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The unresolved problem of gratuitous credit in Austrian banking theory

Raymond C. Niles [1]

Abstract Ludwig von Mises called gratuitous credit, the ability banks have to create new credit, the chief problem in a theory of banking. This paper traces how Mises and succeeding generations of Austrian-school economists have grappled with this problem, but have failed to find resolution. The result is that Austrian economists disagree on a variety of issues in banking and business cycle theory, such as whether there is an endogenous business cycle under free banking, or cycles only occur under central banking. Before a resolution can be attempted, current thinking must be clarified. This paper divides Austrian economists into five schools of thought. It points to a possible resolution in the economic development writings of Joseph Schumpeter.

Keywords Gratuitous credit · Endogenous money · Free banking · Central banking · Austrian business cycle theory · 100 % reserves · Fractional reserves · Precautionary reserves · Business cycle

JEL classification B25 · B26 · B53 · E14 · E32 · G01

1 Introduction

> The problem that is before us is usually referred to by the catch-phrase gratuitous nature of credit. It is the chief problem in the theory of banking.
>
> Ludwig von Mises ([1953] 1971, 352)

✉ Raymond C. Niles
rniles2@gmu.edu

[1] Department of Economics, George Mason University, Fairfax, VA 22030, USA

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This purpose of this paper is to isolate and highlight Austrian thought on a key element of banking theory: gratuitous credit. Many of the disputes in Austrian banking and business cycle theory have at their root a fundamental disagreement about the nature of gratuitous credit. In order to resolve these subsidiary issues, the core issue must be addressed. Ludwig von Mises named it as the "chief problem in the theory of banking." This paper will trace how Austrian banking theory has grappled with this problem, beginning with Mises himself. It will show that, instead of achieving a clear answer, Austrian theory has foundered on this issue, resulting in an unresolved incoherence in current Austrian banking theory that has split Austrian thought into various camps. The purpose of this paper is to crystallize and draw attention to this issue. It can point the way to resolution, but actual resolution is a difficult task that remains to be accomplished. Reintegrating these camps and putting Austrian banking theory in a position to credibly move forward first requires identifying this inconsistency. This paper is an effort in that direction.

After first identifying what gratuitous credit is, as explained by Mises, this paper will trace how subsequent Austrian theorists took one side or the other on this issue and related sub-issues. Gratuitous credit is the problem that banks can and do periodically over-issue credit, resulting in boom and bust cycles. In their theoretical treatment of this banking issue, Austrians have vacillated on:

- the economic *potency* of gratuitous credit,
- whether it is a *natural* free market phenomenon,
- whether it requires, for its occurrence, a facilitating intervention such as a central bank,
- whether free banking institutions, such as the clearing mechanism, can rein it in,
- whether it requires a government intervention in banking to rein it in[1]
- the economic significance of gratuitous credit - can it serve a productive role in the economy?

These disagreements often put Austrians on the same or differing sides in surprising ways. For example, Friedrich Hayek and Murray Rothbard were on the same side in viewing gratuitous credit as *potent* under free banking i.e., as capable of causing a business cycle in a (fractional reserve) free banking context. As a result of this view, both men advocated government intervention to rein in the problem (see footnote 1). Yet, at the same time both men disagreed on the importance of the central bank in being a fundamental cause of the problem of gratuitous credit.[2] In contrast, Lawrence H. White agreed with Rothbard that the central bank is a fundamental cause of gratuitous credit. Yet, White and Rothbard disagreed on the efficacy of the clearing mechanism under (fractional reserve) free banking to prevent the problem (Selgin and White 1996).

[1] Such as a 100 % reserve requirement (Rothbard [1970] 2009) or interventions to maintain money supply growth or nominal GDP growth (Hayek, as discussed in White 1999a).

[2] Hayek did not see the central bank as a fundamental cause of gratuitous credit in his earlier writings (see Hayek [1932] 2012), whereas Rothbard was a harsh critic of the central bank as one of two fundamental reasons gratuitous credit led to business cycles. The other reason was fractional reserve banking. Discussed in Sections 3 and 4 below.

Table 1 summarizes the different positions taken by Austrian banking theorists on the constellation of issues that surround gratuitous credit. It categorizes them into five schools of thought, grouped by their positions on key issues. Each school of thought is identified by its principal leader(s) and seminal text(s) that mark a break from prior thought. The goal of this paper is to classify Austrian banking theory using the principal theorists who established new schools of thought. It does not aim to be a comprehensive catalog of every thinker in each school. The rest of this paper will explain those differences, referring principally to primary texts. It will cover Austrian banking theory from its first comprehensive exposition in Mises ([1934] 1971), which I call "Mises I″[3] and will end with the "Free Banking School" of White and Selgin.

2 Ludwig von Mises

2.1 Defining the problem of gratuitous credit

Mises wrote the words quoted at the beginning of this paper in his seminal work on banking theory, *The Theory of Money and Credit* ([1953] 1971, first published in 1912). His concern with what he calls "gratuitous credit" is the theme that runs throughout the book. Because the demand for credit is a function of interest rates, Mises explains that banks, by offering more credit at progressively lower interest rates, have the technical ability to issue a nearly unlimited amount of credit. He says, "It is indisputable that the banks are able to reduce the rate of interest on the credit they grant down to any level above their working expenses (for example, the cost of manufacturing the notes, the salaries of their staffs, etc.)." (Mises [1953] 1971, 351–352). As a result, he says:

> [I]t would be entirely within the power of the banks to reduce the rate of interest down to this limit, provided that in so doing they did not set other forces in motion which would automatically re-establish the rate of interest at the level determined by the circumstances of the capital market, i.e. the market in which present goods and future goods are exchanged for one another. The problem that is before us is usually referred to by the catch-phrase *gratuitous nature of credit*. It is the chief problem in the theory of banking. (Mises [1953] 1971, 352, italics his).

Given that banks have the technical capacity, the potential, to issue extremely large quantities of credit, Mises seeks to identify which factors limit the actual issuance of credit by banks. When banks issue additional credit (via the mechanism of gratuitous credit), they push the market rate of interest below the natural rate of interest. Mises asks, "Does the matter rest there, or is some force automatically set in motion which eliminates this divergence between the two rates of interest?" (Mises [1953] 1971, 360). Mises develops his theory of the business cycle to answer this question. The force that eliminates the divergence is the business cycle. Mises employs Knut Wicksell ([1898]1936)'s distinction between natural and market interest rates and Böhm-Bawerk's theory of capital as specific and not easily redeployed. When banks over-

[3] The difference between "Mises I″ and "Mises II" will be explained in the next section.

Table 1 - Evolution of Austrian Banking Theory – Schools of Thought

	Mises I 1912–1928	Hayek 1929–1933	Mises II 1949–1980s	100 % reserve school 1962-Present	Free banking school 1980s-present
Primary Text(s)	Mises ([1953] 1971)	Hayek ([1932] 2012)	Mises ([1949] 1966)	Rothbard ([1970] 2009)	White ([1984] 1995), Selgin (1988)
	The theory of money and credit	Monetary theory and the trade cycle	Human action	Man, economy and state	Free banking in England
					The theory of free banking
Attributes of theory					
1. Supply or demand?					
Fundamental cause(s) of business cycle	Entrepreneurial demand & central bank	Entrepreneurial demand	Central bank	Fractional reserve banking & central bank	Central bank
Endogenous and/or exogenous business cycles?	Endogenous & exogenous	Endogenous	Exogenous	Endogenous & exogenous	Exogenous
Key driver of cycle: credit demand or money supply?	Credit demand & money supply	Credit demand	Money supply	Credit demand & money supply	Money supply
2. Government role in business cycles					
Central banks primary or ancillary cause of cycles?	Primary	Ancillary	Primary	Primary[b]	Primary
Can correct government policy eliminate cycles?	Not completely[a]	No[e]	Yes	Yes	Yes
Advocates government intervention to eliminate cycles	No	No[e]	No	Yes	No

Table 1 (continued)

	Mises I 1912–1928	Hayek 1929–1933	Mises II 1949–1980s	100 % reserve school 1962-Present	Free banking school 1980s-present
3. Attributes of banking/business cycles					
Business cycles under laissez-faire/free banking?	Yes	Yes	No	Yes	No
Bank clearing mechanism: tight or loose joint?	Tight joint	Loose joint	Tight joint	Loose joint	Tight joint
Banks create new credit to finance entrepreneurs?	Yes	Yes	Forgotten[d]	Unclear	Yes, but only in gold era
Economic significance of cycle	Negative	Mixed[c]	Negative	Negative	Negative
Institutional context					
Monetary events	WWI gold suspension;	Debt resumption of convertibility, gold suspension	1949 Bretton Woods	1971 gold suspension, inflation	Volcker restraint to stop inflation
	Deflation/resumption of convertibility				
Monetary standard	Gold exchange standard	Devaluation; gold exchange standard	International dollar-gold exchange standard	Fiat dollar standard	Fiat dollar standard

[a] Eliminating central bank would *reduce* cycles. Unclear on whether cycles would exist under free banking.

[b] The central bank is one of two fundamental causes of business cycles. The other cause is bank-issued credit under fractional reserve banking.

[c] Citing Schumpeter, Hayek explains that gratuitous credit arises to finance entrepreneurial demand, thereby offering a plausible economic justification for it.

[d] Although prominently discussed in Mises ([1953] 1971), Mises ([1949] 1966) focuses almost exclusively on the role of the central bank in creating money.

[e] Advocates various interventions that can potentially *reduce* cycles.

issue credit causing the market rate to fall below the natural rate of interest, it triggers a boom based on unsustainable investment in capital intensive businesses. Eventually, this mal-investment is liquidated, along with the credit that financed it, during the recessionary phase of the cycle. Mises' distinctive theory of the business cycle (Mises [1953] 1971, 357–366) became known as the Austrian theory of the business cycle.[4]

Mises' seminal work was first written more than a century ago. Institutionally, Mises developed his banking theory in the context of pre-World War I central banking. The central bank consisted of a legally-privileged "bank-of-issue," i.e., a monopoly issuer of notes, such as the Bank of England, surrounded by a coterie of private commercial banks that operated under the central bank's influence (Smith [1936] 1990, 3–24, 132–145). The banking system operated under the gold standard, which required that banks convert banknotes and deposits into gold upon demand, a requirement that was typically suspended during economic crises (Mises [1953] 1971, 233, 321–322, 440; Smith, ibid.).

There is often a certain ambiguity in Mises' use of the word "banks." He is generally referring to all banks taken together, private commercial banks and the legally privileged central bank.[5] At other times, "banks" refers to the private commercial banks only, but still in the institutional presence of the central bank. Only when Mises explicitly uses the term "free banks," which rarely appears in his writings, is he referring to the theoretical institutional arrangement where the entire banking system consists exclusively of private banks, i.e., where there is no central bank. Mises refers to the free banking case only twice in *The Theory of Money and Credit*,[6] and somewhat more extensively in Mises (1978), discussed below.

The few cases where Mises explicitly addresses free banking are instructive in understanding his position on gratuitous credit. Free banking represents a "pure case" where the mechanism of gratuitous credit is clearly seen. It is also the theoretical case discussed at length by later Austrian theorists, such as Murray Rothbard and Lawrence H. White (discussed in Sections 4 and 5, below). The theoretical questions are: Under free banking, how economically "potent" is gratuitous credit? Will free banks on their own tend to over-issue credit or will they be checked by some sort of institutional mechanism that arises under the free market, such as the clearing system? If some banks do over-issue credit, will the over-issuances be of sufficient magnitude to foment a business cycle?

The thorny issue implicit in all these questions is causation. Austrian business cycle theory has a well-developed explanation for the mechanism of *how* boom goes to bust (Hayek [1935] 2008; Garrison 1986, 2001). But, in terms of causation, it is unclear (depending on which theorist one consults) whether the cycle is launched only when a central bank is present, or can be launched endogenously under a natural dynamic that

[4] This paper does not focus on the *mechanism* of the business cycle that Mises pioneered, including the elaborations of that mechanism in Hayek ([1935] 2008) and by later Austrian economists, such as Garrison (1986, 2001). Instead, it focuses on where Austrians address the *causal role* played by gratuitous credit.

[5] E.g., Mises ([1953] 1971, 144–147). "Banks" and "bankers" refers to a banking system that includes commercial banks and the central bank. See also Haberler (1932), a contemporary of Mises, who uses "banks" to refer to the overall banking system, with no distinction made between private, commercial banks and central banks (Ebeling 1996). In their discussions of banking, both authors, especially Haberler, accept the institutional structure of their day, which included central banks. We will see that this was also true of Hayek ([1932] 2012).

[6] Mises [1953] 1971, 318, 440.

occurs under free banking. To see how Mises addresses this issue, we first look at how Mises describes the operation of banks under central banking. Then we examine Mises' treatment of free banking.

2.2 Mises: the case of central banking

Mises addresses the case of central banking at length (Mises [1953] 1971; [1949] 1966; 1978). He places his theory of the business cycle within the historical tradition of the Currency School, which held that the Bank of England encouraged English banks to over-lend *en masse*, resulting in frequent, recurring cycles of boom and bust (Mises [1953] 1971, 399–400). The Bank of England had this effect through various institutional features that (a) periodically gave banks more reserves with which to lend, and (b) reduced the cost and consequences of over-lending. The Bank of England increased bank reserves by discounting bills too aggressively, which pushed the market interest rate below the natural rate, resulting in mal-investment by borrowers (Mises [1953] 1971, 354–357; Smith [1936] 1990, 8–24, 71–91, 132–145). In terms of reducing the cost and consequences of over-lending, Mises cites the frequent suspensions of gold convertibility for the banking system throughout the nineteenth century. Mises holds that a proper banking system would not permit such suspensions. A bank would face liquidation if it failed to convert (Mises 1978, 128–129). An additional way banks were insulated from the consequences of over-lending was the central bank's lender of last resort function, which bailed out imprudent banks (Mises [1953] 1971, 326–327). All of these practices were made easier by legal tender laws that generally made the central bank, such as the Bank of England, the monopoly issuer of notes (Mises [1953] 1971, 398).

These factors were motivated, according to Mises, by a statist ideology of inflationism and the mistaken belief that there should be ever-lower interest rates to stimulate business investment (Mises 1978, 43–44, 123; Mises [1953] 1971, 231). The common element between the central banking case that Mises spends most of his writing on and the free banking case is gratuitous credit. All of the cases Mises discusses work through the creation of new credit by *private* banks, i.e., through the mechanism of gratuitous credit. The central bank does not act directly to increase credit; it acts indirectly via its influence on the lending practices of private banks. Central banks can alter the reserve levels of private banks and they can alter the risk-reward calculation that private banks employ when they extend new loans, or (when permitted) issue new banknotes, but they cannot directly offer credit.[7]

2.3 Mises: the case of free banking

Given that private banks create the excess credit that launches a business cycle, would gratuitous credit also be a problem under *free banking*? Mises says very little on the theoretical subject of free banking in any of his writings, but what he does say is important for understanding later developments in Austrian banking theory. Virtually

[7] There were exceptions. The Reichsbank and National Bank of Austria were permitted to make direct loans to businesses and governments, which the Bank of England and the later Federal Reserve Bank of the United States were not permitted to do (Mises [1953] 1971). In making such loans, the central bank acted like a private bank. *Qua* central bank, this argument holds.

all of his writings were addressed to the institutional structures of his day, whether pre-World War I central banking under a gold standard (Mises [1953] 1971), or the attenuated Bretton Woods system (Mises 1966), or fiat money after 1971.[8]

In this section I review Mises' early, pre-World War II statements on free banking, which I label "Mises I″ to distinguish these views from Mises' post-war views, labeled "Mises II". What Mises said has been interpreted by some later Austrians (Selgin and White 1996) as supporting the idea that the clearing mechanism under free banking would limit the problem of gratuitous credit to the point where business cycles would not occur. They interpret Mises to say that under free banking, there would be no business cycles, at least none caused by gratuitous credit. Yet, Mises did not take such a strong view in his early, pre-World War II writings on banking. It is certainly true that Mises was highly troubled by the problem of gratuitous credit. In virtually every page of *The Theory of Money and Credit* (and in much of his later writings), he explains how gratuitous credit is a serious problem *under central banking*.

However, there are a few references to free banking in Mises' writings.[9] The most extensive of Mises' writings on free banking is a short section entitled "Free Banking" that appeared in 1928 in an article entitled "The Reappearance of Cycles" (Mises 1978, 117–127). In it, Mises describes how the interbank clearing mechanism among free banks would ameliorate the problem of gratuitous credit by compelling banks who over-issued credit and fiduciary media[10] to reign in their issuances. He describes the process:

> If several banks of issue, each enjoying equal rights, existed side by side [i.e., there is no legally-privileged central bank], and if some of them sought to expand the volume of circulation credit while the others did not alter their conduct, then at every bank clearing, demand balances would regularly appear in favor of the conservative enterprises. As a result of the presentation of notes for redemption and withdrawal of their cash balances, *the expanding banks would very quickly be compelled once more to limit the scale of their emissions*. (Mises 1978, 124, italics mine)

However, this clearing mechanism, effective as it may be, is not sufficiently tight to prevent disturbances. Mises elaborates:

> In the course of development of a banking system with fiduciary media, *crises could not have been avoided*. However, as soon as bankers recognized the dangers of expanding circulation credit, they would have done their utmost, in their own interests to avoid the crisis. *They would then have taken the only course leading to this goal: extreme restraint in the issue of fiduciary media.* (Mises 1978, 124–125, italics mine)

[8] This was when the United States abandoned the international convertibility of the dollar into gold.

[9] There are exactly two direct references to free banking in *The Theory of Money and Credit* (Mises [1953] 1971, 318, 440). The first was written pre-World War II. The second appears in a section added in 1953 for the second English edition in a section entitled "Monetary Reconstruction," and is part of Mises II thought.

[10] Fiduciary media are money-substitutes, such as banknotes and checks, that are issued in excess of a bank's reserves of base money, which is gold under a gold standard, or fiat money under a fiat money standard. (Mises [1953] 1971, 133).

The italicized sections indicate ambiguity on whether crises due to over-issuances of credit would occur under free banking. Hard-won commercial practice over time would lead bankers to "extreme restraint" in issuing fiduciary media. Moreover, the clearing mechanism means that "expanding banks would very quickly be compelled once more to limit the scale of their emissions." This implies that there is some period of time during which credit would be over-extended, making crises unavoidable.

This possibility of over-issuances under free banking, present in Mises I, evolved in two opposite directions in subsequent Austrian thought. In the hands of Hayek, who wrote in the late 1920s and 1930s after Mises I, the mere possibility of over-issuances under free banking was made into an explicit view that banks would over-issue credit. This is Hayek's self-described "endogenous" theory of business cycles (Hayek ([1932] 2012).

Going in the other direction, we have Mises himself, in his post-World War II writings, labeled "Mises II." If Mises in his earlier writings left the door slightly open to over-issuances of credit under free banking, he slammed the door shut in his later writings, chiefly in Mises ([1949] 1966). He would hold that business cycles are fundamentally the result of central bank intervention; they would be absent under free banking. We examine Mises' shift in thinking from Mises I to Mises II below, followed by an examination of Hayek's move in the opposite direction.

2.4 From Mises I to Mises II: the changing institutional context

In Mises I, the cautious lending practices of bankers under free banking, coupled with the workings of the clearinghouses, would quickly restrain over-issuances by bankers and reduce the incidence of crises. The door is open for crises to occur, if infrequently. We find that Mises' view of this issue had hardened considerably by the time he wrote *Human Action* in 1949.[11] We term this view "Mises II." In *Human Action*, he writes that:

> Free banking is the only method available for the prevention of the dangers inherent in credit expansion. It would, it is true, not hinder a slow credit expansion, kept within very narrow limits, on the part of cautious banks which provide the public with all information required about their financial status. *But under free banking it would have been impossible for credit expansion with all its inevitable consequences to have developed into a regular—one is tempted to say normal—feature of the economic system. Only free banking would have rendered the market economy secure against crises and depressions.* (Mises [1949] 1966, 440, emphasis added).

By the time of *Human Action*, Mises is clear; any ambiguity is removed. Regular business cycles would be *impossible* under a system of free banking. Free banking would have *rendered the market economy secure against crises and depressions*. This tone of clarity on the possibility of business cycles under free banking was picked up

[11] Mises views along these lines had undoubtedly begun to shift before the end of World War II, probably with the onset of the major institutional changes and growing power of central banks that began with the onset of the Great Depression in the 1930s. Note that *Human Action* was largely written prior to the war. *Human Action*, which appeared in 1949, was largely an English translation of *Nationalökonomie*, written by Mises from 1934 to 1940 and published in Switzerland in 1940 (Ebeling 2000, xv).

and amplified by later Austrian theorists, particularly Murray Rothbard and Lawrence H. White, as we shall see.

Mises' attitude toward central banking and the possibility of business cycles under free banking evolved as the institutional structure he addressed changed from central banking under the gold standard to central banking under a fiat money standard. As the influence of central banking on commercial banking practice increased, Mises began to see the central bank as the exclusive or fundamental cause of business cycles. In effect, as his case against central banking became more strident, his implicit defense of free banking also assumed a stronger tone. Whereas before there was the hint or possibility of free banks over-issuing credit and causing a business cycle, in his later defense of free banking (implicitly as part of his larger argument against central banking), he denied that possibility.

At the time of writing *The Theory of Money and Credit*, first edition written in 1912 prior to World War I, most of the world was on an explicit gold standard and the central banks of the day (e.g., the Bank of England, the Reichsbank, and the National Bank of Austria) operated under the constraint of the gold standard. The central banks held partial or complete monopolies on the issuance of notes, but the gold standard – the need to maintain redeemability of banknotes and deposits into gold – restricted how many notes they could issue and how much reserves they could create through purchases of bonds. The gold standard limited issuance of fiduciary media through the international price specie-flow mechanism and domestically via the requirement that banks stand ready to convert notes into gold upon demand (Smith [1936] 1990, White 1999b).

During the interwar period, this standard was softened to the *gold exchange standard*. The international price specie-flow mechanism remained under this standard, but internal gold convertibility was progressively suspended across the industrialized world during the 1930s with the onset of the Great Depression. In the United States, for example, the internal convertibility of the dollar into gold was suspended in 1933. At the same time, private ownership of gold bullion was actually outlawed. These loosenings of the restraining influence of gold on the creation of fiduciary media by banks made central bank policy more powerful in influencing the supply of money. It gave the central bank greater latitude in creating new bank reserves via "open market operations" (the buying and selling of government bonds with the purpose of influencing the money supply), a practice begun in the 1920s (Anderson 1979).

By the time Mises published *Human Action* in 1949, the interwar gold exchange standard had morphed into the Bretton Woods system in 1944. It was a system where the connection to gold was attenuated further by making the dollar the world's reserve money, and only the dollar remained directly convertible into gold as part of the international settlements system (Anderson 1979).

Reflecting the progressive attenuation of gold as a value anchor for money during this period, and the simultaneous growth in the power and centrality of central banks to the banking system, Mises' concern with central banking intensified during this period. By the time Mises published *Human Action* and the 1953 addendum to the 2nd English edition of *The Theory of Money and Credit*, "Monetary Reconstruction,"[12] his focus had largely shifted to the role of central banks in fomenting money creation and a business cycle. Any implication that private banks *on their own* – i.e., under free banking – could foment a cycle through money creation was dropped.

[12] Mises [1953] 1971, 413–455.

In summary, the Mises I position left open the possibility that private banks would over-lend and generate business cycles under free banking. Over-lending would be reduced by the clearing mechanism and by hard-won bankers' caution under free banking, but the tendency would still exist, if on a reduced magnitude. Central banking, where it existed, would greatly magnify overlending by private banks, as the Bank of England did during the nineteenth century.

Under Mises II, the responsibility for business cycles shifts entirely to central banks. Although Mises continued to say little directly about free banking in the post WWII period, his message had changed. Business cycles were no longer a potential problem of gratuitous credit under free banking. Now they would only occur under central banking, which encouraged banks to over-lend.

The themes evident in Mises I and Mises II are echoed in the writings of later Austrian economists. Picking up on Mises' evolving perspective on free banking and central banking during these periods, later Austrians come down on one side or the other on each of these issues. Some economists (e.g., Friedrich Hayek, Murray Rothbard, Joseph Salerno, and Huerta de Soto) expand on the implication in Mises I that free banks might over-issue credit and cause business cycles. Others (e.g., Roger Garrison, Lawrence H. White, and George Selgin) side with Mises II and hold that free banks, due to effective interbank clearing, will not do so. These groups also split on solutions. The first group endorses a variety of government interventions.[13] The second group, seeing free banking as effective, advocates a policy of laissez-faire.

3 Hayek: an endogenous theory of the business cycle

Hayek builds upon the premise of Mises I, but extends and develops it much further.[14] Hayek not only sees business cycles as inevitable under free banking, but in his earlier (pre-World War II) work he downplays the role of central banks in causing business cycles. It is in this earlier period, writing in the 1920s and 1930s, that Hayek devotes the bulk of his research to the business cycle (Caldwell 2004). This paper draws principally on *Monetary Theory and the Trade Cycle*, where Hayek discusses the factors that cause the business cycle. That is the relevant discussion for understanding Hayek's treatment of gratuitous credit. In Hayek's other principal work discussing the business cycle written during this period, *Prices and Production*, Hayek focuses primarily on the *mechanism* of the business cycle, i.e., the process of how the boom transforms into a bust or recession.[15]

While Mises sees the central bank as the fundamental cause of business cycles, for Hayek it was the banking system itself (of which the central bank was a part) which

[13] See footnote 1.

[14] Chronologically, Hayek's work appears after Mises I but before Mises II. *Monetary Theory and the Trade Cycle* ([1932] 2012), his principal work of this period, reads in large part as a direct response to Mises' writings during the Mises I period.

[15] *Prices and Production* was written in English and appeared earlier, in 1931, both of which may account for the greater scholarly attention it has received. Also driving its popularity was that it was a collection of prestigious lectures that Hayek presented at the London School of Economics that year. In those lectures, Hayek offers a richer, detailed explanation than Mises of how boom goes to bust, utilizing an intricate model of time-unfolding capital structure. *Monetary Theory and the Trade Cycle* appeared earlier, in 1929, but in German, and the English translation did not appear until 1932, after *Prices and Production*. (Caldwell 2004).

inherently has a tendency to over-issue loans and create too much money. Hayek explains this mechanism in some detail. He asks, "But how is it possible for the banks to extend credit, as they undoubtedly do, following an increase in demand, when no additional cash is flowing into their vaults?" (Hayek [1932] 2012, 169). He answers:

> The key to this problem can only be found in the fact that the ratio of reserves to deposits does not represent a constant magnitude, but, as experience shows, is itself variable. // [W]e had no theoretical warrant for our previous assumption that it always tends to be constant. (Hayek [1932] 2012, 170)

Hayek is describing the mechanism of gratuitous credit, just as Mises had earlier described it. Unlike Mises, Hayek sees gratuitous credit as economically *potent*, a fundamental capacity of banks that they will exercise on a recurring basis to accommodate increases in the demand for credit. He says:

> ...thanks to the activities of the banks an increased demand for credit is followed by a greater increase in its supply than would be warranted by the supply of contemporary saving[.] (Hayek [1932] 2012, 177)

This tendency to over-issue credit relative to the supply of savings is inherent in the workings of the banking system in a credit economy:

> The immediate consequence of an adjustment of the volume of money to the 'requirements' of industry is the failure of the 'interest brake' to operate as promptly as it would in an economy operating without credit. (Hayek [1932] 2012, 179)

Thus, for Hayek, the business cycle is an *endogenous*, or regular, feature of the banking system. In contrast, Mises' theory, according to Hayek, is an *exogenous* theory of the business cycle where the central bank acts as an external, periodic disturbing factor that causes commercial banks to over-issue credit (Hayek [1932] 2012, 143–148). Hayek says:

> By disregarding those divergencies [sic] between the natural and money rate of interest which arise automatically in the course of economic development, and by emphasizing those caused by an artificial lowering of the money rate, [Mises' version of] the Monetary Theory of the Trade Cycle deprives itself of one of its strongest arguments; namely, the fact that the process which it describes *must* always recur under the existing credit organization, and that it thus represents a tendency inherent in the economic system, and is in the fullest sense of the word an *endogenous* theory. (Hayek [1932] 2012, 146–147, italics his)

Despite the fundamental differences in causation, both Mises' and Hayek's theories of the business cycles are "monetary theories of the trade cycle" because the causal mechanism for the cycle lies in changes in the quantity of money (O'Driscoll and Rasmussen 2012).

The two theorists differ on what causes the change in the quantity of money. For Hayek, the cause principally lies on the demand side, in the entrepreneurial demand for credit.[16] First, there is an increase in the demand for credit. The banks accommodate it by providing the credit, and in the process create new money in the form of banknotes and checking deposits. The increased demand for credit is a natural part of economic development and therefore "inherent in the economic system." Thus, Hayek's theory is an endogenous theory of causation. In contrast, Hayek sees Mises as advocating an exogenous theory of the business cycle. An external factor, the central bank, acts on the supply side. It periodically and artificially fosters the creation of new credit by private banks through its various policies and institutions.[17]

Hayek allows that central banks can cause business cycles, but they are just one of many factors that operate as adjuncts to the fundamental endogenous credit cycle that is inherent in the banking system. In contrasting his position with that of Mises, he says:

> [I]t is possible to assume, with Professor Mises, that the Central Banks, under the pressure of an inflationist ideology, are always trying to expand credit and thus provide the impetus for a new upward swing of the Trade Cycle; and this assumption may be correct in many cases. The credit expansion is then conditioned by special circumstances, which need not always be present; and the cyclical fluctuations caused by it are, therefore, not the necessary consequence of an inherent tendency of our credit system, for the removal of the special circumstances would eliminate them. (Hayek [1932] 2012, 150)

Central banks are not a fundamental cause. They are merely an additional cause of business cycles. He elaborates:

> [T]he modern monetary system cannot be conceived without fluctuations ascribable to monetary influences; and therefore any other factors which may be found necessary to explain the empirically observed phenomena will have to be regarded as causes *additional* to the monetary cause. (Hayek [1932] 2012, 186, emphasis his)

Mises II essentially offers a single, fundamental cause for the business cycle – central banks – which operate on the supply side, by increasing the supply of credit. In contrast, Hayek's view is agnostic; it admits of many causes that operate primarily on the demand side. Principal among these were causes first identified by Joseph Schumpeter ([1934] 1983, originally published in 1911). Schumpeter was a contemporary of Mises; both had attended the University of Vienna together (McCraw 2007). Schumpeter had proposed a theory of economic growth where entrepreneurial innovation is the key driver. The entrepreneurial demand for credit is met by a process of

[16] Hayek ([1932] 2012,168), quoted below.

[17] This is discussed in Section I of this paper. The central bank, according to Mises, fosters excessive private credit creation by banks via several institutional features that reduce the cost of issuing credit. These include its lender of last resort function, periodic suspensions of convertibility (under the gold standard), open market operations or the buying of debt, and an aggressive discount policy at excessively low interest rates. Mises summarizes all this as the "ideology of inflationism." Unlike Mises, Hayek sees this as only one of many possible causes of the over-issuance of credit, one that is over-emphasized by Mises.

"ad hoc" credit created by the banks in a process essentially the same as the gratuitous credit process described by Mises. The large scale of the innovations, which occur in waves, creates a disturbing effect on the economy that manifests in a cycle of boom and bust (Schumpeter [1934] 1983). Hayek gives large space to Schumpeterian causes in the variety of causes that can lead to a business cycle.[18] He says:

> The reasons for this [increase in the demand for credit] can be of very different kinds. New inventions or discoveries, the opening up of new markets, or even bad harvests, the appearance of entrepreneurs of genius who originate 'new combinations' (Schumpeter), a fall in wage rates due to heavy immigration; and the destruction of great blocks of capital by a natural catastrophe, or many others. We have already seen that none of these reasons is in itself sufficient to account for an excessive increase of investing activity, which necessarily engenders a subsequent crisis; but that they can lead to this result only through the increase in the means of credit which they inaugurate. (Hayek [1932] 2012, 168, parenthesis his)

3.1 Criticisms of Hayek in White and Selgin

3.1.1 Criticism of Hayek's call for intervention in banking

White (1999a) criticizes Hayek's "loose joint" banking theory, and sees it as a reason why Hayek did not advocate laissez-faire in banking. Hayek saw a business cycle as inherent in free banking and for that reason felt that an intervention was necessary to rein it in. At different times, he proposed a variety of interventions, such as: a central bank that would act proactively to squelch credit growth before it became an unsustainable boom; a 100 % marginal gold reserve standard (similar to Mises' transition plan for restraining central banks, discussed in the next section); and a competing system of national fiat currencies.[19] Hayek holds the view that the business cycle is inevitable under free banking, and because this is an undesirable consequence, it needs to be avoided through some policy of government intervention. In advocating intervention, Hayek's position is similar to Rothbard's, although the details of their proposals are different; we examine Rothbard in Section 4.

3.1.2 Criticism of Hayek's "loose joint": the precautionary reserve argument

This paper does not address Hayek's advocacy of intervention in banking as a response to the problem of gratuitous credit. It is possible that Hayek saw banking intervention as a transition measure since he did not see free banking as politically feasible (Selgin and White 1996). Rather, we are concerned about the positive economics that lies at the root of Hayek's position: his contention that under free banking, the problem of

[18] Of the causes mentioned below, "New inventions or discoveries," "the opening up of new markets" and "the appearance of entrepreneurs of genius who originate 'new combinations'" are all causes described in Schumpeter ([1934] 1983).

[19] White provides several examples. In one of these (White 1999a, 763, footnote 13), Hayek endorses central control of the monetary system via an institution such as the Federal Reserve Bank. On page 764, he cites Hayek (1978) where he again argues for a central bank and against a gold standard.

gratuitous credit means that business cycles are inevitable. Selgin and White (1996) disagree with Hayek on this point. In their rebuttal to Hayek, they cite Selgin (1987)'s argument regarding the need for banks to maintain precautionary reserves. Selgin is responding to the case where bankers collectively and simultaneously expand credit, implicit in Hayek. In such case, no bank would develop adverse clearing balances with the other banks because their credit expansion has occurred simultaneously. Therefore, the mechanism of adverse clearing (described in Mises earlier), which would normally limit an individual bank from over-issuing credit, is ineffective when all the banks act together. Selgin argues that in such a case, banks are still limited by the need to maintain some minimal precautionary reserve balance against redemptions. This places a lower limit on a bank's reserve ratio and limits how far banks can extend credit, even if they are acting in concert.

In contrast, Hayek explicitly states that there is no hard and fast connection between the volume of savings and lending. The market for loanable funds is not always in equilibrium. In fact, it rarely is. Hayek sees the banking system as a "loose joint".[20] The mechanism of gratuitous credit provides the needed flexibility for banks to accommodate changes in loan demand, based upon any given level of savings. Selgin is implicitly seeing banks as operating at an equilibrium level or *point* precautionary reserve balance. In contrast, Hayek implicitly sees the banking system as operating within a *range* of acceptable precautionary reserves levels. Banks can operate within a *prudent range* of reserve balances.

Next, this paper examines the thought of Murray Rothbard, who *agrees* with Hayek that the banking system under (fractional reserve) free banking operates as a loose joint. His solution is to do away with fractional reserve banking by mandating 100 % gold-backing of reserves. His work builds upon Mises' proposal for transitioning to a gold standard banking system where the banks would be required to maintain 100 % gold reserves.

4 The Rothbardian shift

4.1 The transition to Rothbard: Mises' proposal for 100 % reserves

All of Mises' discussions heretofore presupposed one overriding institutional feature: fractional reserve banking. Fractional reserves and gratuitous credit are nearly synonyms, since it is the practice of maintaining fractional reserves that makes gratuitous credit possible. If a bank only has to keep reserves for a portion of its outstanding deposits and notes, it retains the flexibility to issue additional quantities of credit. Mises II holds that the clearing mechanism under free banking would prevent the over-issuance of credit.

However, in the presence of a central bank (which is assumed in most of Mises writings), and especially under fiat money, the problem of gratuitous could not be contained. In that context, private banks *would* over-issue credit. It is within that

[20] Hayek is quoted in this context in White 1999a, 754: "all money at all times…[is] a kind of loose joint in the otherwise self-steering mechanism of the market." (Hayek 1960, 25).

institutional context that Mises on several occasions proposed plans for transitioning back to a gold standard. These plans were written either toward the end of World War II when a new monetary structure for the post-war period was being planned (and eventually resulted in the Bretton Woods system) or during the years immediately following World War II.

Mises' plans would require that any *new* issuances of credit by banks be backed 100 % by gold. Mises presents these plans in the context of discussions of the transition away from fiat banking and toward free banking. It is clear from the context in which Mises was writing that these are transition plans, not presentations of his ideal banking system. In fact, Mises did not believe that free banking was a politically realizable goal in his day: "Under present circumstances, it is out of the question, in the foreseeable future, to establish complete 'free banking' and place all banking transactions, including the granting of credit, under ordinary commercial law." (Mises 1978, 149). In these transition plans, Mises does not advocate a 100 % reserve standard on all deposits, only on newly added (i.e., marginal) deposits. Moreover, he is not advocating it in the context of free banking; they occur in the given context of a central bank (Ebeling 2000, xxxii-xxxiii, Selgin and White 1996). Mises presents his 100 % marginal reserve transition plans in several sections that appear within larger works. A look at the titles of the sections reinforces that they are transition plans:

- "Noninflationary Proposal for Postwar Monetary Reconstruction." Written in 1944. Ebeling, ed., (2000, 105–108).
- "Monetary Reconstruction," subsection entitled: "The Return to Sound Money." Written in 1953. Mises ([1953] 1971, 438). In describing his transition plan, Mises says that central bank issuances of new money should be backed 100 % by gold. He says:

> The main thing is that the government should no longer be in a position to increase the quantity of money in circulation and the amount of cheque-book money not fully – i.e., 100 percent – covered by deposits [i.e., gold or gold-substitutes] paid in by the public.

- In *Human Action* (Mises ([1949] 1966, 443, italics mine), Mises addresses Irving Fisher's 1930s plan for a 100 % reserve, but says free banking would be preferable. The italicized portion shows that Mises viewed a 100 % reserve requirement as a form of government intervention.

> But even if the 100 per cent reserve plan were to be adopted on the basis of the unadulterated gold standard, it would not entirely remove the *drawbacks inherent in every kind of government interference with banking*. What is needed to prevent any further credit expansion is to place the banking business under the general rules of commercial and civil laws compelling every individual and firm to fulfill all obligations in full compliance with the terms of the contract [i.e., free banking, particularly where banks remain obligated to convert notes into gold upon demand].

4.2 Rothbard and the 100 % reserve school

> The way to prevent a depression, then, is simple: avoid starting a boom. And to avoid starting a boom all that is necessary is to pursue a truly free-market policy in money, i.e., a policy of 100- percent specie reserves for banks and governments.
>
> (Rothbard [1970] 2009, 1002)

Mises' plan for limiting *central bank* issuances of *new* reserves via a 100 % reserve requirement morphed in the writings of his student, Murray Rothbard, into a general proposal that all private commercial banks should keep 100 % reserves. Rothbard envisioned a system that he called "free banking," but one in which the government would mandate that all banks be required to maintain 100 % reserves for all notes and deposits that they issue.[21]

Rothbard holds that fractional reserve banking – i.e., the lending of amounts for which there is not 100 % reserve backing – is an act of fraud.[22] He calls the deposits and banknotes that arise from this lending "uncovered money-substitutes" not only fraudulent, but inflationary and a cause of the business cycle (Rothbard [1970] 2009, 805–809). Rothbard's proposal for a 100 % reserve requirement represents a distinctive shift in Austrian banking theory, one that has been picked up on by subsequent writers, including Salerno (2010) and Huerta de Soto (2012).[23]

In creating this governmental rule to limit banking behavior, which Rothbard and subsequent writers believe is consistent with both free banking and the rule of law, Rothbard explicitly names both private banks and central banks as independent and interconnected causes of over-issuances of credit and resulting business cycles (Rothbard [1970] 2009, 989–990; [1963] 2000, 23–27). In naming both private banks and central banks as fundamental causal agents of the business cycle, Rothbard's theory of banking represents a union of the Hayekian and Misesian theories with regard to causation of the business cycle. Whereas the Hayekian theory emphasizes the role of private banks in creating credit endogenously (under fractional reserves) and Mises emphasizes the role of central banks, Rothbard unites both causes as equally fundamental causes.

Consistent with Hayek, Rothbard states that private banks, acting on their own under a system of fractional reserves, would tend to over-issue credit, creating business cycles. Separately, consistent with Mises, Rothbard argues that the central bank constitutes an independent source of credit creation through its ability to create reserves

[21] Cachanosky (2011) explains that Rothbard's claim that Mises endorsed a 100 % reserve requirement for private commercial banks under "free banking," is a mis-reading of Mises, a view I share as evident from the prior section.

[22] He develops the fraud argument in Rothbard ([1970] 2009, 800–804). For a comprehensive rebuttal of the legal argument, see Selgin and White (1996, 86–92).

[23] See Simpson (2014) for a Rothbardian treatment where 100 % reserves are not mandatory. Instead, Simpson hypothesizes that under free banking, the market would naturally evolve toward 100 % reserves. Most banks would operate under 100 % reserves because they would be competitively advantaged over fractional reserve banks, which would be allowed to legally operate. Their hypothesized advantage is that customers would see banks that maintained 100 % reserves as being inherently safer. For a rebuttal of this view, see Selgin (1988).

at will under a fiat money system (i.e., where there is no requirement to convert dollars into gold). Rothbard ([1970] 2009, 990) encapsulates his view:

> Broadly, such intervention may be effected *either by the government or by private individuals and firms in their role as* "*banks*" or money-warehouses. The process of issuing pseudo warehouse receipts or, more exactly, the process of issuing money beyond any increase in the stock of specie, may be called inflation. [Rothbard's emphasis removed; italics mine].

In summary, Rothbard holds that "inflation," which he defines as an increase in the supply of money beyond the stock of gold (under a gold standard) or as the creation of fiat dollar base money (under a fiat standard) (Rothbard [1970] 2009, 990), could be created by either a government-controlled central bank whose policy induced private banks to over-lend, or by private banks acting independently.

Central banks foster over-lending via a variety of mechanisms. These include directly creating new bank reserves via bond purchases (open market operations), establishing a legal tender currency, and by various practices that insulates private banks from the consequences of over-issuing credit. Among these institutional practices are, during liquidity or solvency crises, acting as a lender-of-last resort, guaranteeing deposits, and suspending gold convertibility (under a gold standard). (Rothbard [1970] 2009, 1014–1015). In citing the inflationary effect of the institution of central banking on private bank lending, Rothbard's enumerated list of factors echoes Mises (Mises 1978, 117–127).

Private banks can over-issue credit in response to these central bank policies that encourage/facilitate over-issuances, but they also do it on their own via the mechanism of fractional reserve banking. Importantly, this constitutes an independent source of inflationary credit issuance that would occur whether or not central banks are present (Rothbard [1970] 2009, 990). Whenever private banks issue fiduciary media beyond their stock of specie, which happens under a system of fractional reserves, private banks are over-issuing credit. Thus, Rothbard proposes a system of 100 % reserves that would apply to private banks (Rothbard [1970] 2009, 804). If a central bank were present, he endorses application of that rule to central banks, much as Mises does with his 100 % marginal reserve proposal (Rothbard [1970] 2009, 1002). However, Rothbard holds that the solution to central bank inflation is to eliminate central banks and instead have a system of exclusively "free banking," but one where the banks are required to keep 100 % reserves.[24]

[24] At this point, I want to emphasize the unique concept of "free banks" held by Rothbard to distinguish it from the conventional historical conception of free banking and the sense used by later Austrian theorists, such as Selgin (1988) and White (1999a, b). Free banking in the latter, standard meaning is a system where banks can freely (i.e., without requiring special governmental charters) establish operations. This also includes the freedom to issue banknotes where the banks maintain partial or *fractional* reserves for the notes and deposits they issued.

Rothbard agrees with the part where free banks can operate without special governmental charters, but he holds that they must also adhere to a governmental requirement that they maintain dollar-for-dollar or *100 %* reserves for the notes and deposits they issue. Rothbard holds that this requirement is consistent with "free" banking under his legal theory of fraud. This paper will use free banking in the conventional sense unless it is surrounded by quotes. "Free banking" refers to Rothbard's conception of free banking, where government mandates 100 % reserves.

In comparing Rothbard's theory to those of Mises and Hayek, Rothbard holds both an endogenous *and* an exogenous theory of money creation and business cycles (see Table 1), although he does not use those terms. Like Hayek, he holds that money creation is endogenous to a system of fractional reserve free banking. Like Mises (specifically, Mises II), he holds that central bank inflationism represents an exogenous cause of business cycles. Rothbard does not use the endogenous and exogenous terminology that Hayek uses to distinguish his theory from that of Mises and others (Hayek [1932] 2012, 143–148). Rothbard might have actually viewed both theories as exogenous explanations because he felt that both causes of business cycles could be eliminated by appropriate government action, whether by legally mandating 100 % reserves or by having government abolish its central bank. If these steps were taken, the business cycle would be eliminated. He emphasizes this point:

> Our analysis therefore permits the solution, not only of the theoretical problem of the relation between money and interest, but also of the problem that has plagued society for the last century and a half and more—the dread business cycle. (Rothbard [1970] 2009, 999)

Variations of Rothbard's thought have been picked up by later Austrian economists, all of whom can be described as members of the "100 % Reserve School" (see Table 1). Simpson (2014, 149–186) largely agrees with Rothbard's analysis, but does not believe that 100 % reserves should be mandated by government. Instead, he argues that commercial banking practice under a system of free banking would favor banks with a policy of 100 % reserves over those with fractional reserves. 100 % reserve banks would be seen as more secure and less vulnerable to failures and runs, and would therefore be chosen by customers instead of banks maintaining fractional reserves. In response, Selgin and White have pointed out that when given such choices historically, customers preferred banks that operated with fractional reserve balances (Selgin and White 1996, 97).

Taking a different tack, Huerta de Soto (2012) agrees with Rothbard's prescription that the state should mandate 100 % reserves. In a lengthy historical study of legal precedent applicable to banking, he argues that fractional reserve banking is a form of fraud, even if fully disclosed to customers. As a result, a state-mandated requirement that banks maintain 100 % reserves is not an intervention. On the contrary, it is essential for maintaining "free banking." Arguing that fully-disclosed fractional reserve banking is not a form of fraud, Selgin and White (1996) challenge this argument.

Leaving aside the argument over fraud (although I find Rothbard and de Soto unconvincing on this issue), the interesting aspect of the 100 % Reserve School is that it carries the endogenous credit creation theory of Hayek forward. Under *fractional reserve* free banking, both Rothbard and Hayek would be in agreement: private banks would periodically over-issue credit, resulting in business cycles.

5 The free banking school

The Rothbard demand that "free banking" requires the governmental prohibition of fractional reserve banking has been met with a variety of challenges. Cachanosky

(2011) rejects Rothbard's interpretation of Mises as endorsing such a position. This author agrees with Cachanosky. As discussed above, a textual examination of Mises shows that his proposal for 100 % marginal reserves was meant to apply in the context of central banking, not under a free banking system where there is no central bank.

However, in a broader challenge to Rothbard and, more importantly, to the mainstream orthodoxy on the efficacy of central banking under a system of fiat money, White and his student, Selgin (joined by Dowd [1993]), in a large body of work have defended the efficacy of fractional reserve free banking under a gold standard (hereinafter, simply "free banking").[25] White (1995, 1999a, b) and Selgin (1988) have defended the efficacy of free banking in theoretical terms and have cited an array of historical evidence addressing various criticisms of free banking, such as the problem of bank runs (Selgin 1988, 134–139; White 1999b, 121–133).

Their defense of free banking, however, constitutes a retreat from the position of Hayek (and Rothbard) with regard to endogenous money creation by private banks. Selgin and White hold that (fractional reserve) free banking would not be plagued by periodic large-scale over-issuances of credit: According to them, this would occur only in the institutional presence of a central bank:

> We share the view that monetary instability contributes to cycles and crises, but we attribute monetary instability to central banking and other government intervention in the monetary system, not to fractional reserves *per se* or to the practices of competing fractional-reserve commercial banks. (Selgin and White 1996, 100)

Therefore,

> ...our theoretical argument [is] that free banking tends to permit expansion of the stock of fiduciary media only to an extent consistent with the preservation of monetary equilibrium and the avoidance of the credit-expansion-induced business cycle. (Selgin and White 1996, 100)

Selgin and White uphold the Mises II and Rothbardian[26] views that central banks are a principal cause of business cycles. If they were abolished – and free banking were established, governed by commercial law and freedom of contract – regular, recurring business cycles would no longer occur. On the other hand, Selgin and White implicitly see the banking system as only being able to operate at a single equilibrium level of precautionary reserves, or within a very tight range of reserve balances. Implicitly, Selgin (1987) is saying that the desired risk versus return tradeoff of banking participants on the demand and the supply sides – the savers, borrowers, and banking intermediaries – is fixed, rather than being able to operate within a prudent range.

Resolving this issue is an empirical, institutional, and theoretical problem. Given the institutional context of free banking, Selgin and White's response to Hayek and Rothbard on endogenous credit creation does not seem to address the range of

[25] To distinguish it, Rothbard's system will be called "100 % reserve free banking."
[26] Except that Rothbard also required 100 % reserves.

endogenous factors influencing demand, nor the role of expectations in bankers' responses to demand changes.[27] Their theory focuses on the clearing mechanism, which at any given point in time efficiently prevents individual banks from over-extending credit. However, if all the players in the financial system – savers, the intermediaries (banks) and borrowers – jointly and simultaneously change their perceptions of risk and reward, the supply and the demand schedules in the market for loanable funds would shift. This seems to suggest that, under certain conditions, banks would jointly expand their credit issuances, resulting in both precautionary reserve balances and interest rates changing.

6 Conclusion

Table 1 summarizes the evolution of Austrian banking theory since Mises developed it in comprehensive form in his 1912 *The Theory of Money and Credit*. The wide dispersion in positions on the key issues of banking theory are the result of the failure of Austrian theory to develop a clear theory of gratuitous credit. Mises correctly said that gratuitous credit is the chief problem in a theory of banking. That remains true today.

The key unresolved issue is whether gratuitous credit is *potent* in a free banking context. All Austrian theorists agree that the presence of a central bank prompts private commercial banks to over-issue credit. Instead, the disagreement centers on whether private commercial banks under free banking would periodically over-issue credit. Hayek and the members of the 100 % Reserve School hold that banks will over-issue; gratuitous credit is *potent* in free banking. Mises II and the Free Banking School take the opposite position. In their vision, a tight inter-bank clearing system would prevent individual banks from over-issuing. Moreover, banks could not over-issue *en masse* because of the need to maintain a specific level of precautionary reserves.

A prerequisite for resolving this dilemma will be a re-evaluation of the economic significance of a derided consequence of gratuitous credit: the business cycle. All of the Austrian theorists (with the mild exception of Hayek) view the business cycle as a pernicious economic feature that can be avoided with the correct government policy, whether of laissez-faire (Mises II, and the Free Banking School) or selected interventions (Hayek, 100 % Reserve School). Starting from the premise that the business cycle should be eliminated, these theorists struggle to make gratuitous credit impotent and incapable of causing a business cycle. The Free Banking School does this by developing a theory of free banking where gratuitous credit will be neutralized by clearing-houses and other free banking institutions. In contrast, Hayek and the 100 % Reserve School propose selected government interventions in banking, with the 100 % Reserve School simply renaming the result as consistent with "free banking." Underlying these efforts is the view that the business cycle is simply a destructive economic force. If, on the other hand, it should be seen as the unavoidable concomitant of a constructive economic process, this impetus to write gratuitous credit and the business cycle out of a theory of banking would be significantly reduced. Such a view does exist, in the

[27] This paper does not explore the role of expectations in detail, which merits a separate treatment. For examples, see Koppl 2002, Cowen 1997, Wagner 2010, Lavoie (1994), Lachmann (1977, 1986), and Lewin (1999, 120–125).

writings of Joseph Schumpeter ([1934] 1983, [1939] 1982). Schumpeter's theory of economic development presents a constructive economic role for business cycles, in contrast to virtually all other business cycle theorists. One fruitful approach may be to incorporate Schumpeter's insights into Austrian banking theory, a task that awaits further work.

The failure to resolve the problem of gratuitous credit has split Austrian banking theory into different directions, with conflicting positions on a range of topics. All of these topics have the problem of gratuitous credit at their core. Resolving the issue of gratuitous credit is necessary for ending the schisms in Austrian banking theory and putting it on a sound theoretical foundation for moving forward.

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