Why Didn't Hayek Favor Laissez Faire in Banking?

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Historians of economic thought have in recent years devoted a fair amount of critical discussion to F. A. Hayek's work on business cycle theory, and some to his views on monetary policy, but they have scarcely mentioned the banking theory underpinning his business cycle model, or the banking policy conclusions Hayek drew.[1] The present article reconstructs and critically appraises Hayek's banking theory and policy. The chief questions it addresses are why Hayek declined to endorse laissez faire or "free" banking as a policy ideal, and whether the theoretical arguments he offered for his position are well founded.

In his inaugural lecture at the London School of Economics, Hayek (1933, 28) explained that he had chosen to work on capital theory because it was an area where he found that the coordinating processes of the market were underappreciated. It is noteworthy that he did not say the same thing about his work on money and banking. Given that his mentor, Ludwig von Mises ([1912] 1980, [1928] 1978), had strongly supported free banking and the gold standard, and given Hayek's own

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1. Treatments of Hayek's business cycle theory include the ten essays collected in Colonna and Hagemann 1994, as well as Hagemann and Trautwein 1998, Trautwein 1996, Cottrell 1994, McCormick 1992, Steele 1992, Desai 1991, Milgate 1988, Haberler 1986, Garrison 1986, and O'Driscoll 1977. Selgin in this issue, and White 1999 discuss Hayek's monetary theory and policy. On Hayek's work in economics generally, see Machlup 1974 and Hayek 1994.

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emphasis in that lecture[2] and elsewhere (Hayek [1945] 1948, 1960) on evolved institutions and market competition as irreplaceable means for social coordination, it is puzzling that Hayek did not endorse the ideal of free competition among money-issuing banks operating on a market-evolved commodity standard. He instead suggested that a centrally directed system of money creation can, in principle, better foster economic coordination.

In a pointed summary of the viewpoint that had guided his early theorizing, Hayek (1960, 325) declared, without any qualification regarding the institutional arrangements for supplying money, that "all money at all times," in light of its nature as a medium of exchange, is "a kind of loose joint in the otherwise self-steering mechanism of the market." Much of the foundation for this viewpoint rests in Hayek's banking theory, which held that a competitive banking system endogenously issues money in a disequilibrating procyclical manner.[3] Critical examination shows that the theory is unfounded, as well as inconsistent with Hayek's own general analysis of the coordinating properties of competitive markets.

Hayek vs. Mises on the Sources of Monetary Disturbances

In Mises's theory, the business cycle begins when a central bank exogenously expands the quantity of central bank–issued money and drives the market rate of interest below the "natural" or equilibrium rate consistent with intertemporal coordination. Mises accordingly recommended a monetary regime without central banking, a "free banking" system with competitive market determination of the quantity of money and of the loan rate of interest.[4] In clear contrast to Mises, and

2. Hayek (1933, 26) there wrote: "From the time of Hume and Adam Smith, the effect of every attempt to understand economic phenomena—that is to say, of every theoretical analysis—has been to show that, in large part, the coordination of individual efforts in society is not the product of deliberate planning, but has been brought about, and in many cases could only have been brought about, by means which nobody wanted or understood, and which in isolation might be regarded as some of the most objectionable features of the system."

3. The remainder of the explanation lies in Hayek's view that a constant money stock (his earliest proposed monetary norm) or a constant volume of nominal spending (his amended norm) is required for intertemporal equilibrium. On Hayek's arguments for these norms, see White 1999.

4. See Mises [1912] 1980, 346–47, 377–404; [1928] 1978, 138–40; [1949] 1966, 443–44, 550–86.

explicitly drawing on the Swedish economist Knut Wicksell, Hayek in his early writings consistently and repeatedly rejected the view that monetary disturbances must be attributed to exogenous central bank action. He considered the competitive commercial banking system to be at least equally responsible, because it responds to changes in loan demand in a disequilibrating way.[5] By Hayek's ([1929] 1933, 127) own account the "sole purpose" of the fourth chapter of his *Monetary Theory and the Trade Cycle* was "to show that the cycle is not only due to 'mistaken measures by monopolistic bodies' (as Professor Löwe assumes),[6] but that the reason for its continuous recurrence lies in an 'immanent necessity of the monetary and credit mechanism.'"

Hayek argued that commercial banks in a competitive system produce "the same effect" as an overissuing central bank because, faced with an increase in the demand for loans, the banks characteristically expand the quantity of loans (by increasing their liabilities relative to their reserves) (147). They do not simply ration an unchanging volume of loans (by raising their loan rate of interest); by expanding, they hold the market rate of interest below the increased natural rate of interest. Hayek considered it *inevitable* that competing banks would act in this way, arguing that they had neither the incentive nor the timely information necessary to avoid doing so. Appealing to constancy of the money stock as a benchmark, Hayek set forth his thesis on the discoordinating character of competitive banking as follows:

> If in the course of our investigation, it is possible to prove that the rate of interest charged by the banks to their borrowers is not promptly adjusted to all changes in the economic data (as it would be if the volume of money in circulation were constant)—either because the supply of bank credits is, within certain limits, fundamentally independent of changes in the supply of savings, or because

5. Allin Cottrell (1994, 199) notes of Hayek that "unlike Lucas, he does not appeal to arbitrary monetary policy in order to explain the cycle." Cottrell briefly summarizes but does not criticize, as I do below, the arbitrary commercial bank behavior to which Hayek instead appeals. Hans-Michael Trautwein (in Colonna and Hagemann 1994, 79) recognizes that Hayek's cycle theory relies on "*ad hoc* assumptions about bank behavior." But Trautwein here refers to the banks' role in the upper turning point of the boom rather than to their role in instigating the boom, which is my focus.

6. Here Hayek cites the source of the quoted phrases: "A[dolph] Löwe, *Uber den Einfluss monetärer Faktoren auf den Konjunkturzyklus,* Schriften des Vereins für Sozialpolitik, vol. 173, part 2, p. 365." For a detailed account of the debate between Hayek and Löwe, see Hagemann in Colonna and Hagemann 1994, chap. 6.

> the banks have no particular interest in keeping the supply of bank credit in equilibrium with the supply of savings and because it is, in any case, impossible to do so—then we shall have proved that, under the existing credit organization, monetary fluctuations must inevitably occur and must represent an immanent feature of our economic system. (151–52)

Hayek then endeavored to show that the commercial banks' loan rate *would* inevitably fail to track the natural rate, and that the banks as a group would correspondingly overexpand (152–73).

Joplin and Hayek on the Elastic Supply of Bank Loans

Hayek's argument on this point was drawn from the British Currency School of the 1830s and 1840s, a school that advocated the suppression of competitive note-issue.[7] Hayek ([1931] 1935, 15–17) in particular quoted and endorsed statements by Thomas Joplin of the Currency School. Joplin built his argument on the assumption that the supply of bank loans is perfectly elastic at the prevailing rate of interest. Such a horizontal supply curve for bank loans is, however, implausible even at the level of a single price-taking bank, because expanding the bank's liabilities exposes it to rising liquidity costs. That is, an expanding bank with a given quantity of reserves faces an increasing probability of illiquidity from reserve losses, in which event the bank must borrow on short notice at a relatively high interest rate, or face expensive legal penalties and loss of reputation. The assumption of a horizontal loan supply curve is still more implausible at the level of the banking industry because banks competing to secure the funding for additional loans will bid up deposit interest rates and thereby face rising costs.[8]

Joplin basically denied that the price of loanable funds (the loan interest rate) provides any kind of coordinating signal to market participants. Referring to the "country" bankers who were the competitive

7. In a manuscript draft prepared before 1930, Hayek (1991, chaps. 11–12) surveyed the British monetary debates of the first half of the nineteenth century. Though it is said by his editors (Hayek 1991, 127 n) that Hayek's notes for this project provided the starting point for Vera Smith's *Rationale of Central Banking* ([1936] 1990), Hayek focused on Currency School and Banking School ideas with barely a mention of Smith's subject matter, the important subset of the debates devoted to free banking *versus* central banking.

8. For criticism of Joplin's argument, see also White ([1984] 1995, 103–6).

note-issuers outside London, Joplin (1832, 108–9; quoted in Hayek [1931] 1935, 16–17) argued that when there is an excess demand for loanable funds, "an enlargement of issues takes place, instead of a rise in the rate of interest. The Country Bankers never vary the interest they charge. . . . [A country banker] must, of necessity, have one fixed charge, whatever it may be: for he never can know what the true rate is." That Hayek would endorse this statement is puzzling in light of Hayek's ([1945] 1948) later emphasis on how, without anyone having to know in advance what the correct price is, market competition generates information (in the form of price signals) that is sufficient to enable market participants to coordinate their activities.

Going beyond Joplin, Hayek ([1929] 1933, 171–73) offered three reasons, here restated and critically considered in turn, for why a single competitive bank would not promptly raise its loan rate in response to an increase in loan demand.

1. *The bank can now place more loans at the same rate, where before it would have had to lower its rate or make loans of lower quality. The bank therefore faces a higher opportunity cost of holding reserves, and will want to increase its loans to diminish the size of its reserves.* Note Hayek's implicit assumption that the bank is not a price-taker. Contrary to Hayek, it is *not* obvious that the typical bank in a competitive system will want to diminish its reserves when there is a rise in loan interest rates (the opportunity cost of holding reserves), because the interbank loan rate, which represents the penalty for a reserve shortfall (and thus the benefit of holding reserves), rises at the same time.
2. *In the "upward phase of the cycle," which is when loan demand increases, "the risks of borrowing are less; and therefore a smaller cash reserve may suffice to provide the same degree of security."* Hayek's argument here seems to be based on a confusion between two very different types of reserves. A reduction in *cash* reserves can finance an expansion of loans, an alternative asset category. But a bank does not hold cash reserves against the risk of borrower default (which is what Hayek appears to mean by "the risks of borrowing"). It holds them against the risk of adverse clearings and other redemption demands. Reduction in the risk of borrower default allows a bank to reduce its *loan loss* reserves, which are not an asset but a subset of the book value of equity. A reduction in loan loss reserves is not a source of financing for new loans.

3. *The bank in a competitive environment "which first feels the effect of an increased demand for credits cannot afford to reply by putting up its interest charges; for it would risk losing its best customers to other banks." The bank or banks in this situation "will be forced to satisfy" the increased loan demand "even at the cost of reducing their liquidity."* But in fact a firm with rising marginal costs cannot afford to serve all of its prospective customers at the old price when demand increases. It *wants* to "lose" some of those customers by raising its price. The demand curve for loans having shifted out, a bank will want to and will be able to place more loans at a somewhat higher interest rate. Hayek's suggestion that the typical bank would disproportionately lose its best (lowest-default-risk) customers by raising its loan rate assumes that the bank does not recognize and charge lower rates (reflecting lower default risks) to its best customers, and yet inconsistently assumes at the same time that *other* banks *do* recognize the best customers and offer them lower rates.

The Limits to Bank Expansion

Hayek ([1929] 1933, 174–75) went on to argue that expansion by any single bank will induce other banks, who gain the reserves that the first bank loses, to expand in concert. He advanced the common argument that although a single expanding bank is checked by its reserve losses to other banks at the clearinghouse, when banks expand in concert the greater clearinghouse claims they face "mainly compensate one another and so induce only a relatively unimportant cash drain." Not until a sizable cash drain belatedly ensues will banks stop expanding and raise interest rates to protect their remaining reserves. Hayek ([1925] 1984, 11) had argued from the beginning that the price-specie-flow mechanism of the gold standard checks "the banks" (of one country, acting in concert) only in the long run, too slowly to prevent their creating credit cycles. In his scenario of in-concert expansion Hayek failed to pursue the implications of the acknowledged principle that the interbank clearing system holds the expansion of the system to the rate of the most conservative bank. He supposed that all banks would contribute to the expansion.

Against the thesis that in-concert expansion by all banks is checked only by cash drain, George Selgin (1988, 81–82) has pointed out that

in-concert expansion would increase *gross* clearings among banks, and therefore would increase the variance of reserve losses for each bank, prompting each bank to demand greater reserves for precautionary purposes (assuming no change in any bank's willingness to risk running out of reserves). With aggregate reserves fixed, an unsatisfied excess demand for reserves would arise, compelling each bank to retreat from the expansion. Even without cash drain, the threat of random interbank reserve losses establishes a unique equilibrium volume of bank liabilities given their turnover and the volume of reserves.

Selgin's argument does not settle the question (which at some level must be answered empirically) of whether the clearing-variance check, or the cash-drain check, would operate promptly enough to forestall a cycle-generating monetary disturbance. But neither did Hayek offer any compelling reason to suppose that these checks would not be effective, or that banks characteristically act in a passive and individually suboptimal fashion for a significant length of time following an increase in loan demand. His claim that "it is practically impossible for any single bank, acting alone, to apply the only control by which the demand for credit can, in the long run, be successfully kept within bounds; that is, an increase in its interest charges," seems curiously to suggest that because each single bank is a price-taker (contrary to his own earlier suggestion that it faces a downward-sloping demand for loans), there is no bank able to change the price (Hayek [1929] 1933, 174). Such a paradox might equally well be posited for any competitive industry.

Although Hayek thus (for doubtful reasons) viewed the banking industry's loan supply curve as perfectly elastic in the short run, or within a certain quantitative range (176), so that the loan interest rate fails immediately to track the rise in the natural rate associated with an increase in loan demand (allowing the boom phase of the business cycle to get under way), he rightly insisted that in the long run the loan rate must eventually coincide with the natural rate or "the rate of profit."[9] "In real life," Hayek (1939, 65) wrote, ". . . while the link which connects the rate of profit and the rate of interest is very elastic, it does exist and, however tardily, the rate of interest does ultimately follow the movements of the rate of profit."

For Hayek, the belated adjustment of the market interest rate is what usually brings the boom to an end, but the boom must end even if the

9. I thank a referee for bringing this point to my attention.

market rate does not rise (66). As against cheap-credit nostrums, Hayek warned that the central bank could not indefinitely prolong a boom simply by indefinitely lending at a low interest rate. In a later business cycle essay Hayek ([1942] 1948, 238) even declared that "the assumption that the supply of credit at a given rate of interest is perfectly elastic is not only unrealistic but, when we contemplate its implications, perfectly fantastic." For this declaration to be consistent with *Hayek's own use* of the perfect-elasticity assumption, it must refer to the long run but not to the short run, or to perfect elasticity only beyond a certain volume of credit.

The critique offered here of Hayek's short-run scenario amounts to the argument that the "perfect elasticity of credit" assumption is unrealistic and has fantastic implications even in the relevant short run. In a competitive banking system it stands to reason that the link between changes in the rate of profit (or the natural rate) and changes in the prevailing loan rate of interest is *not* in fact "very elastic" or "tardy." Even in the short run, profit-maximizing commerical banks with given reserves will *raise* loan (and deposit) rates of interest as loan demand increases and the natural rate rises. If so, then credit expansion that causes the market rate of interest to fall below the natural rate can only originate from a central bank that does not face equally stringent liquidity constraints.

Alternative Banking Regimes

Because Hayek ([1929] 1933, 189) did not attribute the disruptive behavior of the banking system to legal restrictions imposed on the banks, or to the influence of the central bank, but rather to "the very nature of the modern organization of credit," he initially had little to say about the implications of alternative banking regimes for economic coordination. In particular, unlike Mises, he did not consider whether a free banking system, under which both currency issue and reserve holding are deregulated and decentralized among competing commercial banks, would better promote interregional and intertemporal monetary equilibrium. Mises ([1912] 1980, 347; [1928] 1978, 139–40) had argued in favor of free banking that (1) competition would compel banks of issue to "increase and decrease their circulation *pari passu* with the variations in the demand for money, so long as the lack of a uniform procedure makes it impossible for them to follow an indepen-

dent interest policy"; (2) in a free banking system, experienced bankers would recognize the dangers of cyclical overexpansion and would therefore exercise "extreme restraint in the issue of fiduciary media," and that their restraint would rein in the other banks by causing them to lose reserves to the conservative banks if they tried to expand more rapidly; and (3) historically observed overexpansions by banking systems were attributable to policies that had abridged competitive discipline, particularly the creation of privileged banks to which national governments had granted monopolies of note issue and permission to suspend payments, making systemwide expansion possible and reducing banker conservatism (creating moral hazard).

Hayek ([1925] 1984, 13–15; 1937, 90–91) agreed with Mises that central banks could and in practice did worsen the cycle problem by fostering rather than restraining unwarranted credit expansion. In particular, he seriously faulted the Federal Reserve for promoting credit expansion by the American banking system in the 1920s. But Hayek ([1925] 1984, 22–24) was also concerned from the beginning about the commercial banks' supposed tendency (discussed above) to overexpand credit during cyclical upswings. He thus believed that central banks can in principle exercise "beneficial regulatory influence" and "a stabilizing influence" if they will apply "the necessary braking effect which should be the aim of the central banks." In later writings he worried about the problem of changes in the money multiplier due to the public's switching between different forms of money. A useful central bank, Hayek (1937, 88–89) advised, "will have to act persistently against the trend of the movement of credit in the country, to contract the credit basis when the superstructure tends to expand and to expand the former when the latter tends to contract."

Hayek ([1925] 1984, 29 n. 12) suggested in one of his earliest writings a radical solution to the problem of swings in the volume of commercial bank credit: impose a 100 percent marginal reserve requirement on all bank liabilities, as Peel's Act of 1844 had imposed on Bank of England notes. A similar prescription was later advanced by others (see Simons [1936] 1948) as the "Chicago plan" of banking reform. Hayek (1937, 81–82) found it an attractive feature of the plan that it aimed to stabilize the quantity of money but worried (as did Henry Simons) that an attempt to restrict bank liabilities so stringently might defeat itself by fostering a proliferation of near-banks issuing unrestricted near-moneys.

Only in *Monetary Nationalism and International Stability* (1937) did Hayek directly address the institutional choice between a central banking regime and a free banking regime.[10] Citing Walter Bagehot (1873) and his own doctoral student Vera Smith ([1936] 1990) on the historically accidental character of the centralization of national gold reserves by central banks and Mises ([1928] 1978) on the free-banking alternative, Hayek (1937, 77) declared,

> The rational choice would seem to lie between either a system of "free banking," which not only gives all the banks the right of note issue and at the same time makes it necessary for them to rely on their own reserves, but also leaves them free to choose their field of operation and their correspondents without regard to national boundaries, and on the other hand, an international central bank. I need not add that both of these ideals seem utterly impracticable in the world as we know it.

He did not express a clear preference for either of these two impracticable ideals over the other but suggested that either was preferable to the status quo. Hayek wondered whether the prevailing regime of "national central banks which have no direct power over the bulk of the national circulation but which hold as the sole ultimate reserve a comparatively small amount of gold is not one of the most unstable arrangements imaginable" (76–77).

Hayek recognized on behalf of the free banking ideal that the problem Lauchlin Currie ([1934] 1935) had identified as the "perverse elasticity of bank deposits"—the fact that the supply of deposits is "inversely affected by the demand for a more liquid type of money"—would be reduced in a system where commercial banks held their own gold reserves (80–81).[11] If the issue of notes were to remain centralized (which Hayek explicitly took to be a political given), Hayek proposed that the issuing body could be confined to that function alone, in the

10. White 1998 discusses this book in detail.

11. On Hawtrey and Currie, and their influence on the 100 percent reserve Chicago plan for banking reform, see Laidler 1993. The chapter of Currie's book that Hayek cited is actually entitled "The Perverse Elasticity of the Federal Reserve System" and focuses not on factors "inherent" to banking but on peculiarities of the U.S. bank regulatory system. Unlike Hayek, Currie did not worry that shifts in the public's desired ratio of cash to deposits would generally amplify cycles. In fact, he noted that "there appears to be some tendency for cash in circulation to decline in periods of recession, thus increasing member bank reserves"

manner of the Bank of England's issue department (or, as one might say today, in the manner of a currency board). In such a system "one tier in the [inverted] pyramid of credit would be eliminated and the cumulative effects of changes in liquidity preference accordingly reduced" (92). That is, if commercial banks held reserves directly in the form of gold rather than fractionally backed central bank liabilities, a given drain of gold from the banking system into the purses of the public would have a less leveraged impact on the quantity of money. Hayek noted as a disadvantage of free banking that "nobody would be in a position, by a deliberate policy, to offset the tendency to cumulative changes" that would remain but suggested that "this might not be so serious if there were numerous small banks whose spheres of operation freely overlapped over the whole world"(92).[12]

In his political writings after 1940 Hayek reaffirmed the usefulness of central banking as a means to counteract the supposed inherent instability of laissez faire fractional-reserve banking. In *The Road to Serfdom* Hayek (1944, 18–19) placed money and banking among the proper exceptions to the doctrine of laissez faire.[13] In *The Constitution of Liberty* Hayek (1960, 324) directly posed the question, "Should we not rely on the spontaneous forces of the market to supply whatever is needed for a satisfactory medium of exchange as we do in most other respects?" and answered that this would be desirable only if fractional-reserve bank-issued money had never developed. New in this answer

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*counter*cyclically, except in the case of an unusually severe recession, where bank failures are so numerous as to lead to a loss of confidence in the banking system (Currie [1934] 1935, 137). Banks were rarely that failure-prone, even in severe recessions, outside the United States.

12. Had he not taken central bank monopoly of notes for granted, Hayek might have noted an important potential benefit of decentralized note issue in reducing instability in the money multiplier. He continually lumped together two conceptually distinct cases as involving a problematic "movement toward more liquid types of money": (1) an increase in the public's desired ratio of banknote to deposit balances, and (2) an increase in the public's desired ratio of gold to banknote-plus-deposit balances. With a central bank monopoly of banknotes, and with central bank liabilities held as fractional reserves against commercial bank deposits, both cases do have contractionary effects. But with decentralized note-issue, the first case would have no overall money-supply effect, because it would merely alter the mix of bank liabilities, assuming that banks hold equal reserve ratios against notes and deposits.

13. During a 1945 radio broadcast in Chicago, Hayek (1994, 116) was asked pointedly about the exception he was making in the case of banking: "Is the Federal Reserve Bank on the road to serfdom?" He replied: "No. That the monetary system must be under central control has never, to my mind, been denied by any sensible person." A flatter dismissal of the free-banking position can hardly be imagined.

was the suggestion that bank-issued money might never have gained such extensive use without government interference.[14] Hayek went on to argue that, the monetary system having in fact developed as it did, the need for central banking was now inescapable.

The Denationalisation of Money

Hayek's proposal for *The Denationalisation of Money* ([1976] 1978) was a radical policy departure from his earlier mixed support for central banking. The proposal grew (via the 1976 pamphlet *Choice in Currency*) from two footnotes in *The Constitution of Liberty* arguing that free choice among government fiat currencies—the freedom of citizens to substitute from an inflated domestic currency to a sounder foreign currency—would provide a salutary check on the inflationary propensities of central banks. The first of these two footnotes reiterated Hayek's (1960, 520–21 n. 2) view that "modern credit banking as it has developed requires some public institutions such as the central banks," but he added that "there seems to be no reason whatever why the state should ever prohibit the use of other kinds of media of exchange, be it some commodity or money issued by another agency, domestic or foreign. One of the most effective measures for protecting the freedom of the individual might indeed be to have constitutions prohibiting all peacetime restrictions on transactions in any kind of money or the precious metals." The second note, appended to a conventional statement about the impracticality of restoring the gold standard, argued for "completely freeing the trade in gold. Indeed, it would seem desirable to go considerably further in this direction: probably nothing would contribute more to international monetary stability than the different countries mutually binding themselves by treaty to place no obstacles whatever in the way of free dealing in one another's currencies" (522 n. 17).

Hayek ([1976] 1978, 19) began *The Denationalisation of Money* by proposing an international treaty guaranteeing such free dealing. Con-

14. Hayek here cited Mises's *Human Action*, which along those lines argued that "freedom in the issuance of banknotes would have narrowed down the use of banknotes considerably if it had not entirely suppressed it" (Mises [1949] 1966, 446; I do not have access to the 1949 edition Hayek cited). There seems to be little empirical warrant for this view, however. Bank note use was *more* widespread in nineteenth-century banking regimes with the most freedom of issue: Scotland, Canada, Sweden, Switzerland, and Australia (see Dowd 1992).

sistent with his early skepticism toward free banking, however, Hayek did *not* suggest free competition among banks offering fractionally backed liabilities redeemable for a commodity money. Instead he envisioned a market in which all issuers, public and private, would offer *non*redeemable currencies, each currency constituting its own monetary standard.[15] (Though Hayek sometimes called the issuers "banks," they are not banks in the usual sense of firms that lend funds raised by issuing *debt claims*.) Each private issuer would pledge to maintain purchasing-power stability in terms of a particular basket of goods, but this pledge would not take the form of an enforceable redemption contract. Hayek considered it "neither necessary nor desirable that the issuing bank legally commits itself to maintain the value of its unit" in terms of any commodity or bundle of commodities (43). He cited two reasons for dispensing with a legally binding redemption commitment. First, the most desirable basket, in terms of which to stabilize a money's value, might change over time. Second, significant resource costs would be involved in keeping inventories of the redemption medium. Hayek did not mention the "perverse elasticity" of fractional-reserve money in this context.

Hayek's forecast that money-users would not find a redemption contract necessary or desirable is doubtful for at least two reasons. First, as David Glasner (1988, 175–77) has pointed out, the network property of the unit of account means that money-users will normally prefer transaction accounts that are denominated in the prevailing monetary unit and that pay interest to compensate for any anticipated depreciation of the unit. Second, Hayek's claim that a competitive money-issuer would not want to inflate, because it would be concerned to preserve its clientele by maintaining its reputation for providing a stable-valued money, fails to consider (much less to dispose of) the possibility that the issuer's one-shot profit from overissuing might exceed the value of maintaining its reputation. Contractual redeemability, of the sort traditionally offered by banks on their notes and demand deposits, is an effective way to avoid this problem. It makes privately issued money trustworthy by giving its holders a buy-back option, an enforceable claim against its depreciation relative to a redemption medium (typi-

15. Hayek ([1976] 1978, 32) rightly distinguished his proposal for competition among "a variety of essentially different monies" from the earlier proposals of "the free banking movement of the mid-19th century [which] agitated merely for the right to issue notes in terms of the standard currency."

cally the medium of account) whose value the money-issuer does not control (Selgin and White 1994, 1734–36).[16]

However doubtful its forecasts, *The Denationalisation of Money* had a major impact in widening the professional debate over monetary policy to encompass a more fundamental debate over the institutional character of money and banking regimes. Hayek may have been drawn to his new proposal through the slow germination (in the soil of his general turn toward evolutionary social theory) of the idea he had already expressed in 1960, that evolutionary market processes might well have produced fundamentally sounder monetary institutions if government had never interfered with banks. He stripped the idea of the specific (and doubtful) meaning he had given it in 1960 (that perhaps fractional-reserve bank-issued money, with its supposed perverse elasticity, would not have become dominant) and generalized it. Hayek ([1976] 1978, 97–98) wisely disclaimed having offered the last word on how a laissez faire monetary system would operate but placed on the table a proposition that he had earlier in his career implicitly dismissed: that the competitive market process is as capable in money as elsewhere to discover and provide products with the characteristics consumers want. A sizable body of work on laissez faire payment systems has subsequently appeared (see White 1984; Selgin and White 1994), much of it grappling with the fundamental questions raised by Hayek's proposition.

Conclusion

Drawing from Wicksell, Hayek believed that the impulse initiating unsustainable cyclical booms was often the failure of the market rate of interest to rise with the equilibrium or natural rate when the demand for loanable funds increased. To explain why the market rate failed to rise, Hayek elaborated Thomas Joplin's argument as to how commercial banks responded to an increase in loan demand by varying only the

16. The "cheating" (or "time-inconsistency") problem was identified by Benjamin Klein (1974), whose article Hayek ([1976] 1978, 23 n) acknowledged (but whose point he did not address) in the second edition of *Denationalisation*. For a later discussion of the problem, see Taub 1985. Ronald Coase (1972) had earlier pointed out, in the general case of a durable good that a monopolist seller can cheaply mass-produce, that a buy-back clause resolves the seller's problem of assuring potential buyers that the price will not be cut after they buy. The redeemability of bank-issued money constitutes such a buy-back clause.

quantity of loans and not the price. Hayek thus viewed the freedom of bankers to vary the stock of money as a source of disequilibrating shocks. Consequently—despite his general emphasis on the coordinating properties of market competition—he never endorsed free banking. Critical analysis shows the Joplin-Hayek argument to be unfounded: in a competitive banking system the loan and deposit rates of interest should be expected to track the natural rate. Hayek thus underestimated the strength of self-correcting forces in a competitive banking system. At the end of his career Hayek switched to favoring laissez faire in money-issue as a means to achieve price-level stabilization. His proposal for the "denationalization of money" has been seminal for modern free-banking research. But because Hayek imagined that laissez faire money would be irredeemable, his proposal did not embody a reversal of his own earlier views on competitive fractional-reserve banking.

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