

Chapter 5

Milton Friedman and Anna J. Schwartz on the Inherent Instability of Fractional Reserve Banking

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Abstract Throughout their long collaboration Milton Friedman and Anna J. Schwartz consistently argued that fractional reserve banking was “inherently unstable.” This paper traces the evolution of their ideas, the policies that they advocated to reduce the problems created by the inherent instability, and the implications of their views for current attempts to strengthen the banking system. Recent attempts to reform banking have incorporated some of the ideas that they advocated, but in some cases have moved in a different direction.

Keywords Banking panics · Crises · Milton Friedman · Anna J. Schwartz
Free banking · Lender of last resort

5.1 Introduction

Milton Friedman and Anna J. Schwartz believed that Laissez Faire was the best general rule for guiding economic policy. But when it came to banking, they advocated government interventions designed to mitigate the “inherent instability” of fractional reserve banking. To be sure, they thought it was possible to separate the role of banks as providers of the payments mechanism, which needed government involvement, from the role of banks as intermediaries in the market for savings and investments, which was better left to the market. But the consistency of their advocacy of government intervention in banking may come as a surprise to people who are familiar with them as forceful advocates of free markets but unfamiliar with their work on banking.

Typically, of course, historians of thought trace the views of one economist at a time. But this is not a typical case. Milton Friedman and Anna J. Schwartz were brilliant, independent minded economists, but their masterwork was a

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trilogy, *A Monetary History of the United States* (1963), *Monetary Statistics of the United States* (1970), and *Monetary Trends in the United States and the United Kingdom* (1982), the product of a collaboration that spanned decades. After finishing this great work they remained close friends and professional collaborators and confidants over the remainder of their lives. Friedman and Schwartz were, in my opinion, the most important duo in economics since Marx and Engels, and it is appropriate, indeed necessary to consider their oeuvre on this issue as a whole.

The phrase “inherent instability” has been used in many contexts. Nathaniel Hawthorne, for example, referred to “the inherent instability of human affairs” in the *House of Seven Gables*. The phrase, to judge from JSTOR, first came into common use among economists in the 1930s and 1940s when it was used as a possible description of the economic system as a whole, or as a description of various sectors such as agriculture or banking (as did its opposite “inherent stability.”) R.G. Hawtrey seems to have been one of the first influential economists to popularize the term. He used the phrase “the inherent instability of credit” repeatedly in the *Art of Central Banking* (1932). Oscar Morgenstern (1943, 299), to take a later example, referred to the “inherent instability of the monetary and banking system” in the course of his attempt to explain the international diffusion of the business cycle. Friedman and Schwartz used the phrase repeatedly to refer to the potential fluctuations in the stock of money that were possible with a fractional reserve banking system.

5.2 The Inherent Instability of Fractional Reserve Banking

As far as his major work is concerned, Friedman first developed the reasons for the inherent instability of banking in detail in “Commodity-reserve currency” (1951, 212–213).¹ Here he followed the economist’s traditional method of starting with a very simple monetary economy and then adding complications. It was a stylized history grounded in fact, but leavened with imagination. He began his story with a pure commodity standard, like a pure gold standard, in which only the monetary commodity circulated as money. He then explained why banks would be formed that would issue claims to the monetary commodity which would also circulate as money. He then went on to explain why banks, institutions that borrowed short term and lent long-term, would be tempted to make their short-term instruments close substitutes for the monetary commodity which could then circulate as money.

¹Friedman (1950, 477) used the phrase in the course of pointing out that Wesley C. Mitchell rejected the idea that the economic system as a whole was inherently unstable. The term was also mentioned in DePres et al. (1950), a report by a committee of the American Economic Association which included Friedman.

Fractional reserve banking would then be “inherently unstable” because attempts to convert claims to money into the monetary commodity would produce changes in the total quantity of money.

Friedman, of course, was basically restating the conventional economic wisdom. Paul Samuelson in the first edition of his textbook (1948, 320), for example, explains the “fundamental fact that *fractional reserve banking* [his italics] is essentially an unstable “fair-weather” business.” One difference is that the story that Samuelson tells is what was then the traditional, possibly apocryphal, story of the goldsmiths. The goldsmiths, according to this story, started out by simply warehousing gold and then discovered that they could get away with lending part of the gold out at interest. Friedman on the other hand, starts with investment bankers who were borrowing short-term, lending long term, who discover that they could make their liabilities more attractive by giving them properties that allowed them to circulate as money.

Granted that the balance sheet of a fractional reserve bank suggests that a fractional reserve system might be unstable, how do we know that it would be? The answer for Friedman and Schwartz is that banking history is replete with banking crises. Both Friedman and Schwartz had experienced the banking crises of the Great Depression at first hand. And banking crises are the standard fare of banking histories. Indeed, one of Schwartz’s first published papers (1947) describes a run on a bank in Philadelphia.

5.3 Removing Gold from Circulation as a Partial Remedy

In “Commodity-reserve Currency” Friedman (1951, 212) wrote that

One way to eliminate this inherent instability is to prohibit the use of currency commodity as a circulating medium, restrict its use to reserves, and make reserve requirements uniform for all types of currency. The first two steps were taken with gold in the United States after 1933, though without eliminating inherent instability because of the failure to take the third step.

In a footnote he explained that the problem was that the ultimate gold reserve behind Federal Reserve notes and bank deposits, both of which circulated as money after 1933, were different. There was more gold behind notes (although it couldn’t be taken possession of !) than behind deposits. In a panic people might want to convert deposits into notes. It would have been better, Friedman thought, if the reserve ratios were equal.

Friedman didn’t say exactly how he wanted to accomplish this, but it would have been necessary to raise the gold cover of bank reserves at the Federal Reserve and/or lower the gold cover behind notes sufficiently to equalize the gold cover for each asset. Friedman’s recommendation would have eliminated instability deriving from one source, different perceived gold covers, but if Federal Reserve notes were

regarded as safer than bank deposits for other reasons, say because Federal Reserve notes were a legal tender, then some instability would remain.

There were still national bank notes (privately issued paper money) in circulation when gold was prohibited from circulating from hand to hand. But they were retired in 1935. Another way of reducing inherent instability would have been to eliminate Federal Reserve notes, eliminate the bond backing requirement for notes issued by commercial banks, and allow both privately issued national bank notes and deposits to be issued on the same basis—for example, with the same required reserve ratio. This would have further reduced instability. Even in this case, however, depositors would have an incentive to convert deposits into notes in troubled times because noteholders ranked ahead of depositors in bankruptcy proceedings. The reason is straightforward. When one of the parties to a transaction accepts notes in payment, the individual's only contract, for practical purposes is with the bank that issued the notes. Should the bank fail, the note holder will not be able to go back to the person that originally tendered the note for a valid payment. When one accepts a check, however, the contract with the writer of the check remains intact, morally and legally, even after it is revealed that the bank on which the check was written has failed. It would be possible, then, to further reduce the inherent instability of the banking system by equalizing notes and deposits in bankruptcy proceedings.

When Friedman and Schwartz turned to the events that spelled the end of the gold standard in *A Monetary History* (1963, 462–483) their focus was on international repercussions rather than on the effects on confidence in the banking system, perhaps because the faith in the gold standard as the guarantor of a sound financial system had already begun to wane.

5.4 One Hundred Percent Reserves as a Remedy

The straightforward way of eliminating the inherent instability caused by fractional reserve banking is to simply eliminate fractional reserve banking. Make it a law that all deposits or privately issued bank notes must be backed dollar for dollar by reserves. Although it might sound implausible on first hearing—how would banks make any money?—100% reserves is a feasible system. Banks would have to charge for the service of warehousing cash and providing other services. And any loans or investments they made would have to be financed by issuing stock or long-term bonds. But it could be done, and bank panics would be impossible because any demand from depositors for cash could be met.

This was the famous proposal of Henry Simons (1948a [1934]), a professor of economics at Chicago in the 1930s who is often regarded as the founder of the Chicago school of economics. One hundred percent reserves were also advocated by Simons's colleague, Lloyd Mints (1950), a distinguished historian of monetary doctrines. Although Simons was one of the best known advocates of 100% reserves in the 1930s, to the point where the idea came to be known as the “Chicago Plan” for banking reform, he was by no means the only originator of the idea, nor the only

major advocate. Irving Fisher, for one, got in on the act. Albert G. Hart (1935) discusses Simons's plan along with some of the other plans for 100% reserves that arose independently, and reports that "from conversations with various American economists I am convinced that the same notion occurred to economists at several other centres of economics at the same time, although their findings have not happened to be published." Evidently, as Hart notes, 100% reserves was an obvious plan given the meltdown of the banking system in the early 1930s. Hansen (1941) chided Simons for failing to cite Frederick Soddy as the inventor of 100% reserves. There was more than a drop of acid in this remark because Soddy, a Nobel-prize winning chemist (1921), was an amateur economist who had a reputation as a monetary crank. In a review of Hansen's book, Simons (1939) acknowledged Soddy as a forerunner, but argued that there were times when ignoring predecessors was justified, and that once started there was, in any case, no need to stop with Soddy!

In what would become his most famous essay published two years after his 100% reserve proposal, "Rules Versus Authorities in Monetary Policy" (1936), Simons returned to the 100% reserve proposal. But his thinking had progressed and he now argued that in the absence of more fundamental reforms adopting 100% reserves would lead merely to the proliferation of near monies. In a footnote (1948b, 329) Simons wrote that

The so-called "100 percent" scheme of banking reform can easily be defended only as the proper first step toward reconstruction of our whole financial organization. Standing by itself, as an isolated measure, it would promise little but evasion—small effects at the price of serious disturbance—and would deserve classification as merely another crank scheme.

What Simons now thought was necessary was the elimination of all short-term borrowing. Capital investments should be financed by equity or very long-term debt. It would simply be impossible in such a world to set up a corporation that would issue debt that would mimic the properties of bank deposits or notes. In retrospect we can see Simons warning us about the dangers of shadow banking.

Friedman endorsed 100% reserves in his *Program for Monetary Stability* (1959, 65–75), although not the more radical elimination of all short-term borrowing advocated by Simons in "Rules versus Authorities." Indeed, Friedman claimed that he would change nothing in Simons's plan except to add the requirement that the Federal Reserve pay interest on bank reserves, a reform that was finally achieved in the wake of the Panic of 2008. In 1954 Friedman (1968, 72–76) took note of the large increase in the amount of government bonds held by US banks as a result of World War II. At that time government bonds accounted for more than 50% of the assets of US commercial and savings banks, suggesting that achieving 100% reserves was not as difficult as it might at first appear. He viewed the high proportion of government bonds in bank portfolios as another reason why the U.S. economy was depression-proof. But that was not to last. By 1968 the proportion had fallen to 15%.

Friedman and Schwartz did not ignore the problem of near monies that Simons raised in "Rules versus Authorities." Indeed, in their work on money they concluded that the best definition of money was M2, which included time deposits

(savings deposits) at commercial banks. At the time, some economists were arguing that only demand deposits should be counted as part of the money supply, because only cash and demand deposits could be used as a means of payment. And Friedman and Schwartz (1970) presented estimates of M3 which included deposits at mutual savings banks and the postal savings system, and M4 which included in addition shares in savings and loan associations as alternative candidates for “the stock of money.” Nevertheless, it appears that Friedman and Schwartz saw less danger, at least in the short run, from the development of money substitutes than did Simons.² It was an empirical judgment. Additional support for this judgment was provided by Cagan and Schwartz (1975). They explored the interest elasticity of the demand for money econometrically and found that the elasticity had remained the same or declined in the postwar period. This finding suggested that the growth of money substitutes had not reduced the effectiveness of monetary policy.

5.5 Higher Reserves as a Remedy

In principle any increase in required reserves would help to stabilize the stock of money in the face of an attempt by the public to convert deposits into currency. But neither Friedman nor Schwartz, as far as I am aware, ever advocated a policy of increases in the required reserve ratio, taxes on low reserve ratios, or other partial measures. It may be that the gains in stability from partial measures did not appear substantial, at least until they were carried to the point that 100% reserves would be as nearly as easy to achieve.

Some examples of the possible advantages of raising required reserve ratios based on the Great Contraction are shown in Table 5.1. The first panel shows what actually happened. Between October 1929 (the stock market crash) and April 1933 (just before Roosevelt took office) the stock of money fell 48%. The second panel shows what would have happened under 100% reserves. Since the amount of high-powered money rose, the stock of money would have increased 9.5%. The third panel shows what would have happened had the initial reserve ratio been 50% and then risen by the same percentage that it actually rose. In this case, there would have still been a major decline in the stock of money, but it would have been only 60% as large as it actually was.³

²My interpretation of Simons is that he expected evasion to arise quickly once 100% reserves were put in place, but he doesn't discuss explicitly how long this would take.

³In both of the counterfactual examples the initial stocks of money would have been lower. We can imagine that the economy had adjusted to these lower amounts through lower prices, and that what mattered was the change from 1929 to 1933.

Table 5.1 The great contraction with alternative reserve rules

	Money (M2)	High-powered money	Reserve ratio of the banking system (%)	Currency-deposit ratio (%)
Actual changes				
Oct-29	48,167	7.345	0.079	0.086
Apr-33	29,756	8.074	0.117	0.212
Percent change	-48.16	9.46	38.94	89.66
100% reserves				
Oct-29	7.345	7.345	1.000	0.086
Apr-33	8.074	8.074	1.000	0.212
	9.46	9.46	0.00	89.66
High (50%) reserves				
Oct-29	13,607	7.345	0.50	0.086
Apr-33	10,302	8.074	0.74	0.212
	-27.84	9.46	38.94	89.66

Conceivably, also, a high required reserve ratio could be lowered or suspended during a financial crisis, instantly providing banks with funds they could use to meet withdrawals. That changes in required reserve ratios could have a potent effect is indicated by Friedman and Schwartz's discussion of the negative effects of increases in required reserves mandated by the Federal Reserve during the 1930s, but as far as I know, they never advocated manipulation of required reserve ratios as a policy instrument.

5.6 The Clearing House as a Remedy

A Monetary History covered the years 1867 to 1960. The Federal Reserve was established in 1913. So during roughly half the years they studied there was no central bank in the United States to alleviate banking crises. There were, in fact, five banking panics during the period 1867–1913: in 1873, 1884, 1890, 1893, and 1907. The panics of 1884 and 1890 were somewhat less severe. O.M.W. Sprague (1910), the leading historian of America's banking crises during this era, describes 1890 as a mere "financial stringency." There was no central bank that could serve as lender of last resort during this era, but there was an institution that could play the part of a central bank: the Clearing House. There were Clearing Houses in most major cities; the most important was in New York. In essence they were what their name suggests: an institution that allowed banks to clear obligations by simply settling net balances. If, for example, Bank A owed \$50 to bank B, Bank B owed \$50 to Bank C, and Bank C owed \$100 to Bank A, a simple payment of \$50 from C to A would clear all the debts. There would be no need to ship cash from A to B to C.

If a panic was threatened the Clearing House could help in several ways. First, the Clearing House could issue what were called Clearing House Loan Certificates to members who put up adequate collateral. The loan certificates could then be used by the banks in lieu of cash to settle their accounts. In our example, if Bank C experienced a run and didn't have the cash to pay the \$50 it owed to Bank A it could provide a Clearinghouse Loan Certificate. Second, suppose the main problem was that members were being drained of cash by the public. In that case the Clearing House could issue low denomination Clearinghouse Certificates that the banks could offer their depositors in lieu of cash. Finally, the Clearing House could undertake investigations of banks that were in trouble and report its findings to its members and, depending on the likely effect, to the general public. Perhaps a positive report would allay the fears that were producing runs.

The Clearing Houses did good work (at times) in addressing the post-Civil War panics. And a number of scholars have studied them in part because they are a private-enterprise solution to the problem of inherent instability. O.M.W. Sprague's *History of Crises under the National Banking System* (1910) was the first detailed survey of their role in the crises, and remains an important source of information. Friedman and Schwartz, it appears, relied heavily on Sprague when they described the role of the Clearing Houses. Sprague recognized the value of Clearing Houses, but was also highly critical of their responses to the panics. One of his key criticisms turned on the idea of "pooling reserves." In the crises of 1860, 1861, and 1873, but not in later crises, the members of the New York Clearing House had agreed to treat their gold reserves as a common pool that any of the members could draw on as needed. When this was done the New York Clearing House had, in Sprague's view, effectively turned itself into a central bank. One of the main purposes of Sprague's book was to convince the New York Clearing House banks to pool reserves, and do so in a timely fashion, in all incipient panics. Recent research by Gorton (1985), Gorton and Mullineaux (1987), Moen and Tallman (1998, 2000, 2012, 2014), and other scholars has uncovered considerable amounts of new information, both quantitative and qualitative, about the role the Clearing Houses played in financial panics, and has strengthened the view that they reduced the severity of the panics.

It remains true, however, that while the actions taken by the Clearing Houses ameliorated the effects of the panics, they were not a cure. The panic of 1907 is a good example of the limits of the Clearing Houses. In October 1907 there were runs on a number of banks in New York, and the Clearing House provided assistance which calmed depositors. But when the Knickerbocker Trust Company, a large institution that was not a member of the Clearing House experienced a run, aid was not forthcoming, the Knickerbocker suspended, and this precipitated a banking panic. Part of the problem was that the New York Trust Companies were less tightly regulated than the banks that were members of the Clearing House and for that reason, resented. Friedman and Schwartz (1963, 159) concluded that had the Knickerbocker been a member of the Clearing House, it probably would have been helped, and that the crisis might have been prevented. Real GDP fell 11% between

1907 and 1908. It took until 1911 for real GDP to recover the level reached in 1906.⁴

In the wake of the 1907 crisis Congress established the National Monetary Commission which recommended establishing the Federal Reserve. As an interim measure, however, it provided for an emergency currency. If a panic was threatened before the Federal Reserve was set up, national banks would be allowed to form associations that would issue currency to members of the association on the basis of collateral they provided. The banks in turn could pay out the emergency currency to worried customers. The Aldrich-Vreeland currency as it was known after the enabling legislation resembled the Clearing House approach in that it was the product of a collaboration of private banks, but solved the membership issue that had undermined the response of the New York Clearing House in 1907. The public was used to national bank notes which were secured by government bonds. The national banks could not easily secure additional bonds in an emergency. The Aldrich-Vreeland Currency was almost identical in appearance to the national bank notes, but the amount could be expanded because it was based on a wide array of collateral.

The Aldrich-Vreeland currency was used in 1914. A stock market and banking panic seemed to be in the offing when World War I erupted. There was widespread fear that Europeans would liquidate their American securities and take their gold back to Europe. As a result the stock market was closed and the Aldrich-Vreeland currency was issued. Most students of the episode, including Friedman and Schwartz, agree that the issue of the Aldrich-Vreeland currency nipped a potential panic in the bud.⁵ Friedman and Schwartz (1963, 172) put it this way:

to judge by that one episode, the Aldrich-Vreeland Act provided an effective device for solving a threatened interconvertibility crisis without monetary contraction or widespread bank failures.

And they go on to suggest that the issue of Aldrich-Vreeland Currency would have been “equally effective” in meeting the banking crisis of 1930. Of course, as Friedman and Schwartz are careful to note, there is only one observation. And it was an unusual observation: an external threat that potentially affected all of the banks, a situation in other words, conducive to collective action. In some respects the panic of 1914 was similar to the banking panics that followed the outbreak of the Civil War. And on that occasion the New York Banks did agree to pool their gold reserves, something that they were able to do on only one postwar occasion. The United States, moreover, soon learned that neutrality while Europe was at war would be a highly profitable. The situation in 1930 was different, a banking panic after a sobering stock market crash and in the midst of an already severe economic contraction.

⁴Data from www.measuringworth.com.

⁵Silber (2007) provides a detailed treatment of the episode and reaches a similar conclusion.

5.7 Restriction of Convertibility as a Remedy

When a bank's or a banking system's reserves are exhausted it has to restrict the convertibility of its deposits into cash. The payments mechanism is severely disrupted and economic activity will be harmed. Restriction, however, was not the end of all banking. Checks could still be written, money could still be deposited in banks, sometimes in special accounts backed by 100% reserves. If restriction came before reserves were completely exhausted, banks could adopt rules permitting gradual withdrawals. They could also make exceptions: for individuals dealing with emergencies, for example, or firms needing cash to meet payrolls.

Restriction, moreover, might have had what Friedman and Schwartz (1963, 165–167) labeled a “therapeutic” effect. Depositors could no longer hope to improve their position by running down to the bank and demanding cash. The restriction would give people time to calm down and for the panic to “wear off.” Perhaps there is an intrusion of “behavioral economics” here. Friedman and Schwartz appear to be suggesting that people can get into an emotional state, a panic, which distorts their ability to make purely rational decisions. Friedman and Schwartz (1963, 329), I should hasten to add, did not think that restriction was an optimal solution to the problem of banking panics. But they did think it was superior to what actually transpired in 1930–1933, a panic that seemed to wax and wane, but never disappeared.

Runs are possible when deposits are by custom or law convertible on demand into cash. This is not always the case. Many banks, savings banks, and building and loan societies issued time deposits that contained an option which the bank could exercise to delay payment. The bank could say that the deposits would be redeemed in, say 60 or 90 days. These options were exercised during panics and were generally effective in protecting the institutions that relied on them. In the Great Depression many savings banks and building and loan societies were able to protect themselves by invoking time-to-pay options.⁶ It's also possible to have bank notes that can be converted into short-term obligations in an emergency. Many banks in Scotland in the nineteenth century, for example, issued notes with “option clauses” that explained to note holders that their notes could be converted, at the discretion of the bank, into short-term interest bearing securities. Option clauses, however, were not generally permitted in the United States. National bank notes had to be redeemed on demand.

5.8 Deposit Insurance as a Remedy

Deposit insurance is another method for reducing the danger of bank runs and panics. If depositors know that their deposits are insured, they have less reason in an emergency to run to their bank to try to be first in line to convert their deposits

⁶George Bailey (Jimmy Stewart) might have considered this option in “It’s a Wonderful Life” rather than using the money Mary (Donna Reed) saved for their honeymoon.

into cash. Friedman and Schwartz, famously, praised deposit insurance in *A Monetary History* (1963, 440).

Adopted as a result of the widespread losses imposed by bank failures in the early 1930's, federal deposit insurance, to 1960 at least, has succeeded in achieving what had been a major objective of banking reform for at least a century, namely the prevention of banking panics.

It was a matter of both logic and experience. Deposit insurance removed the reason for bank runs, and in fact bank failures were rare for a long time after deposit insurance went into effect. Even in the prosperous 1920s there were hundreds of bank suspensions each year. The lowest number from 1921 to 1929 was 366 in 1922. The highest number from 1945 to 1960 was 9 in 1958 (Friedman and Schwartz 1963, 438). Friedman and Schwartz were not alone, of course, in seeing the benefits of deposit insurance.

This view was also shared, not surprisingly, by liberal economists. Paul Samuelson in the First Edition of his textbook (1948, 323) told the reader that

the importance of this measure [Federal deposit insurance] can scarcely be exaggerated. It would be absolutely wrong to say that bank bankruptcy is no longer a danger. But certainly, there need never again be universal bank runs.

In later years Friedman and Schwartz continued to support deposit insurance. Friedman returned to deposit insurance in "Why the American Economy is Depression-Proof" (1968) based on a lecture originally delivered in 1954. There Friedman extolled the virtues of deposit insurance, which he claimed was a more basic change in the American banking system than the Federal Reserve because it had "made bank failures almost a thing of the past" (Friedman 1968, 75).

What about moral hazard? Would bank depositors have any reason to monitor their bank if the government was insuring their deposits? Wouldn't risky, badly managed banking proliferate? Friedman and Schwartz recognized, of course, that deposit insurance reduced the incentive for depositors to monitor banks, and that as a result banks would be prone to take larger risks, but they thought that the benefits of deposit insurance outweighed the costs. That statement, of course, is made holding constant the existing set of institutions and policies. Since deposit insurance created a moral hazard problem, the inevitable result was that government would become more involved in supervising and regulating banks, something that Friedman opposed. He put it this way in *A Program for Monetary Stability* (p. 67 of the 1992 reprint) that "This amelioration of one defect of fractional reserve banking [instability] was attained, however, only by exacerbating the other; federal insurance of deposits involves a substantial increase in government intervention into the lending and investment process."

At the time he wrote *A Program for Monetary Stability* moral hazard was mainly a theoretical concern. Once the savings and loan crisis erupted, however, concerns about the moral hazard created by government sponsored deposit insurance moved to the front of the class. Friedman, however, rejected the view that deposit insurance was the main culprit behind the savings and loan collapse. True, deposit insurance

had been conducted in such a way that depositor had “nothing to lose” if a bank ran into trouble. But shareholders or managers of mutual savings banks did have something to lose.

The savings and loan crisis erupted, he argued, when inflation erased the equity of the savings and loans. Once the equity cushion was gone there was no constraint on risky behavior. It hit the balance sheets of savings and loans especially hard because, by law, they were heavily invested in fixed rate, long-term mortgages. The rates on these assets could not rise with inflation, but the rates savings and loans had to pay on deposits were under competitive pressures to go higher. Here is his bottom line. “Had monetary growth been restrained from 1970 on, the accelerating inflation would have been avoided, and the number of annual bank and savings and loan failures would still be in single digits, despite the defects in insurance arrangements” (Friedman 1992, 251n).

Schwartz (1979) spoke to the moral hazard dilemma when she discussed a paper by Homer Jones (1979) on New Deal financial market regulation.⁷ Jones had argued that a good reform for deposit insurance would be to tie deposit insurance premiums to bank capital. Banks with higher ratios of capital to assets would pay lower deposit insurance premiums. An even better solution, Jones argued, would be to eliminate deposit insurance altogether. As long as monetary policy was good, there was in his judgment, no need for deposit insurance. Schwartz (1979, 94–95) disagreed completely with Jones’s idea of eliminating deposit insurance. To the contrary, she regarded deposit insurance “as indispensable to the stability of our economy” and a “beneficial legacy of the New Deal period.” It could, however, be reformed. The main problem, as Schwartz saw it, was that the Federal Deposit Insurance Corporation was keeping banks in operation in order to protect the insurance fund. The right solution, in her view, was to give the Federal Deposit Insurance Corporation an “unlimited claim on the Treasury.” Bad banks should be shut down, insured depositors should be paid even if it means going to the Treasury for funds, and uninsured creditors such as depositors who hold deposits in excess of the insurance maximums and shareholders should absorb the losses.

Another potential problem with deposit insurance was the development of near monies. Deposit insurance imposed costs on financial institutions that issued deposits subject to Federal insurance: an annual fee for belonging to the Federal Deposit Insurance system and the costs of additional supervision and regulation. Those costs encouraged the growth of financial intermediaries based on near monies that were not subject to deposit insurance. While some shadow banking was in evidence during the years when Friedman and Schwartz were most active, the full dimensions of the growth of a large shadow banking system that relied on near monies could not be perceived in those years.

⁷Homer Jones was Friedman’s professor at Rutgers University. Jones went on to head the research department of the St. Louis Federal Reserve which became known for its monetarist views.

5.9 A Lender of Last Resort as a Remedy

The classic view of the Lender of Last Resort is to be found in Bagehot's *Lombard Street* (1924 [1873], 187–188).

“It [the Bank of England] must in time of panic do what all other similar banks must do; that in time of panic it must advance freely and vigorously to the public out of the reserve.”

The idea was simple, once people saw that they were able to get the cash they needed, the panic would subside. Experience, for example the experience of the Bank of England in the crisis of 1825, proved that free and vigorous lending worked. The rule that the Bank should lend freely in a panic was, however, subject to two qualifications.

“First. That these loans should only be made at a very high rate of interest. This will operate as a heavy fine on unreasonable timidity, and will prevent the greatest number of applications by persons who do not require it.”

As I will show below Friedman and Schwartz rejected this stricture when they came to criticize the Federal Reserve's policy during the Great Contraction (1929–1933). The reason, perhaps, is that while Bagehot had to worry about protecting the Bank of England's normally limited gold reserve, the Federal Reserve had an abundance of gold in the 1930s, and could in any case have moved to a fiat standard, as the U.S. soon did, without creating the emotional reaction that such a move would have had in 19th century Britain, where preservation of the gold standard was an article of faith.

Even more problematic was Bagehot's second qualification.

Secondly. That at this rate these advances should be made on all good banking securities, and as largely as the public ask for them. ... No advances indeed need be made by which the Bank will ultimately lose (Bagehot 1924, 188).

Capie (2002, 310) describes how, in theory, Bagehot's rule would work.

The mechanism can be thought of as the central bank with a discount window that is of frosted glass and is raised just a few inches. Representatives of institutions could therefore appear at the window and push through the paper they wanted discounted. The central bankers would return the appropriate amount of cash, reflecting the going interest rate. The central banker does not know, nor does he care, who is on the other side of the window. He simply discounts good quality paper or lends on the basis of good collateral.

What about a bank that did not have enough good assets to get the cash it needed to stave off a run? It would have to throw up its hands and to enter the bankruptcy process. Bagehot thought that normally there were so few bad assets floating around that his good-collateral-only policy would not hamstring the Bank of England, because most of the collateral circulating in the market would be good in the long run.

But in practice central banks have often aided institutions that might prove insolvent because of the fear that if they were allowed to fail a panic might be ignited, or if one was already underway, might be intensified. Even the Bank of

England, itself, had not followed Bagehot's good-quality-only rule. In 1801 the Bank lent to Hibberts, Fuhr, & Purrier on guarantees from 13 firms including Baring Brothers & Co. In 1836-37 the Bank loaned to several firms that had run into difficulties while financing trade with the United States. Aid was provided to Sir James Esdaile, Esdaile, Grenfell, Thomas & Co. on the guarantee of several private bankers. Aid was also provided to the three W's—Wiggin, Wildes, and Wilson—for a time, although they were eventually allowed to fail. And aid was provided to W. & J. Brown & Co., which received a total of almost £2,000,000, about £5.6 billion in today's money using GDP as the inflator (www.measuring-worth.com). The most famous use of firm-specific aid was in 1890. The house of Barings had gotten into trouble by investing heavily in Argentine and Bolivian bonds. With a pledge of help from the government, the Bank of England organized a guarantee fund. When the public learned about the trouble that Barings had gotten into they also learned about the guarantee fund, and no run ensued. It was an example of successful central banking, but not of Bagehot's rule.

In *A Monetary History* Friedman and Schwartz argued that during what they dubbed the "Great Contraction" (1929–1933) the Federal Reserve followed a disastrous policy of non-intervention and that following Bagehot's rule would have been a far better policy.

The actions required to prevent monetary collapse [in the early 1930s] did not call for a level of knowledge of the operation of the banking system or of the workings of monetary forces or of economic fluctuations which was developed only later and was not available to the Reserve System. On the contrary, as we have pointed out earlier, pursuit of the policies outlined by the System itself in the 1920's, or for that matter by Bagehot in 1873, would have prevented the catastrophe. (Friedman and Schwartz 1963, 407).

But that does not mean that they thought that Bagehot's policy was optimal. To the contrary, they argued that the best policy was to maintain the stock of money by creating enough high-powered money to offset the downward pressure on the stock of money produced by the increase in the currency-deposit ratio of the public and the increase in the reserve-deposit ratio of the banks as both the public and the banks struggled to remain liquid. High-powered money could be created by lending to banks, and here a low rate to encourage borrowing was to be preferred to Bagehot's high rate. And high-powered money (the monetary base) could be increased simply by Federal Reserve purchases of bonds, what was then called open market operations, and what would now be called quantitative easing. This comes out clearly in their criticism of Federal Reserve policy in 1931 and 1932.

... in October [1931], it [the Federal Reserve] permitted its discounts and its bills bought to rise sharply. But this was at the initiative of the member banks, in spite of sharp rises in the rates on both, and was a result of the desperate situation of member banks because of the double drain [of cash abroad and internally]. As we have seen, even after the height of the crisis, the New York Bank reduced bill buying rates only gradually and kept them above market rates, so bills bought declined rapidly. The System took no active measures to ease the internal drain, as it could have done through open market purchases. (Friedman and Schwartz 1963, 395).

5.10 Free Banking as a Remedy

The United States is uniquely prone to banking crises. Systems in other advanced economies have done much better. The United States has had many banking panics, but Canada, for example, has had none (Bordo et al. 2015). And it is not simply a matter of having an effective central bank. The basic problem has been that the U.S. banking system was fragmented. Until recent years, banking stopped at the state line. And in unit banking states it might stop at the border of the local town or village. People had little confidence in the strength of these banks and would withdraw their cash at the first sign of trouble. These banks in turn would draw down their reserves in large correspondent banks transmitting the pressure, or the anticipated pressure, to large financial institutions. The origins of this system were complex, but the roots were the conflict between the states and the federal government for power and the opposition of Populist farmers to control and exploitation, as they saw it, from bankers in Eastern financial centers (Calomiris and Haber 2014).

The experience of Canada and other banking systems that have avoided financial panics, even in the absence formal lenders of last resort, has led to a number of writers of the “free banking school” to argue that an unregulated banking system could be stable. In “Does the government have any role in money” Friedman and Schwartz (1986b) rejected that view. They focused particularly on the case of Scotland in the first half of the nineteenth century. Scotland had a relatively unregulated banking system, branch banking was the norm, and no significant crises. Friedman and Schwartz, however, maintained that there were several special factors. Most importantly, perhaps, the large Scottish banks, the Bank of Scotland and the Royal Bank of Scotland, provided aid for the Scottish banking system in times of stress, relying as circumstances demanded on London financial market and the Bank of England.

5.11 Bailouts as a Remedy

A central bank could follow Bagehot’s policy of lending on good collateral. But what about the policy of aiding systemically important financial institutions which are on the brink of failure, as the Bank of England and its partners did in the Barings Crisis, or the more extreme policy of simply bailing out failed banks?

Much can be learned about Friedman and Schwartz’s attitude toward bailouts from their discussion in *A Monetary History* of the failure of the Bank of United States in December 1930. This failure, they argue, was of special importance because it was the first large bank in New York City to fail during the Great Contraction, and possibly because its name misled some people into believing that it was sponsored by the federal government, although in fact it was an ordinary commercial bank chartered by the state of New York. The aggregate

deposit-currency ratio began to fall after this failure, showing that it had significant macro-economic consequences. In a long footnote in *A Monetary History* Friedman and Schwartz (1963, 309–310n9) described the efforts to save the bank. The plan was to merge it with several others in New York and to inject \$30 million provided by the clearing house banks. It would not have been the sort of emergency lending described by Bagehot in *Lombard Street*, but it would have been similar to the rescue organized by the Bank of England in the Baring crisis and in earlier crises. In *A Monetary History* Friedman and Schwartz provide only hints as to why the plan fell apart. They report a recollection by one of the participants, Jackson Reynolds, the President of First National Bank and of the Clearing House Association, who thought that the effects of the closure would be “local.” And they report the recollection of another participant that the representatives of the Clearing House were concerned about the Bank of United States’ real estate investments. In modern parlance the beliefs were that the bank was not “systemically important” and not solvent.

In some of his popular writings and in his 1980 TV series, “Free to Choose,” Friedman went further in pointing to the failure of the Bank of United States as the trigger for the crisis and in identifying the reasons why it was allowed to close. He began Episode Three, “Anatomy of a Crisis,” his story of the Great Depression, with scenes in which he is filmed looking up at the building that was the former home of the Bank of United States.⁸ This was where the crucial event occurred, Friedman tells the viewer, which turned a recession that was already severe because of the stock market crash into a crisis.⁹ He goes on to explain that the bank served mainly Jewish merchants on the Lower East Side of New York, the famous starting point for many poor Jewish immigrants. Anti-Semitism, Friedman suggested, was one of the reasons why the Clearing House failed to rescue of the Bank of United States. Rumors fueled by anti-Semitism, he added may even have contributed to the runs on the bank that had so weakened it that a rescue was necessary. This was undoubtedly done to increase the visual drama for the sake of the television audience, but nevertheless it helped to make the failure of the Bank of United States an important component of the understanding that most economic historians have of the Friedman-and-Schwartz interpretation of the Depression. In the end, in the *A Monetary History* Friedman and Schwartz (1963, 311) noted that the Bank paid 83.5% of its adjusted deposits after it was liquidated during the depression. That fact and other evidence (Friedman and Schwartz 1963, 355) suggested the Bank was probably a good candidate for a rescue. Evidently, Friedman and Schwartz’s criteria for a rescue, perhaps like the Bank of England’s in the Barings crisis, is that aid makes sense if an important bank is not clearly insolvent.

The references in *A Monetary History* to the Bank of United States (and the reference in the television show?) stirred up an energetically contested debate about

⁸<http://www.youtube.com/watch?v=SWVoPrntBso>.

⁹The book that accompanied the television series, Friedman and Friedman (1980, 80–82), also gives a starring role to the failure of the Bank of United States.

the solvency of the Bank of the United States and the reasons why it was not assisted (Temin 1976, 90–93, Lucia 1985, Friedman and Schwartz 1986a, O'Brien 1992, and Trescott 1992). Joseph Lucia (1985) in particular took Friedman and Schwartz to task for exaggerating both the importance and the solvency of the Bank of United States. Friedman and Schwartz (1986a) responded on a number of issues, but their main point was that even though the failure of the Bank of United States had a major impact, the stock of money could have been maintained in 1930–1933 with open market operations, and that this would have been an effective response even if many banks, such as the Bank of United States, had been deemed insolvent and allowed to fail. Indeed, they seem to suggest that the right policy would have been to allow it to fail if it was clearly insolvent.

On other occasions, however, Friedman and Schwartz suggested that aiding banks that appeared to be insolvent would not be such a bad thing. In discussing the Reconstruction Finance Corporation Friedman and Schwartz (1963, 330–331) suggested that Reconstruction Finance Corporations funds in the form of capital would have helped the banking system in 1932 and that the Corporation's policy of demanding the bank's best assets as collateral for its loans was a mistake.

More decisively in "Why the American economy is depression-proof (1968)" in which, as I noted above Friedman extolled the virtues of deposit insurance, he added that it was not merely deposit insurance that got the job done, it was also the way in which bank failures were handled by the Federal Deposit Insurance Corporation.

A bank no longer fails when it has been badly managed and its assets fall short of its liabilities. The F.D.I.C. takes over its bad assets, or assumes responsibility for them, and arranges a merger of the "bad" bank with a "good" bank (Friedman 1968, 75)

Friedman went on to compare this approach, favorably, with the approach of the Federal Reserve which

was never more than a "lender of last resort."; it gave depositors no protection against bad banking, and partly as a consequence, was unable even to perform its proper function of protecting them against bad central banking. The F.D.I.C. has in effect converted all deposit liabilities of private banks into a Federal Liability. It has thus eliminated the basic cause for runs on banks of the kind that occurred in 1931 to 1933 as well as earlier periods (Friedman 1968, 75).

There is no logical contradiction between this view and the one expressed in reply to Lucia. Nevertheless, here Friedman came much closer to endorsing the positive benefits of government bailouts for insolvent banks.

In June 1970 the Penn Central Railroad declared bankruptcy. There was a widespread fear that the failure of Penn Central to make good on its borrowings in the commercial paper market would ignite a panic. The Federal Reserve then took several actions designed to prevent a panic including open market purchases to increase the stock of money. What about bailing out Penn Central itself? Friedman (1970) was critical of the need for a rescue operation. In his view, there was little danger of a banking panic. Failures of industrial firms were distinctly different from failures of financial firms, and only the latter could precipitate a panic. As long as

the payments system was protected by the Federal Reserve and deposit insurance there was no need, in his view, to bail out an industrial firm.

In 1984, however, Continental Illinois, the nation's eighth largest bank failed because of losses on investments in energy loans made by Penn Square Bank of Oklahoma. The Federal Reserve and Federal Deposit Insurance Company cooperated in creating a bailout plan that included replacement of the bank's management. Friedman and Schwartz (1986a) thought that the bailout had been handled well, and used it as an example of the ongoing danger of contagion that created a need for government involvement in banking.

Thus, it would appear that Friedman and Schwartz's usual position was that the social costs of banking panics were so high that it was wise to bail out important financial institutions even if in principle the Federal Reserve could ignore these failures and concentrate simply on increasing high-powered money.¹⁰ Shareholders and administrators should be made to bear the costs of bad decisions, but depositors should be protected.

The defining moment in the most recent crisis was the failure of Lehman Brothers on September 15, 2008. The U.S. economy had already contracted and an atmosphere of near panic prevailed in financial markets. But the failure of Lehman Brothers precipitated a full blown old school financial panic and accelerated the decline in the economy. Why did the failure of Lehman Brothers have major consequences? Other major firms had already gotten into trouble, but had received federal assistance. In March 2008 the Federal Reserve provided financing to help JPMorgan Chase acquire the troubled investment bank, Bear Stearns. In July the Federal Reserve Board and the Treasury authorized lines of credit for the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac). On September 7 Fannie Mae and Freddie Mac were, essentially, nationalized. But on September 15 Lehman Brothers, a troubled investment bank—a very large and well regarded investment bank—was simply allowed to fail, while at the same time American International Group, an insurance company, which had sold credit protection against a large volume of now toxic assets, was bailed out by the Federal Reserve in return for a nearly 80% share in the company. These apparently contradictory decisions raised questions about the willingness or the ability of the government to act as lender of last resort, and that may well have been the final precipitant of the panic.

There has been some debate about why Lehman Brothers was allowed to fail. The Federal Reserve has maintained that it lacked the legal authority to rescue Lehman Brothers because Lehman was clearly insolvent; Lehman Brothers simply lacked securities that could adequately collateralize sufficient loans. On the other hand, more than a few observers have suggested that political considerations also played a role. As the crisis progressed the government came under increasing pressure to end what appeared to the public to be simply handouts to the richest

¹⁰See Nelson (2013) for a broader discussion of the extent to which Friedman's ideas about monetary and banking policy were implemented after the crisis in 2008.

Americans. Shortly before the collapse of Lehman Brothers, Treasury Secretary Henry Paulson purportedly told Ben Bernanke and Timothy Geithner at the Federal Reserve: “I can’t be Mr. Bailout” (Sorkin 2009, locations 5055–10 of 13,296).¹¹

In an interview with National Public Radio in June 2009 Anna J. Schwartz, in one of her last comments on public affairs, took a relatively hard position on bailouts. There she argued that the best policy would have been for the Federal Reserve to state clearly: “We will help a bank, which basically is solvent. We will not do that for a bank, which is on the verge of bankruptcy.” But hadn’t that been tried with Lehman Brothers? No, she argued, the drastic effect of the failure of Lehman Brothers was the result of an inconsistent policy. “... when Lehman Brothers was permitted to fail, the market was simply bewildered. Because here you had treated Bear Stearns in this kindly fashion, and what reason was there not to do the same when Lehman Brothers arose?” Ryssdal (2009).

Andrew Ross Sorkin (2009, locations 10,283–91, of 13,296) reached a similar conclusion in his detailed history of the financial crisis.

They offered a safety net to Bear Stearns and backstopped Fannie Mae and Freddie Mac but allowed Lehman to fall into chapter 11, only to rescue AIG soon after. What was the pattern? What were the rules? There didn’t appear to be any, and when investors grew confused – wondering whether a given firm might be saved, allowed to fail, or even nationalized – they not surprisingly began to panic.

5.12 What Would Milton and Anna Say?

Having reviewed the evolution of Friedman and Schwartz’s views on the regulation of banking, it is tempting to say that in the present circumstances Friedman and Schwartz would recommend _____. But, of course, we can’t complete the sentence. Friedman and Schwartz would analyze the myriad of current trends and institutional constraints and come up with good ideas, but we don’t possess the same analytical skills. We can’t “channel” Friedman and Schwartz or design a computer to replace them. We can study all the games of world chess champion Magnus Carlsen, but we cannot play as well as he does. But knowing their basic principles we can perhaps

¹¹That said, the first version of the bailout bill that Paulson sent to Congress which was 840 words long, would have authorized \$700 billion for buying toxic assets, and made the Secretary of the Treasury immune from oversight by the courts or Congress. The text of the proposal read, in part, “Decisions by the Secretary pursuant to the authority of this Act are non-reviewable and committed to agency discretion, and may not be reviewed by any court of law or any administrative agency.” http://www.nytimes.com/2008/09/21/business/21draftcnd.html?_r=1.

see the broad outline of where their thinking would take them. These principles, I believe, can be summed up as follows, although one could cite individual passages where Friedman and Schwartz seemed to head in a different direction.

- (1) Fractional reserve banking is inherently unstable. And for that reason requires some form of government regulation or intervention. Laissez Faire is a good general rule, but there is a role for government in banking.
- (2) The radical solution to the problem of inherent instability is 100% reserves. But alternative measures such as deposit insurance, branch banking, or a central bank acting as lender of last resort may also be effective in some circumstances.
- (3) Policies should be evaluated by comparing them with credible alternatives. A policy with respect to banking might be unnecessary or counter-productive given an optimal policy with respect to the growth of the stock of money, yet might be highly desirable given a less than optimal monetary policy.
- (4) Provided the stock of money is being maintained at appropriate levels through open market operations the best policy for a central bank is Bagehot's rule, to lend freely on good collateral to solvent banks.
- (5) If the central bank cannot be trusted to follow an optimal monetary policy, there may be a case for bailouts in which insolvent banks receive government aid in some fashion. Perhaps the central bank or the Federal Deposit Insurance Corporation could take over the bank's bad assets and merge the remainder of the insolvent bank with a solvent bank.
- (6) Regulations and policies should be clearly stated and apply to all depository institutions. The radical solution, 100% reserves, is a good example.

Recent reform efforts have fallen in with the idea that banking needs strong regulation. But the goal of identifying "systemically important" financial institutions and treating them in a special way would appear to move away from the sort of regulatory framework Friedman and Schwartz favored. Their discussion of the 1930s illustrates the potential problem of trying to prevent panics with special rules for special banks. In 1930 the problem, according to Friedman and Schwartz was a wave of bank failures—many of them small unit banks—in the South and West and the failure of the Bank of United States in New York. The latter, to be sure, was a big bank, and close geographically to major Wall Street banks. But its structure still reflected its roots on New York's lower east side. Would a regulatory system based on the idea of special rules for "systemically important" banks have prevented this catastrophe?

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