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Fractional reserve banking: The genesis of macro-instability

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Fractional reserve banking: The genesis of macro-instability

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University of Nevada, Las Vegas, 1992

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FRACTIONAL RESERVE BANKING: THE GENESIS OF MACRO-INSTABILITY

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A thesis submitted in partial fulfillment of the requirements for the degree of Master of Arts in Economics

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ABSTRACT

Fractional Reserve Banking: The Genesis of Macro-Instability

This thesis is a theoretical criticism of fractional reserve banking. The Austrian school (especially the works of Mises, Hayek and Rothbard), consider credit expansion to be the genesis of macro-economic instability.

This study applies Austrian interest, capital and business cycle theory to challenge the widely held assumption that our present economic system is fundamentally sound. Using a theoretical construct known as the "Angel Gabriel Model", the devastating consequences of continuing credit expansion are explored. Fractional reserve free banking is also considered within this model and found to be an unsatisfactory option when compared to 100 percent reserve banking. In conclusion, policy proposals and system transition are considered in the event of a general economic collapse.
# TABLE OF CONTENTS

1. Introduction ....................................... 1

**PART ONE**

**FRACTIONAL RESERVE BANKING**

2. Grounds for Questioning the Long Term Viability of Fractional Reserve Systems . ................. 4

3. The Market's Historical Response to Fractional Reserve Banking . ......................... 5

4. Possible Factors Delaying a More Severe Market Response . ................................. 9

5. The Illogical Foundation of Fractional Reserve . 12

**PART TWO**

**THE RETURN OF THE ANGEL GABRIEL**

6. Angel Gabriel: Chairman of the Fed ............ 19

**PART THREE**

**FRACTIONAL RESERVE FREE BANKING**

7. Introduction ......................................... 32

8. George Selgin: *The Theory of Free Banking* .... 34

9. The Historical Record ................................ 35

10. Fractional Reserve Free Banking in Ruritania ........ 51

11. Conclusion ........................................... 73

**PART FOUR**

**THE FUTURE WITHOUT FRACTIONAL RESERVE BANKING**

12. Failure of the Present System ................. 76

13. System Transition ................................. 78
# TABLE OF CONTENTS (Continued)

14. Policy Proposals .......................... 82
15. Conclusion ................................. 85
16. Notes ..................................... 88
17. Bibliography ............................... 92
1. Introduction

We are living in a unique period of history. Since the final collapse of the Bretton Woods Agreement in 1971, no currency in the world has maintained even the most tenuous ties to gold. The present financial system is relatively new, yet most mainstream economists assume that (given proper fiscal and monetary management) it is viable and able to cope with a changing and vibrant economy. The purpose of this thesis will be to challenge that assumption.

Much of what is considered macro instability is, in essence, a market response to fractional reserve banking. Historically, the market has ultimately reacted violently to fractional reserve banking. Bank runs, stock market crashes, the collapse of the Bretton Woods System and other financial phenomena tend to occur in a panic. Government orchestrated, fractional reserve credit expansion has always led to crisis and collapse, except under the present system. It may be too soon to evaluate, however. Judging from the way the market has responded in the past, is it not possible that the market may respond in an equally violent manner, which has not been seen because of the relatively short and peculiar nature of this particular period? This is the primary question that this thesis will explore.
I will begin by establishing grounds for questioning the long term viability of any fractional reserve system, and continue with a brief historical review to illustrate that there has never been such a system that has operated for very long without periodic crises that are more severe the longer the duration of the credit expansion. Because fractional reserve banking limits credit expansion to a greater degree, it is preferable to government sponsored banking, however, 100 percent reserve banking is far superior to both. I will discuss reasons why a more severe market response to credit expansion has not already occurred and conclude Part One by exploring the logical contradictions upon which any fractional reserve system is based. In Part Two, using a theoretical construct familiar to Austrian economists known as the "Angel Gabriel" model, I will attempt to illustrate the inevitable consequences of sustained and systematic, long term expansion of credit.

Part Three will discuss an area of much recent interest: fractional reserve free banking. I will question the basic assumptions upon which fractional reserve free banking is based and also the historical record. It is important to show that 100 percent reserve banking is superior to fractional reserve free banking, for if it were to be implemented, its disruptive effects would be seen as an
indictment of the free market and not the inevitable consequences of a fundamentally flawed system.

In conclusion, I will explore the implications of a collapse of fractional reserve and some of the ramifications of this assertion. Throughout this thesis, I will be drawing heavily upon interest, capital and business cycle theory as developed by the Austrian school, especially Mises, Hayek, and Rothbard.\[1\] Even though most Austrian business cycle theory presumes some form of gold standard,\[2\] much of the analysis can be applied to our present system.
PART ONE
FRACTIONAL RESERVE BANKING

2. Grounds for Questioning the Long Term Viability of Fractional Reserve

The purpose of this thesis is to explore and question the long term viability of any financial system based upon government controlled fractional reserve banking. Many questions immediately come to mind but among the foremost might be, "If any credit expansion is not viable in the long run, why hasn't the present system already collapsed?"

It is true that in the almost sixty years since the United States began to disengage the dollar from gold the banking system has almost always operated on some form of fractional reserve. There have been recurrent recessions and stock market crashes, yet no general collapse. The majority of mainstream economists are confident that existing policy tools can prevent such a collapse, yet the 1987 stock market crash may give rise to question that belief. Although a variety of explanations as to the cause of the crash have been offered, all fall short except for one. As Rothbard writes,

To put it simply; the reason for the crash was the credit boom generated by the double-digit monetary expansion engineered by the Fed in the last several years.[3]
Although there have been several such sharp downturns since the Great Depression, nothing has approached its severity and duration. Even many economists critical of mainstream economics feel that the system can stumble on indefinitely; that there is nothing inherent in the system that must lead to its inevitable collapse as long as people are willing to accept occasional economic downturns. Yet, because few question its soundness does not mean that there might not be a serious problem. It may be useful to examine how the market has responded to credit expansion in the past.

3. The Market's Historical Response to Fractional Reserve Systems.

Historically, the market has always reacted violently to credit expansion. Although the credit expansion may have been gradual, the inevitable response was rapid. The price-specie-flow mechanism identified by David Hume, although not applied to fractional reserve banking until the early 19th century, demonstrated how the market responds to inflation. When one nation increases its currency more rapidly than others, price inflation is a result. As domestic prices rise relative to imports, individuals spend more on imports and less on domestic products. As foreign suppliers redeem the inflated currency for gold, a gold drain begins from the inflating nation. The gold reserves upon which the currency
is based begin to erode and the inflating nation must contract its supply of currency or its banks will collapse, and this contraction has always occurred in a panic.

The Bretton Woods System was also a victim of the market's inexorable response to a fractional reserve system. Under the Bretton Woods agreement, the United States was bound by law to redeem in gold all dollars held by foreign central banks. As the United States continued to inflate throughout the 1950s and 1960s, dollars piled up in Central Banks overseas until market pressures could not be held off any longer. Europeans realized that dollars were no longer worth 1/35 of an ounce of gold and desired to redeem their dollars in what amounted to a classic Gresham's Law situation. The Bretton Woods System collapsed on August 15, 1971, in what might be viewed as a "bank run". The depositors who wished (and were entitled by law) to redeem their dollars were foreign central banks while the banker who defaulted was the central bank of the United States. The world entered a unique period in history, for this was the first time that not a single currency in the world could be redeemed in gold in any form. As Dr. Rothbard writes,

For the first time in American history, the dollar was totally fiat, totally without backing in gold. Even the tenuous link with gold maintained since 1933 was now severed.[4]
Because the gold standard provides an effective check to unlimited credit expansion, many economists proposed that eliminating the gold standard might also circumvent the inevitable market response. It is, however, extremely difficult, if not impossible, to avoid market response in the long run. Many might say the market is "invincible" and any attempts to manipulate it in any area only leads to crisis, failure, or a drastic reduction in the standard of living. The collapse of Bretton Woods, the price-specie-flow mechanism, and recessions are all market responses to credit expansion. Much of what is considered "mainstream macro policy" is an attempt to circumvent such responses. It is true that we no longer have a gold standard to check credit expansion but might not the market have a new, and as yet unseen reaction to our present system, given that it is not quite twenty years old? Both Mises and Rothbard have written about the "Runaway Boom" [5] as the ultimate check on inflation but how does this mechanism work? Does it occur as a result of government greed and mismanagement or is there a fundamental flaw due to the logical contradictions inherent in any fractional reserve system?

If there is indeed a fundamental flaw to this system, one would have expected certain events to occur before any major crisis. One is the collapse of Bretton Woods. According to the Austrian theory of the business cycle, it is the
cessation of, or decrease in, the rate of inflation that
ushers in the end of the boom. The Austrian theory stands
alone in identifying the inevitable "bust" as a result of
the previous "boom". Most of the theoretical work done on
the Austrian theory, however, assumes some form of gold
standard. Any gold standard will eventually force the
cessation of credit expansion if the government wishes to
defend the gold standard. But what happens when the
government abandons the gold standard (as Nixon abandoned
Bretton Woods) and yet continues to expand credit? Has the
market been circumvented?

In 1971, the government faced only two options: either
defend the Bretton Woods System or abandon it. It chose to
abandon it. Any market response to continuing credit
expansion (such as bank runs, monetary contractions or
depressions) would have occurred after that point. Since
previous market responses occurred in roughly ten year
intervals, isn't it possible that the market may have a new
but similar response that will not be seen for 25 to 30
years - or possibly even longer? Can we expect a continuing
string of boom periods followed by sometimes sharp but
manageable recessions or can we expect a rapid and general
collapse and cessation of credit expansion as in the past?
Is the Savings and Loan crisis an expansion of a fundamental
problem or a one time aberration that can be corrected?
These are the questions this thesis will be dealing with. I hope to establish enough evidence to at least question the belief that the present system is fundamentally sound. It may be useful to discuss some reasons why the market may not have already responded to this continuing and unchecked credit expansion.

4. Possible Factors Delaying a Severe Market Response to Unlimited Credit Expansion.

The end of World War II left the United States as the dominant economic, military, and political power. Most of Europe and Japan could only be rebuilt, at least initially, with American products. The Marshall Plan authorized billions of dollars in aid so that those products could be purchased. The Bretton Woods System established the dollar as the primary reserve currency for most of the world's central banks. Consequently, the demand for the dollar tremendously increased and the United States was able to increase the supply of the dollar without enduring a decrease in the nominal value of the dollar. The increased demand for the dollar lasted well into the sixties when the European and Japanese recovery was almost complete and foreign central banks began to build up large dollar reserves.

The effects of World War II and other offsetting factors were unique to the period and could not continue forever.
During the 1950s and 1960s West European countries reversed their previously inflationary policies and came increasingly under the influence of free market and hard money authorities many of whom had been influenced by Ludwig von Mises. Rothbard writes, "The United States soon became the most inflationist of the major powers. Hard money countries, such as West Germany, France and Switzerland, increasingly balked at accepting the importation of dollar inflation, and began to accelerate their demands for redemption in gold."[6] By the late sixties, the market's inexorable response to continued credit expansion resulted in the collapse of the Bretton Woods agreement.

It can be argued that if certain events had not occurred, the system would not have collapsed, but this is missing the point. Even if the Bretton Woods crises had not occurred until several years later, and even if the United States had continued to increase the supply of dollars, Bretton Woods would still have been doomed. The important point to remember is that it was a system that was not viable in the long run and that, amazingly, lasted as long as it did. In any credit expansion, there are events peculiar to that historical period that can be pointed out as the event that forced the end of the credit expansion or in the case of Bretton Woods, forced the end of the system. But these are proximate causes and not the primary cause for collapse. If
the effects of these events could have been eliminated, the
credit expansion might have continued for a time, but
eventually the pressure to stop the inflation
would have become overwhelming.

There are also other reasons why we might not have seen how
the market reacts under a pure fiat system. According to
the Austrian theory of the business cycle, the adverse
effects of the previous credit expansion will not be felt
until inflation, or the rate of inflation, has been reduced.
This point cannot be accurately predicted because the crisis
can always be pushed a little further into the future with
an injection of credit. At the heart of the Austrian Theory
is the idea that credit expansion causes an intertemporal
dislocation. This will inexorably result in the market
attempting to readjust. What many mainstream economists see
as recession or depression is just the market attempting to
readjust and return to the old capital/consumption ratios
that existed before the credit expansion. Because capital
prices rise relative to consumer prices during the boom,
they also fall relative to consumer prices during the bust.
We have already seen a substantial fall in the real estate
market over the past few years.

In recent years, foreign investment in the United States has
increased dramatically. Real estate and stock prices have
risen over the past decade as a result of credit expansion and new foreign investment. This has kept the value of the dollar relatively strong and U.S. capital markets fairly firm. The trend has been for U.S. consumers to buy foreign consumer goods and for foreign suppliers to purchase U.S. capital and debt. The Federal government makes a tremendous demand upon credit markets but this has been roughly offset by foreigners willingly supplying more credit. This trend cannot continue forever because interest rates cannot remain artificially high in the U.S. relative to the rest of the world. Market forces tend to make real rates of interest the same in all nations. U.S. Government borrowing has pushed interest rates up but this cannot continue indefinitely without bankrupting the U.S. When this trend reverses itself, capital values will have lost one of the key factors maintaining support. The value of capital goods will fall relative to consumer goods. This may be the signal that the market is finally responding to the previous credit expansions. The government may be faced with two choices: continue inflating at an accelerating rate or convert to a more rational and viable system.

5. The Illogical Foundation of Fractional Reserve

Characteristics Unique to Fractional Reserve

A distinguishing characteristic of fractional reserve
systems is that two parties have full and exclusive ownership of the same asset over the same time period. When one deposits funds in a fractional reserve institution, and those funds are in turn loaned to a third party, a unique situation arises which cannot be found in any form. In other enterprises, only one party owns assets at any particular point in time. Transferral of ownership is precisely defined. In fractional reserve, however, when a bank extends a loan, it allows the debtor virtual ownership of those funds for the duration of the loan as long as he meets the terms. These same funds, however, are supposedly available on demand to the original depositor. This is, in fact, the genesis of bank runs, for when two parties retain full and exclusive ownership of the same asset during the same time period, whoever first takes possession of that asset retains possession, leaving no legal recourse to the other owner.

The law has attempted to circumvent this logical contradiction by ruling that fractional reserve deposits are not the legal property of the depositor but, "a loan", which the debtor (fractional reserve institutions) must repay on demand. [7] The essential point, however, that must be remembered is that individuals act "as if" their deposits at fractional reserve institutions were their property and not an investment. Indeed, most depositors would be shocked to
discover otherwise. Other forms of fractional reserve such as ponzi schemes or grain elevators issuing unbacked warehouse receipts, have been codified into law as fraud.

Our present system also gives rise to the peculiar situation where the marginal costs of producing a good (debt) are lower for one producer (the government) than any of its competitors. In fact, government costs of creating debt through the banking system are virtually nil, for the monetary base upon which the debt is pyramided is constituted out of thin air. In any other enterprise, there may be one producer whose marginal costs are lower than its competitors but none whose marginal costs are effectively zero. Indeed, if there were, he would produce to the point where his product practically became a free good. It is only because the government has chosen to limit its credit expansion to a certain extent that this has not occurred. If government expanded production of debt to its limit drove and all other producers of debt off the market, then everyone except the government would be involved in the purchase of goods (only the government is investing or producing) and this is nothing more than an extreme case of hyperinflation. Also, in any other example, the production of good implies the non-production of all other goods which might be created from the original inputs. This is not true of debt incurred through a fractional reserve system. Debt
established from other sources however, implies that there are investors who have decided to forego present consumption in favor of future consumption.

It is these logical contradictions which give rise to all the problems associated with fractional reserve and which will ultimately result in a future crisis.

Enterprises Commonly Mistaken as Forms of Fractional Reserve

To justify their support of fractional reserve, some theorists claim that it exists in many forms throughout the economy, not just in the financial world. They often cite bridges as an example of fractional reserve. Imagine a bridge which is constructed to meet the needs of a community. Normally, the bridge is large enough to handle any amount of traffic. If every member of the community attempts to cross at the same time, however, many members would be unable to cross. Theorists use this analogy to demonstrate that if all members of a fractional reserve bank were to withdraw their funds at the same time, the bank would be unable to provide sufficient liquidity to meet their needs. This supposedly is an example of a fractional reserve institution existing on the market.
I disagree with this conclusion. As was mentioned earlier, the essential aspect of any fractional reserve system is that more than one party has full and exclusive ownership of the same asset over the same period of time. If an individual built a bridge and sold shares promising the shareholders the right to cross the bridge at any time, and he oversold the number of shares to such an extent that not all shareholders were able to cross at the same time, he would be guilty of fraud. If the number of shares he sold was such that most shareholders could cross the bridge most of the time, and this was clearly understood by the shareholders, "most of the time" bridge-crossing shares would sell at a discount compared to "all of the time" bridge-crossing shares. Similarly, if fractional reserve banknotes operated on a "most of the time" redemption basis their notes would circulate at a discount compared to "all of the time" redemption of the one hundred percent reserve banks.

Rothbard destroys the "fractional reserve bridge" argument when he writes,

But the most critical fallacy of this analogy is that the inhabitants do not then have a legal claim to cross the bridge at any time. (This would be even more evident if the bridge were owned by a private firm.) On the other hand, the holders of money substitutes most emphatically do have a legal claim to their own property at any time they choose to redeem it. The claims must then be fraudulent, since the bank could not possibly meet them all. A bank that fails is therefore not simply an entre-
entrepreneur whose forecasts have gone awry. It is a business whose betrayal of trust has finally been publicly revealed.[8]

Mark Skousen refers to yet another view of fractional reserve,

And Charles A. Conant compares banknotes to the commodity futures market in justifying uncovered notes. They are "simply an engagement to deliver metallic money...In this respect it does not differ from an engagement to deliver wheat, except that the article promised is of more general acceptability... It is not necessary in either case that the signer of the engagement should possess the full amount of the commodity which he promises; it is only necessary that his reputation and other forms of property should inspire confidence in his ability to fulfill the promise.[9]

Conant fails, however, to realize the great differences between the commodity futures market and a fractional reserve system. In the first place, a commodity futures contract is an agreement to deliver a specific quantity of a commodity at a specific date in the future, not on demand as is true of fractional reserve. Second, the production of a commodity requires the employment of scarce resources that could be employed producing other goods. The producer of a commodity must choose among numerous possibilities available and choose the one he feels will be in his best interest. In other words, he must make a decision to forego all other possible combinations. This is not true of the producer of fractional reserve debt for it is created out of thin air, and the producer foregoes nothing. Third, transferral of ownership is precisely defined under a futures contract where only one party maintains exclusive ownership at any
particular point in time, whereas fractional reserve funds are owned fully and exclusively by more than one party during the same time period.

While it may be true that a commodity contract may not be honored, just as a bank may be unable to honor its depositors claims during a bank run, the former is merely a broken promise, whereas the latter is afflicted by fundamental problems that make future payment of all claims impossible.
PART TWO
THE RETURN OF THE ANGEL GABRIEL

6. Angel Gabriel: Chairman of the Fed

I would like to borrow a theoretical construct that Dr. Rothbard effectively utilizes, known as the "Angel Gabriel Model", to illustrate the futility and disruptive effects of artificially increasing the money supply. The Angel Gabriel, looking down from above and feeling for the plight of humanity, overnight doubles the cash balances of every individual on earth. He feels this will make everyone on earth twice as well off. Money, however, is a peculiar commodity and, unlike almost everything else, an increase in its supply does not result in an increase in the general well being.[10] The first individuals to spend the new cash will be the ones to benefit, for a doubling of the money supply did not include a doubling of all goods and services in the economy. Prices will begin to rise and the last individuals to spend the new money will actually find themselves worse off. Not only has the Angel Gabriel failed to improve the lot of humanity, but relative prices have been disturbed, requiring an eventual adjustment.[11]

To illustrate my point, I would like to suppose that the Angel Gabriel has returned, but that now he is armed with a doctorate in mainstream economics and is confident that he can now rectify his past mistakes. He descends upon a small
nation by the name of Ruritania (again borrowing from Mises and Rothbard). In the Angel Gabriel's view, Ruritania is primitive in the areas of economics and banking. Ruritania maintains a one hundred percent gold standard, which means that its currency is redeemable on demand for a fixed weight of gold coin and its banking system operates on a one hundred percent reserve system. The Angel Gabriel convinces the Ruritanians that their system is hopelessly outdated and persuades them to establish a fractional reserve banking system, using fiat currency, insured by the federal government and manipulated by a Central Bank of which the Angel Gabriel is appointed chairman.

Figure One shows the situation in Ruritania prior to the Angel Gabriel's well-intentioned but misguided intervention. The graph shows the supply and demand of investment funds. The y axis indicates the interest rate and the x axis indicates the quantity of funds invested. I would like to assume for the duration of this example that time preferences remain constant. Consequently, the supply and demand curves for investment funds and the real interest rate remain constant since all are determined simultaneously by time preferences.[12] Ruritania is in a state of equilibrium.
NB indicates loanable funds generated from non-bank sources
FR indicates loanable funds generated from fractional reserve sources

FIG. 1

FIG. 2
FIG. 3

Interest Rate

\[ i_0 \]
\[ i_2 \]
\[ i_1 \]

Loanable Funds

\[ Q_0 \]
\[ Q_2 \]
\[ Q_4 \]
\[ Q_3 \]
\[ Q_4 \]

So
S2
S1
D0
Also, the entire supply of investment is extended by non-fractional reserve lenders or individuals. Investment undertaken by non-fractional reserve lenders or individuals can always be considered "one hundred percent reserve" since to invest upon which any other party has a legal claim is considered embezzlement. Non-fractional reserve investors must forego present consumption for investment which fractional reserve institutions do not.

The Angel Gabriel now embarks upon what many economists would consider an inspired and responsible program of systematic government engineered credit expansion. The Angel Gabriel accomplishes the initial increase in investment by lowering the reserve ration for fractional reserve institutions. He also plans to begin a program of government deficit spending and, after the reserve ratio has been sufficiently lowered, to manipulate the money supply through open market operations.

Prior to the appearance of the Angel, there were two types of banks operating in Ruritania: investment banks and deposit banks.[13] Investment banks accepted funds from individuals or institutions and invested them, sharing the eventual profits earned from those investments with the lenders. Those individuals did not have access to those funds until the loan matured or the loan was sold to another
lender such as the secondary loan market. Deposit banks allowed their depositors to withdraw their funds at any time but charged a fee for their services. The deposit banks in Ruritania are now allowed to operate on a fractional reserve system, offering withdrawal of funds on demand even though only a fraction of those funds are available at any time.

In Figure 2, the new supply curve is indicated by $S_1$ and the interest rate falls to $I_1$. The quantity of investment in the economy shifts from $Q_0$ to $Q_1$. The Angel Gabriel proudly informs the Ruritanians that investment will now be stimulated and the economy will never again have to suffer from a shortage of funds. Never again will the so-called "price level" be subject to wild swings even though the Ruritanians had never experienced such swings, only a history of gently falling prices. The quantity of investment in the economy is divided into that portion which is extended by fractional reserve institutions (indicated by FR) and that portion which is extended by non-fractional reserve lenders or individuals (indicated by NB).

The market will respond to this credit expansion. With the new interest rate at $I_1$, investors with time preferences at the margin will wish to withdraw their funds from investment and spend it on consumption. In Figure 3, $Q_0Q_2$ amount of
investment will be removed from the market. At interest rate II, these investors would rather consume than invest. It will take a certain period of time for this to be accomplished but the process will begin the moment the interest rate has been artificially lowered by credit expansion.

As these funds that had previously been invested are withdrawn and spent on consumption, the interest rate will begin to rise as the supply curve shifts to the left. Consequently, not the entire amount of $Q_0Q_2$ will be withdrawn from the market but only $Q_0Q_4$. The funds will be withdrawn entirely from non-fractional reserve sources and not from fractional reserve sources. For fractional reserve sources to withdraw any funds from the market would result in excess reserves and fractional reserve institutions when guaranteed by the federal government seldom hold excess reserves. They have no incentive to do so. The new supply curve would approach $S_2$, where the supply of fractional reserve debt and the supply of debt extended by one hundred percent reserve institutions equilibrate.

In addition, if the new credit ($Q_0Q_1$) enters the economy through the credit markets, capital prices will be bid upward. Factors of production will be bid away from the
consumer goods industries and employed in the capital goods industries. The original structure of relative prices has been distorted. This will inevitably result in a future correction, and it will be this correction that will prove to be the undoing of the good Angel's efforts.

It will now be apparent that the amount of debt Q3Q1 was extended below market rates. This debt was extended primarily by fractional reserve institutions since non-fractional reserve funds were leaving the market and fractional reserve funds were entering the market as the interest rate fell. There will be a tendency for all enterprises and all stages of production to return the same rate of profit.[14]

Any enterprise that consistently operates below the market rate of interest will eventually be abandoned. Because Ruritania was in equilibrium prior to the credit expansion, we can assume that all enterprises and stages of production returned the same rate of profit. The value of capital is also inversely related to the interest rate. Because the quantity of debt was extended at lower interest rates, when the value of capital was high, now that the interest rate has risen, the value of capital against which this investment was secured, will now have fallen. If non-fractional reserve institutions had extended this
investment, they would be forced to take a loss and recover what they could from the malinvestments. But these malinvestments were made primarily by fractional reserve institutions and because the government has guaranteed these malinvestments, the government will eventually be forced to purchase these losing enterprises and at their original inflated price. For the government to fail to do so would result in a government insured fractional reserve institution defaulting.

What has basically been described is the business cycle. If the Angel Gabriel expanded credit only once, this process would occur and the economy would eventually move closer and closer to equilibrium, providing there was nothing else to disturb it. But the Angel Gabriel committed to continuous credit expansion contracting credit only when he felt that inflation was rising too rapidly. He will not allow credit to contract for any significant period of time. The adjustment process just described will occur for every credit expansion. Since there is a continuous expansion, there will be a continuous adjustment reacting to an almost infinite number of events that will affect the rate at which the economy adjusts. It is impossible to predict the exact moment when the market will adjust and it will not adjust at a constant rate. It is safe to say, however, that eventually it will be impossible for the Angel to deceive
the market. It is only in the early stages of a credit expansion that the interest rate can be held below the market rate of interest. The long term interest rate cannot be affected. As Rothbard writes,

The answer is that an increase in the supply of money does lower the rate of interest when it enters the market as credit expansion, but only temporarily. In the long run, (and this long run is not very "long"), the market re-establishes the free-market time-preference interest rate and eliminates the change. In the long run a change in the money stock affects only the value of the monetary unit.[15]

There are several degenerating forces operating here that will eventually force the collapse of the Angel's systems. First of all, the expansion of investment by fractional reserve institutions will force the contraction of investment by non-fractional reserve lenders. These are non-banking institutions or individuals that do not require reserves. This might be considered a variation of Gresham's Law where "bad debt" drives out "good debt". Or perhaps more precisely, "Continuous expansion of investment extended by governmentally insured institutions will eventually force investment extended by non-fractional reserve lenders off the market." (Unless another has come up with this idea, maybe this can be "Koch's Law".) Ultimately this system has the potential to drive out all non-fractional reserve lending, where fractional reserve institutions extend all investment, and non-fractional reserve lenders have left the
market and their investors have switched all their funds into consumption.

Secondly, in the early stages of credit expansion, the ratio of investment extended by fractional reserve institutions to non-fractional reserve lenders is small, but as time passes the ratio must rise. A recession in the early stages is not serious because the fall in capital values will primarily be written off by non-fractional reserve lenders. A recession in the latter stages of a continuous credit expansion is very serious, for most of the debt in the economy is extended by fractional reserve institutions. A sharp drop in capital values against which this debt is secure will force the fractional reserve institutions to default. It would not take very many defaults by institutions guaranteed by the government to destroy confidence in the entire system. A massive bank run of the entire system would result.

But the Angel Gabriel has promised to guarantee the liabilities of these institutions, in effect guaranteeing their assets at inflated capital values! When the fractional reserve institutions extend the lion's share of investment in the economy, capital values cannot fall very far, for the government has guaranteed their value. Under this system, the government must, in effect, "sell debt low
and later buy debt high." Exactly the opposite of any rational, profitable, enterprise.

Even continuing the previous rate of credit expansion will not be enough at this point. Individuals have begun to anticipate the credit expansion, and the market, which reacted slowly at first, is now reacting more quickly than the Angel can expand credit. It is at this point that the Angel Gabriel is faced with two equally unappealing choices: continue the credit generation at ever higher rates until the currency and the entire fractional reserve system collapses, or slow the rate of credit expansion, allow capital values to fall and consequently allow the collapse of the fractional reserve banking system. The Angel no longer has any "brakes" and can only use the "accelerator" if he wishes to delay the crisis. Either path leads to the same outcome: collapse the system.

This is an example of the "runaway boom" described by Rothbard but it is an inevitable consequence of the logical contradictions upon which any fractional reserve system is based and not necessarily malicious or inept behavior on the part of government. Fractional reserve institutions by their very nature always extend loans at below the market rate of interest. It must be stressed, however, that the "nominal" rate of interest may not fall at all during a
credit expansion. In fact, it often rises. As Rothbard writes,

Credit expansion does not necessarily lower the interest rate below the rate previously recorded; it lowers the rate below what it would have been in the free market and thus creates distortions and malinvestments.[16]

This disheartens the Angel Gabriel for once again his attempt to "produce bread from stones" has failed and he has wrecked the Ruritanian economy. But there is still hope for he has just begun to read Human Action by Ludwig van Mises.
PART THREE

FRACTIONAL RESERVE FREE BANKING

7. Introduction

The central assertion of this thesis is that a fractional reserve system is not viable in the long run due to the logical contradictions upon which it is based. In recent years, however, there has been much interest in what is called "free banking". This point of view correctly identifies the need to remove government intervention in the banking industry but stops short of prohibiting fractional reserve. Free banking theorists show the superiority of unregulated fractional reserve over central banking, but fail to show that a 100 percent free banking system would function even better. Fractional reserve free banking is superior because competition among banks places greater limits on credit expansion than central banking. Mises writes,

If the governments had never interfered, the use of banknotes and deposit currency would be limited to those strata of the population who know very well how to distinguish between solvent and insolvent banks. No large-scale credit expansion would have been possible.[17]

Rothbard has clearly outlined the moral problems involved with fractional reserve banking, and this section will emphasize the basic practical problem of fractional reserve:
the ultimate collapse of the credit expansion. This is an important question for if a fractional reserve free banking system were to be implemented, its destabilizing effects would be generally seen as an indictment of the free market and not as an attempt to operate a fundamentally flawed system. It is unfortunate that several authors who are otherwise sympathetic to free market principles do not realize that a fractional reserve system should be codified into law as a fraudulent practice. As Rothbard writes,

Banking theory, however, has taken a very bad turn with free banking. We have to show that this is the old currency school argument rehashed...moreover the free banking people violate the basic Ricardian doctrine that every supply of money is optimal. Once a market in a money is established, there is no longer a need for more money. That is really the key point.[18]

A recent book on this subject is George Selgin's, The Theory of Free Banking. In this section, I will briefly review Selgin's main points and then, applying the Angel Gabriel model developed earlier, show that 100 percent free banking is far superior to fractional reserve free banking not only for macro-stability but also for depositors and the banking system itself. I will review the historical record and show that fractional reserve free banking has never operated without chronic, periodic, financial crises, which would be absent under 100 percent free banking. Fractional reserve banking interferes with the economy's attempts to
move toward equilibrium. Contrary to the free banking theorists, fractional reserve banking can only disrupt equilibrium, not facilitate movement towards it.

8. George Selgin: The Theory of Free Banking

One of the most important recent works on fractional reserve free banking is George Selgin's *The Theory of Free Banking*. This section will briefly highlight some of the main ideas Selgin has illustrated in this book. As Lawrence White writes,

The central results show that the standard 'rule of excess reserves'—that a competitive bank cannot safely expand its liabilities by more than the size of its excess reserves—applies to note-issuing as well as to the more familiar deposit-creating banks, provided that money-holders do not accept various brands of notes indiscriminately. The rule does not, however, apply to a monopoly issuer.

What is more provocative, we learn that the limits to note issue expand when the demand to hold inside money increases, and that the consequent expansion of bank liabilities and assets is warranted by considerations of credit-market equilibrium. A bank is able to vary its liabilities in response to demand shifts even if its reserves are unchanging, because an increase in holding demand implies a fall in the rate of turnover, hence in the optimal reserve ratio. The theory of optimal reserves elaborated by Selgin undermines the mechanistic textbook view of the reserve ratio as constant, and links changes in desired bank reserve ratios to changes in the money multiplier. A further surprising and novel extension is the refutation of the standard view
that no economic forces check a concerted expansion by banks.[19]

Selgin begins with a brief historical review that only serves to cloud the debate as to the success or failure of fractional reserve free banking in actual practice.

9. The Historical Record

Both George Selgin and Larry White have identified many examples of supposedly successful fractional reserve free banking systems. If it is really true that a fractional reserve system is destabilizing, how is it that these systems appeared to operate for significant periods of time?

There is much debate on this point and it may be that these systems only appeared to work or were not allowed to operate long enough or freely enough for them to collapse on their own. As Rothbard writes,

In recent years, disillusionment in central banking has understandably set in among many economists. As a result, some writers have turned to the alternative of free banking, praising both the theoretical model and historical cases in which free banking has allegedly worked effectively. But there may have been an unwise rush to judgement.[20]

This section will discuss this debate.

CHILE

In the case of Chile, where free banking supposedly
operated, Rothbard points out that for the first half of the nineteenth century Chile "was devoted to the idea of a pure, 100 percent commodity money."[21] After the establishment of a fractional reserve free banking system in 1860, Chile embarked upon a "long-run generally accelerating course of inflation,"[22] that was to last for nearly fifty years. Instead of leading to prosperity and stability, the establishment of fractional reserve banking led only to inflation and monetary crisis.

Selgin countered Rothbard with an article in *Austrian Economics Newsletter* entitled, "Short Changed in Chile: The Truth about the Free-Banking Episode."[23] In this article Selgin claims that the problems with Chile's fractional reserve free banking system were a result of the Chilean's government intervention and not any fundamental flaw in fractional reserve. "Chile's free banking system was undermined by, (1) its bimetallic legislation of 1851 and (2) its sanctioning of inconvertible currency to ease the government's fiscal burdens in connection with its war with Spain and again in 1878."[24]

Selgin does not feel that fractional reserve free banking failed in Chile, yet he underscores a problem that free banking theorists have in making their case. It is very difficult to find in the historical record an example of a
pure fractional reserve free banking system that actually operated during a period of macro-stability for a significant length of time.

SCOTLAND

Initially, Selgin and White pointed to the Scottish free banking system of the late eighteenth and early nineteenth centuries as something of an ideal model for a fractional reserve free banking system. Selgin writes,

From 1792 to 1845, Scotland had no central bank, allowed unrestricted competition in the business of note issue, and imposed almost no regulations on its banking firms. Yet the Scottish system was thought to be superior by nearly everyone who was aware of it. Its decline after 1845 was caused, not by any shortcoming, but in consequence of the unprovoked extension of Peel's Act, which ended new entry into the note issue business in Scotland as well as England."[25]

In the note which followed this passage Selgin wrote, "Lawrence White's excellent and comprehensive study of the Scottish system, Free Banking in Britain, makes it unnecessary for us to delve into the details of that episode here."[26]

Rothbard later countered the claims that the Scottish system was free and stable in, "The Myth of Free Banking in Scotland."[27] Contrary to being an excellent and comprehensive study of the Scottish system, Rothbard points
out that *Free Banking in Britain* is, "a brief book of less than two hundred pages, only 26 are devoted to the Scottish question and White admits that he relies for facts of Scottish banking almost solely on a few secondary sources."[28]

Free banking theorists claim that fractional reserve free banking is stable and has a stabilizing effect on the entire economy by efficiently responding to changes in the demand for currency and bank deposits (inside money). The Scottish system clearly did not provide stability. Rothbard writes,

> But why should lack of bank failure be a sign of superiority? On the contrary, a dearth of bank failures should rather be treated with suspicion, as witness the drop of bank failures in the United States since the advent of the FDIC. It might indeed mean that the banks are doing better, but at expense of society and the economy faring worse. Bank failures are a healthy weapon by which the market keeps bank credit inflation in check; an absence of failure might well mean that that check is doing poorly and that inflation of money and credit is all the more rampant. In any case, a lower rate of bank failure can scarcely be accepted as any sort of evidence for the superiority of a banking system.

In fact, in a book that Professor White acknowledges to be the definitive history of Scottish banking, Professor Sydney Checkland points out that Scottish banks expanded and contracted credit in a lengthy series of boom-bust cycles, in particular in the years surrounding the crises of the 1760s, 1772, 1778, 1793, 1797, 1802-03, 1809-10, 1810-11,
1818-19, 1825-26, 1836-37, 1839 and 1845-47. Apparently, the Scottish banks escaped none of the destabilizing, cycle-generating behavior of their English cousins.[29]

Larry J. Sechrest also challenged White in his article, "White's Free-Banking Thesis: A Case of Mistaken Identity."[30] Referring to S. G. Checkland's, Scottish Banking: A History, 1695-1973, he writes,

Further, Checkland's description of the expansionary phases that preceded each "crisis" sounds much like the scenario of credit-induced malinvestment that lies at the heart of the classic Misesian business cycle. Checkland sums it up well when he states: 'In principle, it [the Scottish system] should have been capable of stability, or at least, of fairly easy contraction. In reality, it was not.' Due, perhaps, to its being established upon the wrong principle?[31]

Clearly the Scottish system was neither stable nor free. Financial crises are very disruptive to the economy and one wonders why one would choose a banking system that makes them inevitable (fractional reserve free banking) over one that precludes their possibility (100 percent reserve). The Scottish system is certainly not a model for reform.

Sechrest concludes,

--the Scottish system was de facto a central bank system in which individual private banks pyramided their note issues upon the reserves of the three chartered banks, which, in turn, pyramided their issues upon the reserves of the ultimate source of liquidity for the entire British Isles: the Bank of England.[32]
After this example, claims of fractional reserve free banking theorists of stability and freedom must be carefully questioned and researched.

CHINA

In yet another example of allegedly successful fractional reserve free banking, Selgin refers to China. He writes,

Although banking under the Manchus was subject in many places to local and provincial regulations, in others it was entirely free. One such case was the banking system of Foochow, the capital of Fukien province. From the beginning of the 19th century until the second quarter of the twentieth Foochow's banking and currency system was entirely private and free from any regulatory restrictions.[33]

Loans by Foochow banks were not secured by specific capital assets as are most loans extended by western banks. "The security here was the borrower's general property rather than specific collateral."[34] Consequently, the effects of the business cycle would not erode the bank's asset portfolio to the same extent as western banks. The Foochow banks could seize the borrower's general property for the full value of the outstanding loan and they would not lose any assets. By contrast, when western banks seize a defaulter's property, it usually consists of the capital asset against which the loan was secured. If the market value of the capital asset has fallen (which is a characteristic of the end of a credit expansion, or bust) the bank suffers.
Following White's example, Selgin uses as his indicator of stability, the number of bank failures.

Prior to 1922 local bank failures were confined to small banks or cash shops. A mid-19th century observer reported that only four small banks had failed from 1844 to 1848, and that a general crush, seriously affecting the public interest, is a thing unheard of.[35]

Nothing is said, however, of the overall stability of the economy. The Foochow system of securing debt against a debtor's general property would limit the losses of the lending bank, but would not save the economy from the effects of the business cycle. In addition, if the market value of the borrower's general property fell below the value of the loan (due to the fall in capital values), the bank would suffer a loss. If this loss could somehow be anticipated, it would be reflected in the terms of the loan. If not, either the debtor or creditor would suffer and, most certainly, the economy at large.

In addition, the capital structure of China in the nineteenth and early twentieth centuries was very primitive with most capital being very close to consumption. Because the business cycle has greater impact on more advanced stages of capital, it would have had little effect on China at that time. Little can be learned as to how a fractional reserve free banking system might operate in an advanced
capitalistic economy, from the historical example of free banking in China.

Other Historical Examples

According to the Austrian theory of the business cycle, credit expansion generates the business cycle, yet most fractional reserve free banking theorists claim that it is stable. The instability of the Scottish system is obviously in dispute, but what about the stability of other fractional reserve free banking systems?

Selgin contends that most fractional reserve free banking systems operated throughout most of their history with few crises. With regard to the Canadian system, he writes, "The Canadian system was an example of a well working free banking system which suffered few crises and included some of the world's most prestigious banking firms."[36] The Canadian banking system suffered no bank failures during 1930-33 in stark contrast to the U.S. during the same period. Of the Swedish system that existed between 1831-1902, he writes,

One measure of the success of the Swedish private note-issuing banks is that, throughout their existence, none failed even though the government had an explicit policy of not assisting private banks in financial trouble. ...Finally, the absence of banking regulations in Sweden was crucial to its exceptionally rapid economic growth during the second half of the 19th century.[37]
Unfortunately, the number of bank failures in a certain period is not a good indicator of the stability of fractional reserve free banking systems. There were no bank failures in the U.S. system until the 1980s because of Federal Deposit insurance, yet the entire system of government insurance has been strained to the breaking point and appears to be getting worse. Also, neither of the systems was really free in a pure sense. If they had been completely free, there may have been failures. Also, the fact that Sweden enjoyed high rates of growth during its relatively free banking episode is meaningless when one considers the high growth rates enjoyed by other nations (such as the U.S.) whose banking systems were less free during the same period. Growth rates may have been even higher under 100 percent reserve banking.

Conclusion

Selgin admits that the historical argument in his book is inconclusive. He concludes with,

Unfortunately, there have been few free banking episodes in the past, none of which realized it in pure form. Thus history furnishes an inadequate basis for drawing theoretical conclusions about free banking. To rely exclusively on it would invite generalizing from features unique to a single episode or from features attributable to regulation.[38]

Selgin claims that "the historical record does not provide any clear evidence of the failure---except politically---of
free banking."[39] The historical record does not provide any clear record of its success, either. Cases such as Scotland that were initially held as examples of the success of fractional reserve free banking have failed upon closer study to support Selgin's thesis. Where fractional reserve free banking has failed, Selgin claims it is a result of government intervention. The Theory of Free Banking clearly shows the superiority of fractional reserve free banking over centralized banking, but Selgin has not shown that it is superior to 100 percent banking or even viable in the long run.

Several Theoretical Scenarios of Free Banking Failure

In "Implications of Free Banking and Note Issue: Answers to some questions",[40] Selgin considers several scenarios in which a banking system might fail. He begins by questioning why most individuals would wish to withdraw all their funds from a fractional reserve banking system at the same time, "If the public were truly indifferent concerning these advantages of bank money, fractional reserve banking would have never arisen in the first place; like the sizes of bridges and tunnels, the size of bank's holdings of reserves relative to liabilities reflects observed patterns of public behavior over long stretches of time."[41]
Selgin has, like many others, inappropriately identified bridges as a form of fractional reserve. The fallacy of this argument has been discussed earlier. Beyond this inappropriate comparison, Selgin has assumed that a fractional reserve free banking system could operate in something close to equilibrium and that it is not disruptive to equilibrium in and of itself. As he states, "A run on the banks, leading to unexpected withdrawals of the ultimate money of redemption must therefore be something exceptional, due to extraordinary circumstances."[42] He gives several examples of these "extraordinary circumstances".

In the first example, he assumes a bank failure due to poor management. If the bank has truly been mismanaged, then it should be allowed to fail. If its asset portfolio is sound, then it will be purchased by another institution as a quick method to increase market share and its clients will not lose. In the second example he deals with bank run "contagion effects". These could be dealt with in our present system by creation of a secondary market for bank liabilities and would not be a problem at all under free banking. He concludes this example by stating, "under free banking, no information externality problem would exist to give rise to a bank-run contagion."[43] The third example is a natural or national disaster. In this case he asks, "How then, would banks in a free banking system respond?
They would probably respond the way insurance companies presently respond to great national as well as natural disasters: by having a special clause in their agreements with its customers, allowing them to refrain from meeting their obligations in the usual manner whenever a great emergency occurs."[44]

Although some insurance companies operate as fractional reserve institutions, they need not necessarily so do. Selgin has once again inappropriately compared fractional reserve banking to other enterprises such as insurance companies. Selgin feels that as long as depositors are aware that certain banks maintain an option clause where they may suspend specie payment under special circumstances there is no problem. To him, this is just an extension of the principle of "freedom of choice". Individuals would be free to trade with banks that promise to redeem in specie at all times and under any circumstances or with banks that suspend payment.

Selgin clearly believes that there is nothing inherently unstable about fractional reserve banking, only in systems that are not "free banking". When referring to the dramatic rise in the demand for money that often occurs at the end of an expansion of credit he writes,

Such disturbances caused by changes in currency demand are what monetarists like Henry Simons,
Lloyd Mints, and Milton Friedman have in mind when they refer to the "inherent instability" of fractional reserve banking. Yet this instability is really not inherent in fractional reserve banking at all. It is only inherent in fractional reserve banking systems that lack freedom of note issue, including, in particular, all central banking systems.[45]

He does not consider the problems discussed above a serious impediment to the operation of a fractional reserve banking system. Even granting an ideal banking world to Selgin, however, where there are no natural or national disasters and no loss of confidence in the system, he still fails to address one critical point: that which follows from the central idea of this thesis. Over time, all enterprises and all stages of production will return something close to the market rate of interest.[46] The profits generated by an enterprise will eventually just cover the costs of that enterprise plus the market rate of return on the capital invested in that enterprise. When a certain enterprise returns profits above the market rate of interest, entrepreneurs from less profitable enterprises invest capital until competition brings the rate of return down to the market rate of interest.

The opposite occurs when an enterprise operates below the market rate of interest. Entrepreneurs will leave an industry that is returning something less than the market
rate of return and enter an industry that is returning the market rate. Any enterprise cannot consistently operate above or below the market rate of interest forever. When a fractional reserve institution extends credit it must do so at a rate of interest below the market rate. Fractional reserve free banking, by its very nature, must operate below rates of return that it would receive if it were not fractional reserve. Consequently, fractional reserve free banking must fail not because of any exogenous event but because of the endogenous contradictions upon which it is based. Loss of confidence in the system or a national or natural disaster would exacerbate already existing problems and the credit expansion would eventually collapse regardless of these events.

The Impossibility of Achieving Equilibrium Under Fractional Reserve Free Banking

Because historical examples do little to support his argument, Selgin embarks upon a theoretical model. He also employs the fictional nation of Ruritania as has Mises and Rothbard before him. He continues with a solid discussion on the development of money, money warehouses, and then banks in fictional Ruritania. He then treats the development of fractional reserve banking as an important and logical next step. "The lending of depositor's balances is a significant innovation: it taps a vast new source of
loanable funds and fundamentally alters the relationship between Ruritanian bankers and their depositors."[47]

After this brief introduction, Selgin then makes a startling assumption. He contends that it is possible for an equilibrium condition to be achieved between the supply and demand of loanable funds under fractional reserve free banking. It is here that he makes his fatal error. The analysis that follows and comprises the bulk of his book rests upon this fallacious assumption.

He states two conditions that must be met in order to achieve equilibrium and, as usual, assumes the public will hold only inside money. He writes,

As the public holds only inside money, with commodity money used only in bank reserves to settle clearing balances these conditions are as follows: First, the demand for reserves and the available stock of commodity money must be equal. Second, the real supply of inside money must be equal to the real demand for it. Once the first (reserve equilibrium) condition is met, the tendency is for any disequilibrium in the money supply to be corrected by adjustments in the nominal supply of inside money. An excess supply increases, and an excess demand reduces, the liquidity requirements (reserve demand) of the system. This is shown in chapters 5 and 6 below.

On the other hand, if the reserve-equilibrium condition is not satisfied, the system is still immature. An excess supply of reserves then causes an expansion of the supply of inside money. If this leads to an excess supply of inside money, it will promote an increase
in both reserve demand and prices causing both the nominal demand for money and the demand for reserves to rise.

There must be one price level at which both equilibrium conditions are met. When this price level is achieved, the system is in a long-run equilibrium. For the sake of simplicity, the analysis that follows starts with a free banking system (similar to Ruritania's) in long-run equilibrium and assumes an unchanging supply of bank reserves.[48]

This equilibrium condition, however, cannot be met under fractional reserve banking for the nature of such a system constantly moves the economy away from equilibrium, not towards it. The analysis that follows this fallacious assumption is basically sound but meaningless if this equilibrium condition cannot be achieved. It is only under 100 percent free banking that equilibrium between the supply and demand for credit can be achieved, and in fact much of Selgin's equilibrium analysis applies to a 100 percent system rather than a fractional reserve system. Fractional reserve credit expansion affects the market rate of interest and consequently the value of all capital and not just capital which may be purchased by these new loans or against which they are secured. This was Hayek's point when he wrote in the introduction of Prices and Production, "What was, however, of prime importance for my purpose was to emphasize that any change in the monetary demand for capital goods could not be treated as something which made itself
felt only on some isolated market for new capital goods, but that it could be only understood as a change affecting the general demand for capital goods which is an essential aspect of the process of maintaining a given structure of production."[49] This is one of the main ideas of Hayek's book and he shows that monetary expansion affects the prices of all capital, not just specific markets or more advanced stages of capital (although these do tend to be stimulated to a greater degree than lower stages of capital). The following analysis will prove why this equilibrium (necessary for a fractional reserve free banking system to function smoothly), cannot be achieved.

10. Fractional Reserve Free Banking in Ruritania
At the heart of fractional reserve free banking theory is the assumption that equilibrium can be achieved between the supply and demand for credit under fractional reserve. Many economists (especially of the Austrian school) have shown the importance of building theories that rest firmly upon a realistic set of assumptions.[50] Selgin himself recognizes this fact when he writes, "To be really useful in interpreting the effects of regulation in the past, or in predicting the consequences of deregulation in the future, a theory of unregulated banking should be based on realistic assumptions drawn, if possible, from actual experience."[51] Unfortunately it is impossible to achieve equilibrium
between the supply and demand for credit under any fractional reserve system.

I would like to introduce the Angel Gabriel again, to prove that fractional reserve banking frustrates even the best of intentions. After his disastrous experience earlier as Chairman of the Fed, he is eager to redeem himself. The Ruritanians have not lost faith in him. He is still in charge of the economy but with the collapse of the system there is little to manage. Centralized government controlled fractional reserve banking has collapsed and the banking system is now a 100 percent system in long run equilibrium. Time has passed and the economy has fully adjusted to the previous crisis. The system is very similar to the theoretical system that Selgin employs to illustrate his ideas except that it is not yet fractional reserve. There is free entry into the banking system and no banking regulations. There is no credit extended by fractional reserve institutions at this point since to properly analyze fractional reserve banking one must start at the beginning and all fractional reserve institutions begin as 100 percent reserve.

Even institutions that plan to immediately become fractional reserve institutions the moment their doors open must begin as 100 percent institutions. At inception, fractional
FIG. 4

Interest Rate

NB

i_1

C_1

Total Credit

FIG. 5

Interest Rate

i_1

i_2

NB

FR

C_3

C_4

Total Credit

FIG. 6

Interest Rate

i_3

NB

FR

C_4
reserve institutions have no deposits; hence they are 100 percent reserve institutions. The axis in Fig. 4 represents the interest rate and the x axis represents the total amount of credit extended in the economy. Over time, the Angel Gabriel has noted that never more than 20 percent of total deposits (after clearings) are ever withdrawn from the 100 percent reserve banking system. Thinking that his previous mistakes were a result of centralization and government control, the Angel feels that it might be a good time to introduce fractional reserve free banking and allow market forces to keep the extension of credit and the issuance of banknotes within "reasonable limits". He has read George Selgin's book, The Theory of Free Banking, and is eager to put these ideas into practice. The Angel feels that the economy will be better able to respond to changes in the demand for money and credit and that this will result in a rise in the standard of living due to increased investment.

When the Angel is questioned by one of the local Ruritanians (who is also an avid student of Mises and Rothbard), about the effects of credit expansion as illustrated by the Austrian theory of the business cycle, the Angel feels these effects would be negligible under fractional reserve free banking. He says,

The problem with the Austrians, is that they completely ignore the demand side of the money market. Monetary disequilibrium
only occurs when money is issued in excess of demand for money balances at given prices. Harking back to the equation of exchange, \((MV=PQ)\) [52], the optimal reserve ratio is a function of MV, money times velocity. One needs to distinguish between changes in the stock of bank money that accommodate changes in the public's willingness to hold bank money (so that the increased stock of bank money doesn't add to total spending) and changes that do add to total spending and hence tend to raise prices and the prices of factors of production. One must look at the "stream of spending" \(M \times V\) and stabilize that, not the price level. If the banks are behaving in such a way that \(M\) increases only when \(V\) falls, and vice versa, there is no problem. Starting from this framework, excessive bank expansion is defined in a different way and one must ask if free banks engage in that kind excessive expansion, which they don't tend to do. They tend, in fact to stabilize MV since the optimum reserve ratio is a function of MV. If MV rises, the banks will need more reserves. If the quantity of reserves is fixed, the banks will not be able to expand credit beyond this point. The quantity of MV is stabilized automatically. There is no link between fractional reserve banking and monetary trade cycles, although trade cycles can be very severe with fractional reserve banking, (which I found out early in my career), but only with a banking system that allows MV to fluctuate, which central banking systems do.

With this explanation the Angel dismisses the Ruritanian and begins his planned credit expansion.

Because only 20 percent of the deposits in the Ruritanian banking system are ever withdrawn, the Angel encourages a gradual expansion of credit that will eventually equal 80 percent of total deposits. The Ruritanians follow his advice and credit expands from C1 to C2 in Fig. 5. This
also results in a five fold increase in the Ruritanian money supply due to the money multiplier. The amount of credit extended by non-bank sources is indicated by OC1, and the amount of credit extended by fractional reserve is indicated by C1C2. The interest rate falls from i1 to i2.

At the interest rate of i2, however, there are fewer individuals who wish to save and invest their funds. At this interest rate they would prefer to consume rather than to invest, so their funds are withdrawn from the credit market as these loans mature or are sold at a discount on a secondary credit market. In Fig. 5, C1C3 amount of credit begins to be withdrawn from the market and, as the interest rate rises, the withdrawal slows until, in Fig. 6, it stops at C4 and the interest rate settles at i3.

This is not an equilibrium position, however, for the value of the capital against which these loans were secured has fallen and the creditors who extended these loans must now suffer losses. Ceteris paribus, the interest rate varies inversely with the value of capital. During the credit expansion, the value of capital (against which both non-bank credit and fractional reserve credit was secured) increased as the interest rate fell. Loans extended after the onset of the credit expansion were secured against inflated capital. When creditors began to leave the market, the
interest rate began to rise and the value of capital began to fall. This will hurt all creditors, but especially creditors who extended loans during, or at the end of the credit expansion. For the most part, these will be fractional reserve institutions since they were extending credit while non-bank investors were withdrawing credit. As Frank Fetter wrote,

> Contract [interest] is based on and tends to conform to economic interest [i.e., the 'natural interest' price differential between stages]... It is economic interest that we seek to explain logically through the economic nature of the goods. Contract interest is a secondary problem—a business and legal problem—as to who shall have the benefit of the income arising with the possession of the goods. It is closely connected with the question of ownership.[53]

Loans are extended against the current market value of a capital asset. If the value of that capital asset falls in the future, the creditor suffers losses, for in essence, the creditor is the true owner of the capital. As Mises writes, "The creditor is always a virtual partner of the debtor or a virtual owner of the pledged and mortgaged property. He can be affected by changes in the market data concerning them. He has linked his fate with that of the debtor or with the changes occurring in the price of the collateral. Capital, as such, does not bear interest; it must be well employed and invested not only in order to yield interest, but also lest it disappear entirely."[54]
As the economy attempts to move back to its equilibrium position, the interest rate rises and the value of capital falls. Because by the very nature of fractional reserve, the majority of the loans extended during the credit expansion were extended by fractional reserve institutions, they will find themselves in a very embarrassing position. Now that the economy has begun to adjust, inflation has set in as a result of the five-fold increase in the money supply during the credit expansion.

Fractional reserve institutions will find that although never more than 20 percent of deposits were ever withdrawn (after clearing) under 100 percent banking, more than 20 percent will be withdrawn under fractional reserve. This will occur whether or not there is a loss of confidence in the system. The dramatic rise in prices will necessitate a much greater amount of money in circulation to sustain the same number of purchases. Small purchases for which the writing of checks is impractical, will require more specie which much be withdrawn from the banks.

This will occur at the worst possible time for the banks, for their asset portfolio has fallen and they must begin contracting credit and increasing reserves. Their debtors (those who borrowed from fractional reserve institutions) will find that the enterprises they have embarked upon have
proved to be not nearly as profitable as they had thought and will wish to borrow even more in order to keep their malinvested enterprises afloat. They will also wish to borrow at the old, low interest rates that they originally received. But fractional reserve institutions are contracting credit at this point, not extending credit. What appears to be an increase in the demand for credit is really just an attempt to postpone the demise of malinvestments undertaken during the credit expansion.

Contrary to fractional reserve free banking theorists, fractional reserve institutions will not be able to respond to this illusory increase in credit demand because it occurs simultaneously with the strong forces that are forcing these institutions to contract credit.

Fractional reserve institutions begin to fail, not because of government interference, but because of the inherent logical contradictions of this system itself. The inevitable loss of reserves, devaluation of its asset portfolio and inability to extend credit will force the fractional reserve banking system to contract credit and cause depositors to fear for the safety of their deposits. This may lead to a run on the banks which will cause an immediate and possibly fatal crisis. Bank runs have in the past been the most evident and sensational phenomenon of
fractional reserve banking. But the system would still be forced to contract credit and lose profits even if a bank run did not occur. Far from increasing investment and adding to the stock of capital, fractional reserve banking (even if it is completely free) wastes investment and ultimately leads to a lower stock of capital than there would have been under 100 percent reserve.

Although it may initially appear as a great boon to the banking industry, fractional reserve ultimately results in great losses to the banking industry and a lower return on their investment than under 100 percent reserve. Fractional reserve banks, by their very nature, must extend credit at below the market rate of interest whereas under 100 percent reserve, both deposit banks and investment banks should expect to receive the market rate of interest over time. Again, the fractional reserve free banking theorists are wrong, for fractional reserve wastes investment, not increases it, lowers banking profits, not raises them and is unable to efficiently respond to changes in the demand for credit.

During the bust, non-bank credit should increase as the interest rate rises but the total amount of credit extended will contract as the decrease in fractional reserve credit will more than offset any increase in non-bank credit. At
this point, when the fractional reserve institutions have fully absorbed their losses, they may be tempted to expand credit once again and the same sad story will repeat itself.

It is not even possible to imagine a situation where the economy could be in equilibrium under fractional reserve. Let us consider Fig. 7 where the interest rate and the amount of credit extended in the economy appear to be in equilibrium at the intersection of the supply and demand curves of credit. This appearance is deceptive, however, for when considering the total amount of credit extended in the economy one must consider both credit extended by fractional reserve institutions and that extended by non-bank sources.

An entrepreneur who invests his time and money in a project of his own can be considered to be "investing in himself", for he could invest his money and labor elsewhere. He is a 100 percent reserve investor and "invests in himself" because he expects higher returns than investing elsewhere.

A loan extended by either a fractional reserve institution or an individual or investment firm must still be secured by some existing capital and at the current market value for that capital. The only difference, although a crucial one, is that fractional reserve extends its loans with funds that may be claimed on demand by another party (and are intended
for consumption) while loans extended by an individual or a non-bank source (intended for investment) may not be claimed until the loan matures. The immediate effect on the credit market is the same, however. New credit has the same effect on the interest rate, the value of capital, and the supply of credit whether it originates from fractional reserve or non-bank sources.

The long term effect is quite different. Fractional reserve credit generates the business cycle, malinvestment, losses for creditors (especially fractional reserve institutions themselves) and ultimately a lower standard of living than what would have been. Non-bank credit generates solid steady growth, higher returns for creditors (especially banks), and ultimately a higher standard of living. Returning to Fig. 7, Ruritania is not in equilibrium since at interest rate i, more non-bank investors wish to extend credit than are presently on the market. There will be a net increase of non-bank credit. Assuming the amount of fractional reserve credit stays the same, non-bank credit will increase until interest rate i2, in Fig. 8, is reached. The interest rate of i2, however, is lower than i1 where most of the fractional reserve credit was extended.

Due to inflation, their return on investment will not be as high as the fractional reserve institutions had anticipated.
and they will suffer losses. There will be a drain of reserves and once again the fractional reserve free banking system must suffer losses. Equilibrium cannot possibly be achieved until all fractional reserve credit is removed from the market. Fractional reserve free banking may be superior to centralized banking because of the lack of government intervention and a fixed supply of gold reserves, but only to the extent that it limits credit expansion. Fractional reserve free banking is not stable and it is not even clear that it is viable in the long run. If it is viable, it does so at lower investment and lower standard of living than a 100 percent reserve banking system.

One hundred percent reserve banking is superior to fractional reserve free banking because it eliminates credit expansion altogether. Instead of ignoring the demand side of the money market (as the Angel Gabriel once thought), he now realizes that the Austrians were correct in emphasizing the disruptive effects of fractional reserve banking, for all the Angel's carefully drawn analysis collapses under conditions of continuing disequilibrium. This truth finally dawns upon the Angel Gabriel and the Ruritanians. Fractional reserve banking is codified into law as a fraudulent practice, all banks become 100 percent reserve deposit banks and Ruritania finally begins a period of stable growth with a profitable, crisis-free banking system.
Although it is impossible to achieve equilibrium under any form of fractional reserve, George Selgin makes this assumption and uses it as the foundation of most of his book, The Theory of Free Banking. He begins chapter 3, "Credit Expansion with Constant Money Demand," by stating, "Throughout the chapter it is assumed that the public's total demand between the two forms of inside money (currency and demand deposits) are constant." Unfortunately, the demand for inside money cannot possibly remain constant under credit expansion for the inevitable inflation generated by the credit expansion will later change the public's demand for inside money.

Using the "Rule of Excess Reserves," "The Principle of Adverse Clearings," and assuming "Note-Brand Discrimination," Selgin shows that there are limits to banknote creation as well as deposit creation. The analysis is clearly and logically written and follows correctly from the initial assumption upon which it is based. It is meaningless, however, for fractional reserve banking generates forces that will upset equilibrium between the supply and demand for money and will continually upset the economy's efforts to return to equilibrium.
Fractional Reserve Free Banking Under Changing Money Demand

As Leland Yeager writes, "Probably Selgin's most 'provocative' analytical point (to adopt White's word) is that the economic limits to note and deposit issue expand when the public's demand for bank money grows."[56]

In chapter 4, Selgin clarifies what is meant by the demand for money which is often confused with the demand for bank credit or loanable funds. He writes, "Thus to be useful the expression demand for money must refer to peoples' desire to hold money balances and not just to the fact that they agree to receive money in exchange for other goods and services, including later-dated claims to money."[57] This is consistent with Rothbard who writes, "The total demand for money on the market consists of two parts: the exchange demand for money (by sellers of all other goods that wish to purchase money) and the reservation demand for money (the demand for money to hold by those who already hold it)."[58]

It is Selgin's contention that fractional reserve free banking facilitates movement toward equilibrium by better responding to changes in the demand for money than either 100 percent, or centralized banking. Concerning equilibrium he writes,
As used here 'monetary equilibrium' will mean the state of affairs that prevails when there is neither an excess demand for money nor an excess supply of it at the existing level of prices. When a change in the (nominal) supply of money is demand accommodating—that is, when it corrects what would otherwise be a short-run excess demand or excess supply—the change will be called 'warranted' because it maintains monetary equilibrium.[59]

He continues, "Whenever a bank expands its liabilities in the process of making new loans and investments, it is the holders of the liabilities who are the ultimate lenders of credit, and what they lend are the real resources they could acquire if instead of holding money, they spent it."[60] Selgin is confusing two different markets here: the market for money and the market for loanable funds. This was also a problem with the banking school. The Austrian policy prescription in this case would be to allow equilibration through market processes such as changes in the purchasing power of money and the interest rate. Selgin, in an effort to avoid the temporary dislocations that may be involved in this process, feels that equilibration can be achieved by fractional reserve free banking without any dislocations. His analysis is fundamentally flawed however.

One of the main criticisms of 100 percent banking by fractional reserve banking theorists is that it is slow to respond to changes in the demand for loanable funds because of the inelastic supply of gold. (Throughout this example I
would like to assume as do most theorists that a 100 percent banking system would be based on gold.) They claim fractional reserve is necessary to respond to the "needs of trade". Let us consider a theoretical example to compare responses of fractional reserve banking to an increase in the demand for loanable funds with that of non-bank lenders. Because the supply and demand of loanable funds is determined solely by time preferences, any change in the demand for credit implies a change in time preferences. Figures 9.1 and 10.1 consider two different banking systems; fractional reserve free banking and one hundred percent reserve. The total amount of loanable funds extended in both economies is represented on the x axis while the interest rate is represented on the y axis. Figure 9.1 is in long run equilibrium. In Fig. 10.1 the total amount of loanable funds is divided between that which is extended by fractional reserve free banking institutions and 100% reserve banks.

Although in this example, the amount of credit extended in Fig. 10.1, intersects the supply and demand curves for credit, this is not an equilibrium position. Since equilibrium is impossible under fractional reserve, this economy is in a state of flux, constantly responding to the disruptive effects of credit expansion. Attempts made by the
NB indicates credit generated from non-bank sources
FR indicates credit generated from fractional reserve sources

100% Reserve Banking System

Free Banking

FIG. 9.1

FIG. 10.1

Real Interest Rate

$S_1$

$D_1$

Q1

Total Credit

Q1

Total Credit

FIG. 9.2

FIG. 10.2

Real Interest Rate

i2

i1

Q1 Q2

Total Credit

Q1 Q2

Total Credit
economy to move towards equilibrium (the bust) will be offset by new injections of credit (the boom). Because equilibrium is impossible under fractional reserve, any analysis must either begin in disequilibrium or in equilibrium under 100 percent reserve and then move to fractional reserve and disequilibrium. In this example, in order to discuss the effects of a change in the demand for money in a fractional reserve free banking system we will begin in disequilibrium.

We now assume that both economies experience an increase in the exchange demand for loanable funds. The demand curve in both economies shifts to the right from D1 to D2 in Figures 9.2 and 10.2 respectively. In the 100% reserve system, the increased demand for loanable funds will increase from Q1 to Q2. This merely represents a shift of funds from consumption to investment. There may be some disruption of the economy as it begins to create more capital relative to consumption goods but this is unavoidable. This is the best and least disruptive method for the economy to respond to an increase in demand for loanable funds. All loans extended during this period will be, ceteris paribus, profitable if it is assumed that this is a permanent shift in time preferences, and consequently a permanent shift in the demand for loanable funds. The real interest rate at which these new loans are extended will be higher or equal to the
real interest rate at which the economy finally equilibrates, and therefore profitable. It is only when lending institutions extend credit at below the market rate of interest that the loans are eventually seen to be unprofitable.

In Fig. 10.2 the fractional reserve free banking economy experiences the same shift in demand for loanable funds. This increase in the exchange demand for loanable funds does not imply a decrease in velocity (hoarding) that we will next consider. It merely implies that borrowers are now willing to accept loanable funds at a higher rate of interest. According to Selgin's system, if there is no change in the demand for bank reserves, no new credit can be extended by fractional reserve institutions. The increased demand for loanable funds will be matched by an increase in supply from non-bank sources. A fractional reserve banking system can do little to respond to changes in the exchange demand for loanable funds.

But what of an increase in the reservation demand for money itself? Selgin claims this is the area with which fractional reserve is best suited to deal. While it is true that an increase in the reservation demand for money itself (what is commonly referred to as hoarding, and by Selgin more accurately as a decrease in velocity) will be
deflationary and disruptive, fractional reserve would actually be worse. First of all, under 100 percent reserve it is doubtful that a large deflation would take place for that would imply that large sums of money are not employed for either consumption or investment but merely hoarded or destroyed. Historically, the large deflations of the past (as in the 1930's) were a result of previous credit expansions. One could more plausibly argue that to eliminate the disruptive effects of deflation, fractional reserve banking should be abolished rather than advocating increased fractional reserve credit expansion during deflation. But even granting a large deflation under a 100 percent system, one must consider how such a thing could come about. Why would a large proportion of individuals desire to hoard money instead of consuming or investing it? If it was because of uncertainty about the future, then hoarding may be a wise policy.

Under fractional reserve free banking an increase in the reservation demand would result in a decrease in velocity and an increase in the bank demand to hold reserves. Selgin writes,

As our earlier discussion made clear, a free banking system tends to accommodate changes in the demand for inside money with equal changes in its supply. An increase in the demand for inside money balances results in banks' discovering that their formerly optimal reserve holdings have become superoptimal---the banks are encouraged to
Conversely, a fall in the demand for inside money exposes banks to a greater risk of default at the clearinghouse, prompting balance-sheet contraction. In both cases the system avoids unjustified fluctuations in aggregate nominal income and prices. [61]

Consequently the banks could increase credit because their reserves would increase. Even granting Selgin the fact that individuals would keep their increased hoards at fractional reserve institutions rather than redeeming them, one must question the wisdom of extending credit at such a time. As was said before, if a large number of individuals have increased hoards because of uncertainty, there may be good reasons for their actions. The disruption of deflation under 100 percent reserve would probably be minor compared to a major increase of unwise and ultimately unprofitable malinvestments.

11. Conclusion

Selgin contends that, "Free banks maintain constant the supply of inside money multiplied by its income velocity of circulation. They are credit intermediaries only, and cause no true inflation, deflation or forced savings." [62] This view differs markedly from the writings of Mises and Rothbard who contend that any credit expansion leads to the business cycle. According to Mises, "Issuance of fiduciary
media, no matter what its quantity may be, always sets in motion those changes in the price structure the description of which is the task of the theory of the trade cycle. Of course, if the additional amount issued is not large, neither are the inevitable effects of the expansion."[63]

The Theory of Free Banking rests firmly upon the assumption that long run equilibrium can be achieved and maintained under fractional reserve free banking. Once this fallacious assumption is accepted, Selgin's analysis logically and correctly follows. As has been shown, however, equilibrium cannot be achieved under fractional reserve but only under 100 percent reserve. As evidence of this, the introduction of fractional reserve banking into a 100 percent reserve system in long run equilibrium would still generate a credit expansion. Excess reserves in 100 percent deposit banks making the transition to fractional reserve banking, would be loaned out even if in long run equilibrium and force the economy away from this point, requiring a later correction. It is this fact that destroys the analysis of the fractional reserve theorists.

This is unfortunate, for most of The Theory of Free Banking is well written and clearly shows the superiority of free banking over centralized banking. What is necessary now is for theorists to base their work upon realistic assumptions.
and show the superiority of 100 percent banking over all other forms.
PART FOUR

THE FUTURE WITHOUT FRACTIONAL RESERVE BANKING

12. Failure of the Present System

The central assertion of this thesis has been to question the widely held assumption that the present economic system is fundamentally sound and viable in the long run. This status quo in which the government is committed to continuing credit expansion (with periodic minor contractions) is little more than twenty years old and without historical precedent, yet few have asked the most basic question: does it work in the long run? Does it not seem incredible that so many can assume continuous credit expansion without some drastic response by market forces?

To say that the banking system is actually supplying this credit is misleading, for without new reserves (which are determined by the government), the banking system could not expand credit. Because the federal government insures this credit (much of which is extended below the real interest rate) the government is, in fact, the ultimate creditor of this debt. Other creditors will gradually shift their funds out of investment and into consumption, leaving the government with an increasing percentage of total credit extended. In essence, this is a unique situation in which
the costs to one producer (the government) of supplying a
good (credit) are lower than that of any of its competitors,
for this good can be created virtually out of thin air while
others must forego consumption. As Dr. Hans-Hermann Hoppe
writes, "Placed at a lowered interest rate, the newly
granted credit causes increased investments and initially
creates a boom that cannot be distinguished from an economic
expansion; however this boom must turn bust because the
credit that stimulated it does not represent real savings
but instead was created out of thin air."[64]

In addition, this credit will be extended regardless of
whether or not it is ultimately profitable. The problem is
not as severe when government insures a small percentage of
total debt. Periodic recessions (which involve a fall in
capital goods inflated during the previous booms, relative
to consumer goods), hurt creditors who have extended credit
secured to inflated capital values. Non-government
creditors will be hurt most since they hold most of the
debt. In the latter stages of our present system, however,
a fall in capital values will degrade the debt portfolio of
the entire governmentally insured credit system, and the
government will have to guarantee those capital assets at
their original inflated prices when credit secured by those
capital assets was extended. This is why (as was shown in
Part II) much of the debt extended by governmentally insured
fractional reserve institutions must ultimately be purchased by that same government. This is the real cause of the present Savings and Loan bailout and must spread to other fractional reserve institutions insured by the federal government as well. As long as government continues to expand credit, the problem will worsen until it is faced with only two equally unappealing choices: allow the bankrupt fractional reserve credit system to collapse or hyperinflate the currency which will ultimately lead to the collapse of the banking system anyway.

Under the gold standard, falling capital values forced fractional reserve institutions to contract credit in order to remain solvent. This often led (though not always) to a rapid contraction of the money supply and deflation which is often cited as the main reason to abandon the gold standard. While this did remove the possibility of a massive deflation, it did nothing to lessen the dire effects of the boom-bust cycle. In reality, abandoning the gold standard has postponed the inevitable market response to credit expansion and greatly magnified its consequences.

13. System Transition

This thesis has questioned the long term viability of any fractional reserve system. The conclusion is that any
system, and especially the present one is doomed to inevitable collapse. But isn't there anything that can be done? Can't the government do anything to forestall the inevitable?

The answer is that the government will most probably do whatever it can to postpone the crisis. By lowering the rate of interest through accelerated credit expansion, it can postpone the crisis; it cannot prevent it. This action, however, will only delay and in fact ultimately exacerbate the problems generated by previous credit expansions.

But what will this crisis look like? Can anything be said about its nature or approximate time of arrival? This future crisis can only be averted by halting credit expansion now which in itself would cause a crisis. The only advantage would be that a present crisis would not be as devastating as one in the future. This is so politically unrealistic, however, that it is hardly worth discussing. In the present political and intellectual climate, credit expansion will be halted only when it is clear that there is no other alternative.

If one agrees that the government will continue to follow the present course of continuous credit expansion punctuated by brief reductions in the supply of high powered money, or
merely reduce the rate of money growth, then certain events must occur. First, as was discussed earlier, increasing government credit expansion will continue to drive credit, financed from non-bank sources, off the market and into consumption. Later, inflation will degrade the debt portfolios of both fractional reserve and non-bank debt; however, since non-bank reserve debt comprises a greater percentage of total credit, it will be affected to a greater degree. As time passes and fractional reserve debt comprises the greater percentage of total debt extended, this process will be reversed. Since most fractional reserve debt is extended at below market rates of interest, this debt will ultimately prove to be unprofitable requiring the federal government (the ultimate guarantor) to assume this debt.

There will be two ways in which the federal government will assume this debt. First of all, through open market operations the government will purchase debt outright, (usually government bonds) providing liquidity to the banking industry. Second, it will actually assume control of problem loans, guaranteeing depositors the full value of their deposits. This is in effect, purchasing "bad loans" at their original, inflated value when the loan was first extended. One might argue that this will not necessarily produce a crisis since the government is simply purchasing
debt that it previously created. In the process, government is dramatically increasing the supply of money and will be limited by the extent to which it is able to contract. The "brakes" are wearing thin while the vehicle "accelerates".

If history is any indication of how the market will respond to this credit expansion, it is likely that the crisis will be rapid and violent. When inflation rises to the point where it is no longer profitable to leave deposits in fractional reserve institutions for even short periods of time, massive withdrawals will occur, leading to a banking crisis. But what will be the catalyst of this massive withdrawal? Why will the present, general confidence in the banking system erode? It depends on the expectations of individuals in the economy. Mises writes,

This first stage of the inflationary process may last for many years. While it lasts, the prices of many goods and services are not yet adjusted to the altered money relation. There are still people in the country who have not yet become aware of the fact that they are confronted with a price revolution which will finally result in a considerable rise of all prices, although the extent of this rise will not be the same in the various commodities and services. These people still believe that prices one day will drop. Waiting for this day, they restrict their purchases and concomitantly increase their cash holding. As long as such ideas are still held by public opinion, it is not yet too late for the government to abandon its inflationary policy.

But then finally the masses wake up. They become suddenly aware of the fact that inflation is a deliberate policy and will go on
endlessly. A breakdown occurs. The crack-up boom appears. Everybody is anxious to swap his money against "real" goods, no matter whether he needs them or not, no matter how much money he has to pay for them. Within a very short time, within a few weeks or even days, the things which were used as money are no longer used as media of exchange. They become scrap paper. Nobody wants to give away anything against them.

It was this that happened with the Continental currency in America in 1781, with the French mandats territoriaux in 1796, and with the German Mark in 1923. It will happen again whenever the same conditions appear. If a thing has to be used as a medium of exchange, public opinion must not believe that the quantity of this thing will increase beyond all bounds. Inflation is a policy that cannot last.[65]

In the past, most mainstream economists assumed that there were no fundamental problems with the present economic system and periodic recessions could be dealt with by "fine-tuning". The previous discussion shows, however, that in order to "save" the system the government must ultimately destroy it.

14. Policy Proposals

The consequences of the collapse of the present system are grim indeed. But what will follow the present system if the events outlined in this thesis actually occur? Policy prescriptions that appeared successful during the Great Depression will fail if the present system collapses. The
federal government cannot borrow to finance public works programs in the absence of credit markets. Little can be collected in taxes with a worthless currency and the world in the depths of history's worst depression. Contraction of the money supply cannot be held as the scapegoat when the money supply had been inflated into absurdity.

I personally feel that most individuals and even economists will be forced to turn to the gold standard to reestablish confidence in the currency. As Mark Skousen writes, "I do not think that a gold standard will be reestablished on its own. No doubt such an event would create a crisis. But if a fiat dollar monetary crisis is already happening, a return to gold may actually reestablish economic stability."[66] Dr. Rothbard has already outlined a plan for returning to a 100 percent gold dollar.[67] Along with the introduction of a 100 percent gold dollar, a 100 percent reserve banking system might also become a popular proposal, forever eliminating the business cycle, inflation and banking crises. As Dr. Hoppe writes,

The present economic order is characterized by national monies instead of one universal money; by fiat money instead of a commodity such as gold; by monopolistic central banking instead of free banking; and by permanent bank fraud, and steadily repeated income and wealth redistribution, permanent inflation and recurring business cycles as its economic counterparts, rather than 100 percent reserve banking with none of these consequences.[68]
This inevitable future tragedy may be the catalyst to finally establish an economic base which will encourage economic growth and individual freedom. This may provide a unique opportunity to the Austrian school. Austrian policy proposals once thought unrealistic might be seen as the only rational course during a crisis. Although it is impossible to predict the timing and exact description of future events, it is still possible to describe the general sequence of the inevitable consequences of credit expansion. Were the Austrian school to concentrate on describing this sequence and warning of the dire consequences, its credibility would be greatly enhanced.

The collapse of communism has surprised many Austrians even though Mises illustrated its fundamental flaws many years ago in *Socialism*. It is not that his ideas were not generally accepted within the school, but more a lack of confidence in the overwhelming power that the Austrian school has to offer. Consequently, had Austrians emphasized the present crisis in communism in the past when it was not as obvious, credibility in other areas might have been strengthened. If there is a crisis coming in the present system, Austrians should concentrate their efforts on describing events as accurately as possible, thereby generating popular support for policy proposals that will shorten the length of the crisis and limit the extent of the
problems. A return to the gold standard in the midst of hyperinflation may not only become politically possible, but inevitable.

15. Conclusion

This thesis has basically asked just one question: Is the present economic system fundamentally sound and viable in the long run? The foundation of the present system rests upon fractional reserve banking and governmentally controlled credit expansion. Historically the market has always reacted violently to credit expansion resulting in bank runs, stock market crashes, recessions, depressions and, (as in the case of Bretton Woods) collapse of the system itself. Most economists feel that these violent episodes can be dealt with and circumvented, even though the present system is little more than twenty years old. In the long run, market forces cannot be circumvented, especially if one defines this nebulous term in decades rather than years. Isn't it then reasonable to question the long term viability of our present system?

The idea of fractional reserve, when analyzed objectively, is truly illogical. In essence, fractional reserve allows two parties full and exclusive ownership of the same asset
over the same time period. To base a financial structure upon this concept is asking for trouble. The fact that the system has existed for so long can be attributed to offsetting factors and the fact the inevitable consequences have yet to be seen.

Using the Angel Gabriel model, I attempted to illustrate the future course of the present system and show that fractional reserve free banking is at best a poor second choice to 100 percent reserve banking. Using the historical record to support fractional reserve free banking is at best inconclusive, for it is difficult to find examples of the pure model and free banking theorists say little about macro-stability of the economy at large. In addition, credit expansion in an advanced capitalist economy would be much more disruptive than in an agrarian society where most capital is close to consumption. Advocating fractional reserve free banking as an alternative to our present system could be dangerous, for its failure would be seen as an indictment of the free market, rather than the failure of a fundamentally flawed system.

When the collapse finally arrives, we will be faced with two broad choices. If the collapse is seen as a failure of capitalism and free enterprise, policy proposals may call for more pervasive government intervention. In this case
the world may be entering a new dark age. If the collapse is seen as a failed program of government intervention that was ultimately doomed from its inception, then there is hope for a transition to a more rational and viable system. The return to a 100 percent gold currency and banking system is crucial to this new system. Any transition will be painful, but the less government interferes, the less painful that transition will be. It is up to the supporters of the free market to somehow make the simple truth known, for the future holds no other alternatives.
NOTES


3. Rothbard, "Nine Myths About the Crash" p. 3.


7. For an excellent discussion of this problem see Rothbard, *The Mystery of Banking*, pp. 93-95.


11. Ibid., p. 317.

12. Rothbard, *The Mystery of Banking*, Ch. VI and VII.


15. Ibid., p. 859.

16. Ibid., p. 862.


21. Ibid.

22. Ibid.


24. Ibid.


27. Rothbard, "The Myth of Free Banking in Scotland".

28. Ibid., p. 229.

29. Ibid., p. 230.


34. Ibid., p. 29.

35. Ibid., p. 30.


37. Ibid., p. 7.

38. Ibid., p. 15.

39. Ibid.


42. Ibid., p. 9.
43. Ibid.
44. Ibid.
46. Rothbard, *Man Economy and State*.
48. Ibid., p. 34.
49. Hayek, *Prices and Production*, p. 31.
50. See Mises, Rothbard and Hoppe.
53. For a critique of this concept see Rothbard, *Man, Economy, and State*, p. 727-737.
60. Ibid., p. 55.
62. Ibid., p. 123.


66. Skousen, Economics of a Pure Gold Standard, p. xii.


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