proposed two methods of introducing the plan. The first and simplest way to transform the system from fractional to full reserves is to authorise the monetary authority (central bank) to supply sufficient interest-free cash to every bank (or agency holding demand deposits) to ensure that the reserve of each bank equals its deposits. The cash could be Federal Reserve notes, other Federal Reserve credit, US notes or other lawful currency (Douglas *et al.,* 1939). This influx of currency will not inflate the volume in circulation since it is solely kept by banks as reserves and the power of banks to increase or

[1] Stated by Mishan (1967), technology, population growth and affluence have undesirable 'spillover' effects and social costs. With the climate crisis and continued consumerism a real threat, sustainable growth is attractive to economists and individuals alike.

decrease circulating currency would be eliminated. The "excess reserves" kept by banks would vanish, taking with it a "potent source of inflation" (Douglas *et al.*, 1939: 24).

The second method proposed by Douglas *et al.* (1939: 25) to incorporate the 100% reserve proposal is more complex. It is to let the bank count as cash reserves (up to a specified maximum) the value of its US Bonds and for the government to provide for the conversion of the bonds into cash. According to Douglas *et al*. (1939: 25), this transition method would be straightforward since (at the time of their writing) banks held nearly enough cash and bonds to meet the 100% reserve requirement.

The creation of money under the Chicago Plan would also change. The monetary authority would replace commercial banks as the creator of currency (Douglas *et al.,* 1939: 26). The proponents argue that the economy will require an increase of money as long as trade and growth continue. To provide this, the central bank could buy and retire government bonds with new money. This would reduce government debt and the government would be profitable in the same fashion as banks are profitable from their creation of money (Douglas *et al.*, 1939: 27). Thus, the central bank would have direct and immediate control over the quantity of money, i.e., the money supply will be exogenous. Douglas *et al.* (1939: 27) raise the potential objection that excess free cash could be held by banks that are unable or unwilling to invest or lend it. In this case, Douglas *et al.* (1939) argue that the central bank would have to buy bonds from the public, who would use the funds obtained. In the converse scenario, the central bank would do the opposite.

The new system would benefit the government by reducing the interest-bearing public debt one-for-one with each unit of new currency released. Furthermore, it would be advantageous to banks, since failures and panics are prevented, and the public would gain from the greater stability of prices, employment and profits.

The process of lending is different within the Chicago Plan. The 100% reserve requirement would remove the power of banks to issue money. Douglas *et al.* (1939) explain that banks would only be lending and investing intermediaries, i.e., they would remain the chief agencies for handling and clearing accounts. To write a loan, there would be three sources of funds. The first would be from the repayments to banks of existing loans created previously. The second source of funding would be the bank's capital, surplus reserves, or undivided profits that may increase from the sale of bank stock. The third source of loans would be 'savings' deposited in

savings accounts or otherwise borrowed by the banks. Additionally, there would be a level of protection offered to banks. There would not be a restriction on the transfer or withdrawal of checking deposits, but withdrawals from savings deposits, i.e., those that banks can loan out, would be restricted and require sufficient notice for withdrawal. This allows safety for long-term investments.

Douglas *et al.* (1939: 36) explain why it is incorrect to view the Chicago Plan as harmful to banks. The government control of money would save the banks from themselves. The USA at the time had 15,000 independent banks whose uncoordinated actions could create and haphazardly destroy demand deposits. Rather than slowing capital accumulation, the subsequent financial stability of the system would allow savings to accumulate more rapidly, and loans and investments would become larger and safer, increasing the business of banks. Banks would raise money through charges for services rendered. Furthermore, since money creation would be handled solely by the government, the "vexatious regulations" to which banks are subject could be abolished and government might be able to withdraw entirely from intervention in the industry.

Finally, the 100% reserve system would render deposit insurance obsolete and the tragic effects of depression would be reduced.

Sovereign Money (2000)

Another variant of Full Reserve Banking is the 'Sovereign Money' (SM) argument first proposed by Huber and Robertson in 2000. The SM system is based on three components of a state's monetary privilege; the first is to determine the country's currency unit. Secondly, to issue the *entire* stock of money denominated in that currency which is the official means of payment and to allow the benefits of seigniorage accrued from creating stock money to be paid to the treasury. Currently, of these three privileges only the first, determination of currency, remains in the hands of the state, with the other two belonging to the banking sector. Sovereign Money already exists in the form of cash, coins and central bank reserves, although the last is used exclusively by commercial banks. (Huber, n.d.).

A later version of Sovereign Money was proposed by Dyson *et al.* (2014). His central argument is that money creation can be conducted more effectively by the government than by commercial banks (Dyson *et al.,* 2016: 1353). The SM proposal suggests two key changes to the current system. First, commercial banks would no longer be able to 'create' money in the form of demand deposits by issuing loans. Second, monetary policy authorities would manage and control the money supply directly and central banks would no longer use interest rates as a monetary policy instrument. Banks would become 'simple intermediaries' between savers and borrowers. Under SM, only the state could create money and payments are made through the transfer of funds from risk-free Transaction Accounts held by the central bank. The funds in these accounts are recorded as liabilities of the central bank, but the central bank does not provide payment services. Payment services are still provided by private sector intermediaries (banks). However, the payment facilitators cannot expose funds to risk.

Banks would still exist, and their intermediary role would be through investment accounts. Customers wishing to save would need to transfer funds from transaction accounts, held in central banks, into the accounts of the respective retail banks, also held by the central bank. Thus, individuals would have a savings account at their retail bank but the cash would be held by the central bank, similar to a notice deposit at a bank. Because retail banks "borrow" the value of the investment accounts from the central bank, the value of the account is treated as a liability. Thus, an investment account is recorded as a liability, not an asset, of the commercial bank. Banks are required to repay the invested funds in the future. As with a bond, there would be a maturity date on the investment, or notice would be necessary before withdrawing funds (Dyson *et al.,* 2016: 1353).

In sum, the central bank creates deposits and commercial banks administer these on behalf of customers. So central bank deposits are risk-free, with sufficient liquidity to settle direct payments.

Proponents of the system claim an advantage that transactions are not dependent on the liquidity of retail banks and depositors face no risk of bank insolvency, which has been a recurring issue when banks fail (Soussa, 2000). The objective of SM is to maintain financial stability and reform the current system which is threatened by the lender-of-last-resort role of the central bank and the 'too big to fail' feature of banks that lead to insolvency, taxpayer bail-outs, and bankruptcy (Dyson *et al.*, 2016)

A change in the provision of money in the economy would require a change of monetary policy. FRB proposals offer the same new monetary objective. The central bank would directly manage money supply as its monetary policy objective. The creation of money would be the mechanism used to influence aggregate demand and meet policy targets. The SM plan does not require an independent central bank because the government would set the objective and target for monetary policy by deciding an appropriate aggregate demand for the economy. In the SM system, the central bank would change the money supply to meet the required inflation target (Dyson *et al.,* 2016).

A controversial point of the SM proposal is the creation of money for fiscal purposes. The MPC authorises the creation of new money and part of that money will go to the government to use for fiscal policy. The SM proponents believe inflation is only produced by the supply of money exceeding the growth of output. According to this notion, if money supply is directly controlled, the risk of high inflation is eliminated.

In the SM system, inflation targeting takes precedence over financing government expenditure. Currently, governments spend money on projects which indirectly affects price levels and inflation through market mechanisms i.e. supply and demand. In the SM system, if government requires funds- the funds are part of the money supply to the whole economy which depends on the money supply required to meet the inflation target. Thus, if the inflation is too high, government may not be able to access funds. If inflation is too low, the government will easily finance its activities.

The proponents describe the channels used to alter the money supply. They are increased government spending, tax cuts, direct payments to citizens, and indirect lending to businesses via a financial intermediary (Dyson *et al.,* 2016: 135). Central bank independence is not required because the system requires cooperation between monetary and fiscal policymakers which would not be possible with a wholly independent central bank. Thus, the MPC would substitute adjustment of policy interest rates for adjustment of the rate of money creation (Dyson *et al.,* 2016: 1354).

Sovereign money advocates believe much of the spending, currently financed by bank money creation, is directed into the financial and property markets; this contributes to the financialization problem that others have discussed (Benes & Kumhof, 2012; Verblen, 1921). In contrast, they suggest that spending financed by central bank money would contribute to the

real economy, which would have a valuable impact on economic activity, aggregate demand, and employment (Dyson, Hodgson & van Lerven, 2014). The current instrument of monetary policy is replaced by a system in which control of the money supply is the duty of the treasury. Thus, the money created by the treasury is increased if the government runs a fiscal deficit and is reduced if there is a fiscal surplus.

A problem with SM, to be discussed in the next section, is the question of whether sovereign money would provide firms with short-term funds when they need liquidity.

Narrow Banking (2009)

Narrow Banking is an approach to FRB that is a plan that entails 'breaking up the bank'. It is described as the new "Glass-Steagall" because, like the 1930s legislation, it proposes separating investment and commercial banking.

Narrow banking implies the creation of banking institutions focussed on the traditional services of banks. These functions are the provision of national and international payments systems for all institutions and deposit-taking from individuals and from small and medium-sized enterprises (Kay, 2009: 52). Only narrow banks performing in these functions can be defined as banks. These banks would be able to take deposits from members of the public, if the deposits are less than a minimum amount and narrow banks would be able to access principal payments systems or qualify for deposit protection. Kay (2009: 52) explains that narrow banks would generally be subsidiaries of other financial holding companies, but some would evolve into stand-alone firms.

An objective of narrow banking is to prohibit banks from engaging in proprietary trading. To enforce business discipline, retail depositors and deposit protection schemes will have priority over other creditors in a liquidation (Kay, 2009: 56). A key feature of narrow banking is that governments would not subsidise failed banks. Therefore the best way to prevent bailouts is through the insistence that retail deposits are 100% supported by *genuinely* safe liquid assets, ideally government securities (Kay, 2009: 58). It is due to this feature that narrow banking is a Full-Reserve banking proposal.

Kay (2009) believes that if the financial services market was a free market without government intervention causing distortions, narrow banking would have emerged spontaneously. The distorting government intervention is deposit insurance and the fact that savers experience equal deposit protection regardless of the risky behaviour of their institution. Narrow banking is the 'natural outcome' of markets and regulation should be designed to allow for it to occur (Kay, 2009: 53).

Narrow banking would be regulated, and the regulator should monitor compliance with rules but not review business strategies. Narrow banks would be constrained in several ways, first through explicit restrictions on the range of activities performed, second with specific rules governing creditor priority on liquidation, to avoid the "queue" scenario in a bank run, and finally, narrow banks would be constrained with strict reserve requirements (Kay, 2009: 54). Narrow banking proposes the granting of a licence as the best regulatory regime and that legislation should be used to define the objectives of the regulator. Primary goals of regulation would be the protection of depositors, the regulation of prices, and the terms of access to payment systems (Kay, 2009: 54).

Additionally, the licenses granted would define the objectives of the narrow banks and the managers of payment systems. The license would state both the prohibited actions and the regulated activities of the narrow bank. The class of prohibited activities include acting as an issuer of securities and trading securities for purposes outside the objective of the banks. The license has amendment capabilities, although this should only be possible with difficulty, i.e., through amendments by agreement or, if necessary, by agreement of a competition commission (Kay, 2009: 55).

Narrow banks would still be allowed to engage in retail lending activities but should raise the required funds in wholesale markets via securitisation and conventional borrowing. The availability and price of funds would determine the equity capital required to support their lending. In the long run, the quality of the schedule of loans that narrow banks accumulate should allow them to obtain funds on the terms formerly available to sound, well-managed firms. In the short run, it is likely that most wholesale funding would be provided by the government, as it is by the central bank today (Kay, 2009: 60)

A problem might arise from the fact that the demand from narrow banks and other sources for government-guaranteed debt might exceed the volume of debt the government needs to issue for its funding requirements. In this case, the government should borrow more than required and lend back to sound institutions rather than provide free credit insurance for private-sector liabilities, i.e., the unsound loans issued by banks today (Kay, 2009: 61). An interesting aspect of the proposal is that the central bank would continue to be the supplier of wholesale funds but would eventually become a price-taker in the interbank market, meaning the market would decide the value of the government guarantee and let the taxpayer benefit from premiums.

There is the worry that narrow banking will limit consumption demanded funding. According to Kay, this would not be the case. First, returns on investments will not decline since a sound bank should not pay more for retail deposits, net of collecting and attracting them than the price of wholesale money. Secondly, narrow banks can still partake in activities like consumer and mortgage lending and lending to small and medium-sized enterprises. To issue loans, funds would need to be raised on the money market or bank capital. It is Kay's (2009: 62) desire that these services are provided by specialist firms such as companies that offer credit cards and mortgages based on wholesale funding. Furthermore, specialised institutions could focus on lending to small businesses or this function, currently provided by retail banks, could be undertaken by private equity houses.

The last aspect of narrow banking is the system of payments. Kay (2009: 78) proposes that cash be replaced by electronic wallets and debit cards since both are portable methods of payment with guaranteed value. A current account would be replaced by electronic wallets and cards or by an electronic payment mechanism, like an EFT or a card transaction (Kay, 2009).

4.3 Critique of FRB

In the aftermath of the GFC, the instability and far-reaching consequences of the actions of the financial sector came to light. Therefore the objective of FRB proposals, especially recent ones, is financial stability.

According to FRB advocates, fractional reserve banking is potentially destabilising because banks have incentives to expand money and credit during economic upturns and reduce it during contractionary phases thereby exacerbating the effects of crises.

This section will focus on five problems ascribed to FRB proposals. First is the framework behind the proposals and the lack of coherence among different full reserve banking plans. Second, a possible consequence of FRB is the potential for the growth of non-bank financial institutions, called shadow banks. Third, FRB plans are heavily criticised for restricting the access to funds in an economy. The penultimate problem is regarding the claim of increased financial stability from FRB proponents. The final critique discussed is that under an FRB system, especially the Sovereign Money proposal, monetary policy will need to be radically transformed.

Another issue with these proposals is their necessity, especially if such radical reform is needed to control the banking sector, "the solution to a banking crisis is not to eliminate banking" (Dow et al., 2015). The question of necessity is based on whether it is possible to implement FRB as well as the fact that there are other methods of achieving financial stability using the existing fractional reserve system.

The first critique of Full Reserve Banking plans relates to the analytical framework behind the proposals. There is the view that some FRB, especially the Sovereign Money, proposals lack a clear analytical framework (Nersisyan & Wray, 2017: 1750). The argument is based on the 'non sequitur' of debt-free money which they argue cannot exist because the money supplied by the state is still technically a liability in accounting standards. Jordan (2018) also does not believe in debt-free money- calling it 'impossible'. The problem relating to an analytical framework is also raised by Pfister (2020) in a summary and critique of six FRB proposals. He notes that the six proposals only share two common motivations which are to make narrow money more controllable and to reduce moral hazard related to the implicit government support

of banks. There is no coherent objective or method of implementing an FRB system among the six proposals, highlighting the lack of a solid analytical framework. Additionally, Nersisyan and Wray (2017) state that, they think FRB proposals for reform would be feasible if the reform was grounded in a coherent framework similar to the framework provided by Modern Monetary Theorists. This seems a fair criticism, perhaps if modern FRB proponents could produce a proposal for reform with sound foundations the movement would be more successful than just providing theoretical counterfactuals.

The second issue that could arise from implementing FRB is the possibility of an increase in shadow banking activities. Previously discussed, FRB advocates view the commercial banks' ability to create money as a primary cause of financial instability and therefore restrict the operations of banks. Banks will hold fully backed accounts for transaction purposes only (Dow *et al.,* 2015). However, economies require liquidity for more than transactions, and this demand could be satisfied by assets other than fully-backed bank money. Thus, it is highly likely that the low profit opportunities in retail banking would drive even more finance into shadow banking (Dow *et al.,* 2015:9). Fontana and Sawyer's (2017: 1338) critique also points this out. They state that the problem could arise from only commercial banks being regulated under FRB. This would ignore many other financial institutions namely the shadow banks. The asymmetrical regulation links to the boundary problem raised by Dow *et al.* (2015). This is the idea that there will be a distinct exclusionary 'net' of regulation that commercial banks have to adhere to and shadow banks do not. Due to higher returns provided by shadow banking institutions, investors would possibly abandon retail banks and use financial services provided by other institutions that fall outside the regulation and protection of authorities.

The shadow banking threat is a real one. It was the growth of these institutions that have made up most of the expansion of the financial sector and, arguably it was the actions of shadow banks that was the principal cause of the GFC in 2007-9 (Sawyer, 2014). This is valid as firms like Lehman Brothers and AIG that collapsed were not commercial banks. Wolf and Johnson (2009; 2009) raise a problem with shadow banks regarding the narrow banking proposal. In Kay's (2009) narrow banking proposal, he calls for strict regulation of 'utility banks' but believes with "happy optimism" (Johnson, 2009) that market forces will regulate the non-bank financial institutions and profit and failure will provide incentives for sound behaviour.

Johnson's (2009) view is that this is impossible because the morals of the market are those of its participants.

Wolf's (2009) sentiments echo those of Dow *et al.* and Fontana and Sawyer. He worries about the possibility that the existing banking system will be reinvented through "quasi-banks" which would be similar to the shadow-banking institutions that contributed to the GFC (Wolf, 2009). The rise of unregulated shadow banking institutions would return instability to the financial sector, thus defeating the objective of reform in the first place. However, with regards to shadow banking and the GFC, the origin of the problem lay in the bad loans provided by commercial banks. These loans were subsequently securitized by the investment bankers which caused a problem. If, under FRB, bankers had no incentive to make bad loans and non-bank financial institutions were restricted in their borrowing (e.g. Lehman Brothers was highly leveraged) the problem of 'shadow-banks' would not threaten financial instability.

Alternatively, regulation of shadow banks in addition to implementing FRB for retail banks could provide a solution. Yet, restricting funding leads us to the following criticism of the FRB plan: availability of liquidity to meet demand.

The third critique of FRB is that many proposals limit the availability of liquidity for the public. Pfister (2020) explains that a consequence of FRB is the loss of liquidity. In support of Pfister, Jordan (2018) believes the real economy will not benefit from the system because of the restrictions on lending. Banks will not be able to draw on sight deposits or attract other sources of liquidity. Under the reformed system, saving and borrowing will cost more. Therefore banks will lose their ability to be flexible to shifts in customer demand which will reduce overall consumption and investment in the economy. Dow *et al.* (2015) also express concern over enforced limitations on the money supply.

Historically, societies develop money assets according to need so money supply enforcement is difficult. Dow *et al.* (2015) acknowledge that in the 1970s endogenous credit creation was driven by competition within the financial industry rather than to meet the demand of the real economy. However credit mechanisms have evolved to meet demand, and as shown by endogenous money theory, money is a by-product of credit provision by trusted suppliers. Credit is necessary for both development and the income multiplier process- whereby bank credit allows investment to precede the period of saving to finance it (Dow *et al.,* 2015:10).

The difficulty accessing credit links to Pfister's (2020) concern about funding for small and medium-sized enterprises and consumers. The effect on the cost and availability would be detrimental. First, without sight deposits, banks lose access to cheap resources to fund loans. Second, reducing moral hazard would cause a problem for these borrowers because the cost of other funding sources would increase as now the banks' shareholders and creditors will bear the risk of failure (instead of the central bank with the lender-of-last-resort feature). A solution is government subsidies but, as noted by Dow *et al.* (2015) this allows political and partisan behaviour to interfere with private innovation whereby companies with connections to the government would have an advantage in accessing credit. This ties in well with the argument presented by Smithin (2016). A basic intertemporal model is used to demonstrate that money and credit creation is essential to a capitalist economy through the realisation of profits and for the payment of wages, implying that the private creation of money should not be halted (Smithin, 2016). Encouragingly, the narrow banking proposal is not restrictive of credit access. Kay (2009) explains that loans, mortgages and business funding will be available from specialised non-banking institutions that are not held to the same regulation as narrow banks.

The penultimate critique of Full Reserve Banking discussed here is the requirement of many FRB proposals of a change in monetary policy. The Sovereign Money proposal requires the quantity of money supplied to the economy to be controlled by the central bank. For central banks to focus on the money supply rather than an interest rate is a departure from central banking practice (Dow *et al.,* 2015). Dow *et al.* explain that there are logistical problems with controlling an aggregate instead of a price and the economic effects of controlling money supply are "controversial" (2015: 12). It is a Monetarist proposition that expenditure and inflation were caused by money supply expansion i.e., "inflation is always and everywhere a monetary phenomenon" (Friedman, 1956).

However, quantitative easing, a case where money aggregates were increased substantially, caused worries of deflation when the interest rate reached zero (Dow et al 2015). Furthermore, if central banks could control the quantity of money, and if it were known how money supply and inflation interact, it is unclear how the central bank would decide on the limit supplied.

In addition, the idea of monetary policy via managing the money supply is an outdated idea that ignores the benefits of modern monetary policy (Jordan, 2018). Central banks today use interest rates to target inflation rates. This method arose from "pertinent historical experience"

that found interest rate instruments superior to money supply targets since it guarantees a flexible supply of liquidity even in a crisis (Jordan, 2018). Jordan (2018) states that an FRB system will worsen the "pushing on a string" caveat of monetary policy explained by Keynes. Alongside inflation targeting, the sovereign money proposal prohibits foreign exchange interventions, a prominent tool used by monetary policymakers. Concerning Switzerland, Jordan (2018) states the proposed system will not fit in with the concept of state and is counter to the established principles of economic order.

Additionally, Sovereign Money imposes additional tasks upon the central bank: the provision of debt-free money and the supply of credit and money to the economy which raises a conflict of interest between price stability and credit supply. Central bank independence is another issue with monetary policy authorities setting money supply. There is evidence that more independent central banks are better at setting inflation expectations and thus controlling inflation (Dow *et al*., 2015). Also, it is difficult to judge the performance of a central bank with the job of injecting money into the economy since it is difficult in politics to base performance on a counterfactual. The issue of independence is relevant to Sovereign Money where the state creates money and forms interdependence between political fiscal policy and independent monetary policy.

Looking at the monetary policy issue from another angle, changing it may have a positive; if the money supply is controlled from the beginning, the potential for an inflationary expectations cycle to start is quashed. There would be no uncertainty that increasing money supply might engender sustained price rises since both workers and employers will have the same, correct, information about money supply as it is controlled by the central bank. This mechanism is similar to the forward guidance which is already used by central banks to control inflation expectations (European Central Bank, 2021).

The objective of financial stability is a major motivation of full reserve banking proposals. But it has been widely criticised and the question of whether completely reforming the banking sector will be beneficial to financial stability raised. Jordan (2018), the Chairman of the Governing Board of the Swiss Institute of Banking and Finance, believes promises of financial stability are undeliverable and that stability is a more appropriate objective of macro-prudential policy. Pfister (2020) criticises the idea that moral hazard is eliminated under FRB. It is not eliminated since government plays a major role in allocating credit and would be held

responsible for ensuring financial stability. Likely, the government would still bailout institutions as they have been doing. In addition, Nersisyan and Wray (2017) believe that complete reform of the banking sector is not necessary for financial stability. They suggest implementing effective regulation and supervision as a solution. This sentiment is echoed by Cecchetti and Schoenholtz (2014), who state that the proven ways to maintain financial resilience are through transparency, high capital and liquidity requirements, deposit protection and the central bank's lender-of-last-resort function. I agree with these critiques because such radical reform would be met with resistance, and given the criticisms of the system, it should be the last resort.

The possibility of implementation of FRB is another issue, separate from the theoretical critiques of the proposals. Here, I will evaluate whether a transition to FRB is possible. Firstly, the implementation of FRB requires that the whole finance and banking sector is reconstructed. In a global environment where banks are some of the biggest businesses in the world. Eight of the top twenty largest companies on the Forbes Global 2000 list are banks or financial services providers (Haverstock, Gara, Murphy & Vardi, 2021). Hence, a reform that restricts a significant part of profit-making actions will not be met without resistance. The opposition to reform does not only come from bankers, but politicians also have weak incentives to solve the problems of banking regulation (Calomiris, 2013). Furthermore, Calomiris (2013) explains that regulators and politicians have offered 'subsidies' for risk-taking by bankers through safety nets (bailouts) and inadequate regulation. Political attempts to halt the subsidies have been repressed numerous times. Therefore, it is unlikely that reform of such a drastic nature will be approved by bankers and politicians alike.

To worsen the likelihood of implementation is the fact that for the claimed benefits of FRB to be felt, it should be a global system. The reason for this is that if such a drastic and restrictive system were implemented, the stakeholders would evade the restriction and take their business to a jurisdiction where they are not restricted in such a manner, unless movement of funds across borders is restricted as well. These scenarios are unlikely to occur without resistance. Instead of trying to implement a global overhaul of the banking and finance industry, organisations exist to uphold financial stability. The Bank of International Settlements' mission statement is to "support central bank's pursuit of monetary and financial stability through international cooperation" (Bank of International Settlements, n.d.). In addition to the BIS, is the Basel Committee on Banking Supervision. The Basel III set of measures were developed

in specific response to the Great Financial Crisis and aim to strengthen the regulation, supervision and risk management of banks. The Basel III measures are the minimum requirements that apply to internationally active banks (Bank of International Settlements, 2019). It is important to mention that there were problems with the previous Basel requirements as discussed in previous sections. However, an effective global regulatory body whose specific goal is financial stability and banking regulation is a better solution to the financial stability issue than trying to reform the international banking sector to a system in which profit is not an objective.

Another point is the outcome of the 2018 Sovereign Money referendum in Switzerland. The referendum occurred after the constitutionally required quantity of signatures on a petition was reached to allow for a referendum. The vote was to gauge support for the Vollegeld Initiative, an FRB proposal of sovereign money (Rimkus, 2016). In a prior poll done by Rimkus of 437 people, only 19 per cent viewed the imitative as positive. This result was duplicated by the referendum results where the idea was rejected by 75 per cent of voters (Bosley, 2018) illustrating the minimal public support for FRB in addition to the negative stance of politicians and bankers.

The critiques of full reserve banking have proven sufficiently strong to keep it untested in the modern world. This fact is itself as much a problem as the criticisms of the proposal's theoretical components. While the proponents of FRB see it as a potential aid in the struggle to achieve financial stability, its implementation seems unlikely in the near future. At best Full Reserve Banking will remain an interesting counterfactual.

5 Conclusion

After the negative consequences of the Great Financial Crisis of 2007-8 (GFC), the principal cause of which was the actions of the financial sector, the call to reform the sector was voiced. One proposal is to implement full reserve banking. The essence of FRB plans is to force banks to hold 100 percent of deposits as currency and the objective is financial stability. The importance of financial stability arose after the banking industry was a principal cause of two of the worst crises in a century.

The FRB proposal to reform the sector first arose in the 1930s after the Great Depression of 1929-1933. The proposed reform was the Chicago Plan; however it was not implemented.

It is the Full Reserve Banking proposition that is the subject of this dissertation.

The first section provides context into the operations of the current fractional reserve banking system, the functions of retail banks and the role of central banks. The following section explains how the GFC motivated the need for reform. It was the consequences of the GFC that revived the Full Reserve Banking theory, and it is because of the crisis that Full Reserve Banking became relevant after more than half a century.

The following section is the FRB section. First, full reserve banking is introduced and defined. Subsequently, three proposals of FRB are discussed starting with the Chicago Plan. The Sovereign Money initiative and Narrow banking are then respectively explained.
It is important to mention that there are many more FRB proposals than the three discussed in this dissertation.

The last section of the paper provides some critiques of Full Reserve Banking. These critiques are provided alongside a discussion of whether Full Reserve Banking is a viable option.

The critiques that were raised did not focus on the technical economics of the FRB proposals, rather the discussion presented the undesired consequences of FRB proposals, the rise of shadow banking, the lack of credit availability and the possibility that the plan will not solve financial instability. The critiques of the proposals also mention the lack of cohesion between

FRB proposals and the difficulty it would be to implement. The change of monetary policy conduct, reluctance of the industry and politicians to reform the system and public opposition are difficult factors.

The critiques raise the critical point that full reserve banking is not a possible nor practical solution to reform the financial sector. The idea has many criticisms and is a drastic measure to undertake where tamer solutions exist. The view by many is that the "solution to the banking crisis is not to eliminate banking" (Dow *et al.,* 2015). An alternative solution is to use regulation, transparency, and capital requirements.

FRB is an untested idea with a satisfactory outcome in theory, in practice, its effectiveness is unknown. I maintain that the system will not be implemented however the ideas presented provide an interesting counterfactual to debate.

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