THE PERFORMANCE AND STABILITY OF BANKING SYSTEMS UNDER "SELF-REGULATION": THEORY AND EVIDENCE

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Recent literature that makes the case for the elimination of government regulation of a banking system rests on a variety of theoretical propositions. Each of these propositions, addressing the question whether self-regulation by banks will set an external limit on their issues, reaches an affirmative conclusion. We propose to test the cogency of three of these propositions and to examine the validity of the empirical evidence that has been adduced as confirmation of the theory. The three propositions are:

1. The operation of an interbank clearing mechanism checks overissue by individual banks and, in some versions of the theory, by the system as a whole.
2. Private issuers in a competitive system have incentives to establish confidence in the value of the moneys they produce and therefore limit the quantities they can safely emit.
3. Restriction of discounting by banks to real bills limits the quantity of money they issue.

Those propositions do not define whether government retains a role as an issuer of outside money. They relate only to whether government should intervene in the provision of inside money by private sector banking institutions. The empirical evidence that bears on the propositions we here consider is drawn from monetary systems in which banks were regulated in a variety of ways and in which outside money of specie was supplemented by government-controlled fiat-money elements. The performance of the banks in those systems

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cannot be evaluated as reflecting solely the particular theoretical proposition the evidence is supposed to support. The performance is obviously also related to the existing regulations and inside money-convertibility requirement. It is therefore not easy to sort out the contribution of the theoretical proposition.

In any event, proposing a rationale for eliminating government intervention in the provision of inside money does not adequately define a monetary system. It is essential in addition to discuss the conditions for the provision of outside money. In our view, a more fundamental question than whether government intervention in the provision of inside money is desirable is whether the institutional arrangements for the provision of outside money produce a relatively stable monetary environment. A prerequisite of good performance by a banking system is such an environment that only the outside money arrangements can assure.

The paper proceeds as follows. We begin by discussing inside money in the first three sections, which in turn present each of the theoretical propositions and the supporting evidence. We find the theories to be flawed and the evidence unconvincing. In the fourth section, we suggest an alternative approach to "self-regulation" that would free banks to establish offices where they chose, to pay whatever interest was required to obtain funds, and to acquire assets yielding the highest return as they judged it. The alternative approach is based on two principles: first, the system is so designed that risk is borne by owners and managers, not by money holders and taxpayers; second, the provision of outside money produces a stable monetary environment. In a stable monetary environment, price level stability prevails. As a result, if banks make mistakes in acquiring assets, the mistakes are attributable to faulty credit analysis, not to price level or inflation surprises. Available historical evidence can be cited in support of the approach only in the negative sense that the evidence violates one or the other principle. In the fifth section, we discuss the current worldwide fiat-outside-money regimes, and ask whether they can be constrained to limit the outside money they supply. We take for granted that outside-money arrangements will remain in the hands of governments. Provision of outside money by government raises the question whether it should exercise the role of lender of last resort. We do not, however, deal with that question. The final section summarizes our conclusions.

The Clearing Mechanism

Theory

Adam Smith was among the first to propound the doctrine that a clearinghouse provides an automatic mechanism of adverse clearings

that serves to regulate the issues of its members. Originally the doctrine applied to note issues, but later it applied to the clearing of both notes and deposits. The doctrine is a prominent feature of recent advocacy of a self-regulated banking system.

The essentials of the process by which a deposit in one bank leads to an expansion of the aggregate money supply as a multiple of the reserves that banks maintain were also understood early on and have been restated in the recent literature. Under the clearing mechanism, a bank that increased its issues disproportionately to those of other banks would experience a drain of its reserves. It would find balances running against it at the clearinghouse and be forced to contract. The mechanism thus provides a check to individual bank overissue. Advocates stress the importance of frequent clearing of notes and checks as means to prevent overissue. In the main, however, neither the early writers on the subject nor more recent ones have understood that a clearinghouse provides no check if all banks expand simultaneously.

The theory of the banking firm underlying the clearinghouse paradigm is based on a set of fixed coefficients, of which the reserve ratio is the one most often cited. For a dollar of additional deposits in a particular bank, the fixed reserve multiplier defines the extent to which the aggregate money supply increases. A set of fixed coefficients, however, does not illuminate the role of market conditions like interest rates and uncertainty that affects the holding of reserves. The theory of clearinghouses as regulators of bank issues is thus derived from a rudimentary level of analysis.

The chief error of the clearinghouse paradigm is to infer that the limits to expansion to which an individual bank is subject apply also to the banking system as a whole acting in unison. Lawrence H. White (1984: 17) does not make this error, noting that adverse clearings will not arise among a group of banks sharing a common expansion. George Selgin (1988: 80) attempts to respond to this criticism of the effectiveness of a clearing arrangement as a method of controlling the supply of money by arguing that "spontaneous in-concert expansions will be self-correcting" because the growth in total clearings will increase the variance of clearing debits and credits.[1] Banks in his view will protect themselves against the risk of default at the clearinghouse at any clearing session, leading to a unique equilibrium supply of inside money.

[1]Yet in discussing Australian experience, Selgin (1988: 50) notes that "prices were fairly stable, and the principle of adverse clearings insured that no single bank could step out of line with its competitors. If by chance the entire system went out of line, adjustment would come as a consequence of gold losses abroad." He here ignores his own dictum of self-correcting in-concert expansions.

Clearinghouses were formed to minimize the costs of note exchange and check clearing but in time acquired a monitoring and supervisory role in the banking industry. The clearinghouse in that aspect provided self-regulation for the industry. Membership in a clearinghouse attested to the adequacy of a bank's capital. Audits by the clearinghouse which also required the banks to publish statements of condition supplemented the regulatory demands of government supervisors. Most of the recent discussion of the role of clearinghouses does not emphasize their direct supervisory activities in enforcing limits on overissue by member banks and thus creating monetary confidence but rather concentrates on the restraint imposed by adverse clearings. One commentary, however, links clearinghouse monitoring of the product quality of demand deposits that served also to control the behavior of bank managers to the information-related disadvantages of checks (Gorton and Mullineaux 1987: 458–60).

Evidence

The principle of clearing means of payment was known and employed even in ancient times but the modern clearinghouse dates from 1760 in Edinburgh, followed by London in 1773, and decades later in other European cities. In the United States, the first clearinghouse was established in New York in 1853 and in five other cities before the outbreak of the Civil War.

The evidence most often cited in support of the significance of clearing and redemption systems in controlling the aggregate money supply includes the performance of the Scottish banking system before 1845, the First and Second Banks of the United States, the Suffolk Bank in Massachusetts, and Canadian clearing arrangements (Dowd 1989). We comment on each of these exemplars in turn.

Scottish Banks. Except for three chartered institutions, Scottish banks from 1749 operated as partnerships, under individual ownership or as unregistered joint stock companies, enjoying freedom of note issue (except for the prohibition of small notes after 1829) with the owners subject to unlimited liability for the institutions' debts. The Bank Act of 1844 in England ended freedom of issue in Scotland for all but the nine banks in existence at that date. A new bank would be denied the right of note issue, but an existing note-issuing bank could exceed its authorized circulation if collateralized by 100 percent marginal specie reserves.

The operation of the Scottish system has been adjudged a success relative to that of the English banking system, where the Bank of England possessed certain monopoly privileges, and limits on the size of other banks were legislated.

In accounting for the "outstanding success of the Scottish free-banking system," Roland Vaubel (1984: 61), a sympathetic commentator, mentions freedom of entry, absence of limited liability, and no limits on the size of banks. He does not refer to the operation of the clearing system, a significant omission that implies it had no importance. White, another sympathetic commentator, treats the clearing arrangements as "self-policing" in that clearing losses restrain an individual bank from expanding faster than the average. In discussing the restraint on the banking system as a whole, however, he stresses not the clearinghouse but the role of internal and external reserve drains that guaranteed convertibility of notes into specie effected (White 1984: 1–22). The Scottish experience therefore is inconclusive on the role of the clearing arrangements in limiting expansion by the system as a whole.

First and Second Banks of the United States. Both the First Bank (1791–1811) and the Second Bank (1816–36) promptly presented state bank notes for redemption and served to that extent as clearinghouses that regulated the currency, although in their own operations their performance was not invariably above reproach. Statistics on the operation of the First Bank do not exist, but it apparently extended permanent loans to individuals and banks (Holdsworth 1910: 124).

The Second Bank was mismanaged before 1819 when Western and Southern branches overissued their notes, which were redeemable in the East, until redeemability of all notes at all branches was discontinued (Schweikart 1991: 607–18). After that date, under Nicholas Biddle's tutelage, the Second Bank created a uniform currency by forcing the redemption of state bank notes (Fraas 1974). It then expanded rapidly in 1828–31 and subsequently, with Jackson's veto of its charter and the removal of Treasury deposits, it was forced to contract.

The Suffolk Bank. Founded in Boston in 1818 as an ordinary bank of issue and deposit, its management decided a year later to redeem country bank notes it purchased at a discount from merchants, individuals, and other banks. It allowed the issuing banks to purchase their notes from the Suffolk at the same discount, provided they made permanent deposits in the Suffolk of $5,000 plus additional deposits to cover notes redeemed. Discounted notes of a non-participating bank were immediately returned for redemption at par. The arrangement proved to be unprofitable for the Suffolk since apparently investment of the permanent deposits provided the only source of net income.

In 1825 the bank modified the arrangement by establishing an interest-free fund of $300,000 assessed on the Associated Banks in

proportion to their capital, paid in the notes of the participants, with the Suffolk as their agent. The aim was to reduce the size of the discount on notes. Within a year, notes of the banks in good standing were accepted at par at the Suffolk. Individual bank behavior was subject to control by the Suffolk, which could suspend or expel a bank if its permanent deposit were eroded by excessive note issues (Mullineaux 1987: 888–921).

We observe that although the Suffolk bank unquestionably provided a check on overissue by an individual bank, the evidence of its total annual redemptions from 1834 to 1857 contradicts the theory of "self-correcting in-concert expansions." Not only is there a clear upward trend in the figures, rising from $76 million in 1834 to $376 million in 1857, in line with a growing banking industry, but in addition every cyclical upturn and downturn in the period is registered in the time series (Dewey 1910: 89). The Suffolk system was no bulwark against instability in the monetary system.

Canadian Clearing Arrangement. After confederation in 1867, Canada permitted branch banking and authorized chartered banks to issue notes equal to their paid-in capital, but required them by law to establish redemption agencies at the main city in each of the then seven provinces and elsewhere as determined by the Department of Finance. The chartered banks exchanged notes daily at clearinghouses in each of the larger cities and their branches at other centers. Balances were paid in Dominion notes, a government-issued currency, or in drafts on commercial centers. Chartered bank notes circulated at par. Legal tender was either Dominion notes or gold. Some bank failures occurred, but in 1907, unlike the panic in the United States, no restriction of payments took place in Canada, despite a currency drain. For that reason, in 1908, the limit on note issue was raised to 115 percent of paid-in capital during the crop moving season (Schuler 1992: 88).

It is not obvious, however, that the clearing arrangement rather than branch banking, competitive note issue, or convertibility contributed most to the good record of Canadian banks before 1914. After that year the Department of Finance acted as a quasi-central bank, and in 1935, the Bank of Canada was established (Bordo and Redish 1987: 402–06).

Private Competitive Note Issue

Theory

This is an argument against the classical view that unregulated competition in the supply of fiduciary money would lead to overissue,

the destruction of its value, and an infinite price level. True, as argued in the classical view, if different private money producers offered indistinguishable homogeneous monies, convertible into one another at fixed exchange rates, overissue would be possible. For competitive production of fiduciary money, however, according to the recent view, output differentiated by brand names is essential. By relying on the brand name attached to each producer's money, consumers can acquire information about the quality of the monetary service flow from each one. The brand name is not only information for the consumer but capital for the producer (Klein 1974: 431–35).

When monies are differentiated by issuer, and each is valued relative to competing monies at flexible exchange rates, overissue by a single producer might gain him a short-term profit, but at a cost of disinvestment in the producer's brand-name capital. A decision by a producer of money to overissue would be at the expense of his long-run profit in making his product acceptable to the market. A competitive money producer creates confidence in his product by limiting its issue.

Flexible exchange rates among private competing monies may be a condition of a system with fiat outside money, not of a system with commodity-based outside money. If one assumes the latter, in a contemporary setting, would competitive bank notes trade at discounts in cities distant from the place of issue, given low modern communications and transportation costs? The conclusion reached by Lawrence H. White (1989: 372) is that nowadays, in a competitive system with unrestricted branch banking, all banks would be driven to accept one another's liabilities at par. They would do so either to profit from replacing rivals' notes with their own or to enhance the demand for liabilities of all banks thanks to par acceptance. The check on overissue would be the adverse clearing mechanism.

Richard Cooper (1989: 393–94), however, finds this scenario implausible. He asks whether government would not inevitably intrude in a hypothetical private competitive banking system if only to decide which bank notes it would accept in payment for taxes, and which it would use in making its own payments. If the government set high standards for banks whose notes it would accept or use, ease of entry and free banking would become limited.

Evidence

Although selected episodes of historical experience have been interpreted by some observers as representing flexible exchange rates between competing monies, the author of the theory (Klein 1974) finds that conclusion dubious when he discusses historical examples. The reason is that in these examples competing monies were all

convertible on demand into a single outside money that served as the unit of account and in fact were closer to internal fixed exchange rate monetary arrangements than to internal flexible rates. The historical evidence suggests that such arrangements arose to minimize money changing and valuation costs (that is, transaction and information costs) of competitive independent monies.

In a recent study Kurt Schuler (1992) identifies about 60 historical cases of what he defines as competing free banks, which lasted from a few years to over a century. Free-banking systems included many that were regulated and a dozen or so that were not. The absence of a central bank was the critical factor in determining whether a banking system qualified as one with competing free banks. Many such cases were colonial possessions of European imperial powers. The study does not examine whether flexible exchange rates between the competing monies were a feature of the historical cases.

The literature on competing banks focuses on their performance as note issuers, in part reflecting the historical period when bank liabilities were predominantly notes. The main reason for this focus, however, is the emphasis in the literature on the malign consequences of the monopoly of note issue by central banks. The examples are intended to convince readers that the record of competing banks as note issuers was beneficent and that competitive banking systems without central banks in today's economies would be superior to existing monetary arrangements.

We report examples of competitive monies that are commonly cited, beginning with evidence for colonial America and the United States, then for the United Kingdom and Europe, and for East Asia and Oceania. The questions that need to be answered include the following: Were the banks self-regulated? Were they competitive? Was overissue avoided? Did macroeconomic stability prevail?

The United States

New England Colonial Issues. Bills of credit issued by the Massachusetts, Connecticut, Rhode Island, and New Hampshire colonies in the first half of the 18th century were accepted at par under an arrangement with the other New England colonies in payment of taxes and in general exchange, stimulating overissue. As a result, the paper monies of the New England colonies experienced a greater depreciation than those of the middle colonies, where issues of different colonies (in the absence of the type of arrangement that prevailed in New England) circulated domestically at flexible exchange rates. New England government issues with fixed exchange rates among them is consistent with the theory of the conditions for their overissue.

Merchants petitioned Parliament against the colonial government bills of credit. Their issue in the four New England colonies was prohibited in 1751.

Various land bank schemes were also projected in the colonies, some under private, and others under government sponsorship. The land bank private experiments survived at most for a year, suppressed either by the colonial or British legislature. Public land banks were organized in 12 of the 13 colonies, issuing notes on the security of land. When the size of the loans made was limited, and their term fixed, overissue was not a problem—the famous example of Rhode Island to the contrary notwithstanding.

State Chartered Banking, 1790–1816. Competitive chartered banks existed in the states, issuing their own notes. Their unimpressive record has been analyzed as a failure, not of private currency competition, but of state interference with the banks' production and pricing decisions, "since they [the states] had a financial interest in their expansion even at the price of inflation and irredeemability" (Vaubel 1984: 67). The states are also held responsible for their failure "to provide an adequate legal framework for the competitive part of the process: to ensure information, to enforce contracts, and to prevent or prosecute fraud." These criticisms seem to imply a need for regulation of banks, reinforced by the critic's statements of approval for annual examinations of banks by state-appointed regulators.

Free-Banking Era. So-called free-banking laws in New York (1838) and Michigan (1837) permitted free entry—a requirement for a competitive system—but enforced capital requirements, specie-reserve requirements, and state bonds as security for note issues—forms of regulation. Sixteen other states followed suit, but in only eight were free banks established. Distinguishable bank notes circulated at varying discounts from par determined by their distance from cities where they were presented for redemption. Merchants and brokers accepted the notes at these discounts.

The literature on free banks before World War II portrayed them as wildcatters. Recent studies find the earlier reports of wildcatting exaggerated, the losses noteholders experienced minimal, and contagious runs on banks limited in extent (Rockoff 1975; Rolnick and Weber 1983: 1080–91; 1984: 267–91; Schweikart 1991: 621–23). Some state free banks were successful; many were not, and failure rates were considerably higher in free bank than in non-free bank states (Kahn 1985: 883). Free banks failed either because of capital losses on the bonds in their portfolios that depreciated with unstable state finances, possibly because the banks' performance was imprudent (Rockoff 1991: 73–109).

Yet the demise of state free banking had nothing to do with a decline in market demand for those banks. The end came because of the enactment of a national banking system authorized to issue notes backed by federal bonds, and of a prohibitive tax, effective July 1866, on state bank notes.

Because most state bank notes did not fluctuate widely in terms of one another and in terms of specie, and because inconvertible notes, no matter how large the discount, were unacceptable in transactions, one commentator (Klein 1974: 440) reached a skeptical conclusion on the significance of this episode: "Monetary arrangements during the 19th century free-banking era were much closer to multiple monies circulating at fixed exchange rates than to multiple monies circulating at flexible rates."

A different question concerns the assumption that free banks lowered barriers to entry in the U.S. banking industry. The number of banks after their introduction in states with free-banking laws was either unchanged or declined (Ng 1988: 877–89). Hence the competitive banking paradigm lacks confirmation on this score as well as with respect to the observation of flexible exchange rates among competing monies.

In any event, the free-banking era did not coincide with economic stability in the United States. It coincided with the disturbance to the monetary system produced by the great gold discoveries in California in 1848 and subsequently in Eastern Australia and elsewhere (Rockoff 1991: 77). Even so, the bimetallic standard then prevailing might have produced a stabler and slower rate of monetary growth than would have been the case under a fiat-money system. Whether the historical record of state free banks lends support to the case for the adoption of free banking now is not easy to sort out.

The United Kingdom and Europe

Free Banking in Scotland before 1845. The Scottish competitive note issue has been discussed above to assess the contribution that clearing arrangements made to what has been described as a century of stable free banking that ended with the Bank Charter Act of 1844 and the Act of 1845, which, as noted, restricted Scottish note issue. Here we examine the episode to determine if it conforms to an essentially unregulated free-market monetary system. The episode clearly does not conform to the theory of flexible exchange rates among distinctive monies, since Scottish bank notes circulated at par, with no variations in their market value reflecting differences in perceived qualities.

Other features of the Scottish system have also been interpreted as deviations from a free-market system. Limited liability charters were restricted to three banks, and all other banks operated with unlimited liability. The impact of unlimited liability on free banking as a competitive system is an unresolved issue. Unlimited liability may be a barrier to entry and a limit on the size of firms, since access to organized capital markets is a benefit of limited liability (Carr and Mathewson 1988: 766–84). However, the chartered banks had no competitive edge in note issue or intermediation, and note exchange among the provincial banks emerged before the chartered banks decided to join the system (L.H. White 1991: 19).

Even the role of the note exchange system has aroused controversy, since free-bank advocates imply that all note issuers benefit from it and should therefore have voluntarily joined. But some did not, and the larger banks exercised market power to compel their membership (Munn 1985: 341–43).

Another subject of debate has been the interpretation of the comparative failure rate of Scottish and English banks. Seventeen banks went out of business during the 100 years of the Scottish free-banking period ending in 1844, a failure rate one-quarter that of English banks, and losses to note holders and depositors were less than half that of banks in the London area alone. For subsets of the century, however, the Scottish failure rate was not invariably lower than the English failure rate (Sechrest 1988: 251–52). Low failure rates themselves have been challenged as unacceptable indicators of superior performance (Rothbard 1988: 230). The prohibition of adequately capitalized and diversified joint stock banks presumably was responsible for the English system's instability. Was the failure rate of Scottish free banks with no limits on the number of partners proof of greater stability of free banks than regulated banks, or merely a reflection of the importance of adequate capitalization?

Also in dispute is the possible dependence of the Scottish banks on the London money market. Each of the banks is said to have held its own specie reserves, but, as has been suggested, in periods of stringency did the chartered banks act as lenders of last resort to the provincial banks and did the chartered banks in turn look to the London money market and the Bank of England for support? (Goodhart 1987: 129–31). Cases of borrowing from the Bank of England by Scottish provincial and chartered banks do not, however, appear in bank archives (Munn 1991: 64).

Finally, doubts are raised about claims for the superior performance of Scottish banks by instances of absence of full convertibility of their note issues, even after the Act of 1765 denied the legality of option

clauses and affirmed redeemability on demand. One commentator regards imperfect convertibility as limiting the banks' costs and dangers and thus promoting the success of Scottish banking (Checkland 1975: 186). Alternatively, deferring redemption until a future date may be indicative of the system's weakness.

The upshot of the debate on the Scottish banks is that the extent to which they were a model of a private, competitive, unregulated, and independent system remains unsettled. Convertibility of notes into specie, the unlimited liability of the owners of banks, who became personally liable for their issues, and the familiarity of note holders with the private means and standing in the community of the owners seem to have been factors accounting for the relative stability of the Scottish competitive banks before 1845.

Free Banking in France, 1790–92, and 1797–1806. Two experiments in free banking occurred in France. The first was a satellite of government-issued assignats, printed only in large denominations and that drove coin from circulation. So-called *caisses patriotiques* were established by towns, merchants, manufacturers as well as bankers to exchange assignats for small-denomination notes. Originally 100 percent reserve banks that charged a small transaction fee, in time they became fractional reserve banks that operated without government regulation, engaging in discounting commercial bills. Charges of counterfeiting and excessive issues of the notes—known as *billets de confiance*—have not been substantiated, but attacks in the press, the refusal of some government tax collectors to accept the notes, and a National Assembly proposal that the caisses deposit their reserves with local authorities undermined the confidence of the note holders, who staged a run on the banks. On November 8, 1792, the Assembly voted to close the caisses by the end of the year. Few needed government help to redeem their notes. Although inflation was generated not by overissue of billets de confiance but of assignats, the revolutionaries adopted price controls to contain it, closed the bourse, and prohibited trade in specie. By mid-1793, the Reign of Terror ended most private banking (E. White 1991: 131–39).

The revolution's original espousal of free enterprise was revived by the Directory, which repealed anti-banking laws in 1796. New banks of issue were soon established, the structure of the system much like that of the caisses patriotiques—two or three dominant banks in Paris, accounting for a large fraction of all notes issued, and other relatively small banks both in Paris and the provinces. The large banks redeemed their high denomination notes in silver or gold coin, while the small banks redeemed their small note issues in copper coin. As in the U.S. free-banking era, issues of the small banks circulated at small

discounts. Competition prevailed, with no widespread failures or counterfeiting. A defalcation at a large bank in October 1798 threatened its solvency, but the Treasury offered a loan, shareholders deposited coin to guarantee the bank's liabilities, and a run was avoided.

Shortly after Napoleon seized power in 1799, he established a bank to serve his purposes, the Banque de France. The large banks in Paris were forced to convert their shares to shares of the Banque and the small banks were dissolved; in 1803 the Banque obtained the exclusive privilege of note issue for 15 years in Paris. The circulation of the provincial banks was relatively slight. At Napoleon's insistence the bimetallic standard was reestablished in 1803, which constrained the revenue the government could raise from money creation. In 1806 he appointed his choices for governor and deputies, increased the bank's capital, and extended to 25 years its monopoly of issue in Paris. It lost its monopoly from 1815 to 1848 and had to compete with private banks of issue in the provinces. These were regulated banks whose notes were restricted to the provinces in which they operated. In 1848, however, the Banque de France became the exclusive issuer of notes in France (E. White 1991: 139–44).

Competitive Banking in Switzerland, 1825–91. Until the National Bank of Switzerland was established in 1905, after 25 years of debate, and given a monopoly of note issue, as many as 36 provincial state-incorporated banks and private bankers had engaged in the note-issuing business—the first one in 1826, according to one source, in 1834, according to another, who does not refer to an earlier cantonal bank (Weber 1988: 461–62; Landmann 1910: 9). The notes initially circulated only locally at varying discounts. Few currency issuers defaulted before 1850. Freedom of entry existed even after uniform reserve requirements were imposed in 1881. Notes thereafter were limited to double the amount of share capital, and banks were required to accept in payment at full value their own as well as other banks' notes (Landmann 1910: 9–63, 204–38). The Swiss banks, it has been argued, depended on Paris in times of stringency, much as the Scottish banks before 1845 are said to have depended on the London money market and the Bank of England (Goodhart 1987: 131).

Competitive Banking in Sweden before 1897. The Riksbank, in existence since 1656, remained as the only bank in Sweden in the 1820s, following the bankruptcies of private banks in the preceding decade. In 1824 privately owned and operated partnerships with unlimited liability were authorized by royal proclamation and in 1830 the first such note-issuing bank was chartered. Many others followed even though usury laws limited their access to funds. In the 1860s, usury laws were repealed, and joint stock banks were authorized but

denied the right of note issue. Private bank notes competed with the Riksbank issues until 1897 when the bank obtained a monopoly of note issues. Private note issues were prohibited and ceased to circulate in 1903. The Swedish banking system was stable, both types of private banks and the Riksbank itself never having been subject to runs or failures. The gold standard and unlimited liability of the private bank issuers promoted, according to Lars Jonung (1984: 363–65), stable note issue policies.

Competitive versus Monopoly Issue in Italy. Proponents of competition in note issue were ascendant when Italy was unified in 1861, at which date nine banks were in existence and various firms and individuals also printed notes. This practice ended in 1874. In 1893 one of the nine banks failed and two others merged, leaving three banks, according to a law of 1894, with the right of issue. Until 1926 this was the extent of competition. It ended with the victory of the Bank of Italy as the sole bank with the right of issue (Fratianni and Spinelli 1984: 408–09).

East Asia and Oceania

Paper Money in China from the 9th to the 20th Centuries. Paper money circulated in China from the 9th century onward, but apparently the issues were made not by private firms but by the rulers of China, who initially maintained reserves of copper cash, and were obligated by law to redeem the emissions triennially. Wars led to overissue, depreciation, and eventually repudiation. By 1567 paper money had ceased to circulate.

During the first years of the reign of the Manchus beginning in 1644, some treasury bills were issued. Otherwise the Manchus issued no paper money until 1852. During the Taiping Rebellion that began that year note issue expanded until it depreciated and became valueless. The government then left note issue to private and provincial banks. These were notably successful in Foochow, the capital of Fukien province, and in other cities, where unregulated local banks issued notes redeemable in copper cash. Notes of larger banks circulated at par, and only 1 large bank of 45 in existence at the conclusion of the episode failed. Failures of smaller banks, however, were more numerous (Selgin 1988: 7–8).

After the Republican revolution of 1911, the new central government favored "modern style" banks, which had given it financial support. These banks issued silver-based notes. When the Nationalists gained power in 1927, they prohibited the issue of copper notes (Selgin 1988: 7–8). Kann (1937: 366–68) reports that overissue

occurred in the provinces during the first three decades of the 20th century.

A recent study presents evidence that inside money in China expanded during the years after 1930 while the price level declined and industrial output rose. Despite numerous bank failures, banks by and large maintained convertibility of their liabilities into silver. Although the government had full or partial ownership of three of the largest banks, there was no central bank with a monopoly of bank issues. Other banks possessed the right of issue on the same terms as the largest government-owned bank. Bank notes were backed by 100 percent reserves of silver, gold, foreign exchange, and government securities. There were no reserve requirements for deposits. Adherence to a silver standard in China before November 1935 when a central bank was established is interpreted as a decision of the private banks that operated according to real bills rules. The private banks on this view exemplified free banking under a commodity standard (Brandt and Sargent 1989: 34–38).

In November 1935 the notes of the three largest modern banks were given legal tender status. The Nationalist government monetized its deficits, and the currency became fiat.

Competitive Note Issue in Japan. From the middle of the 16th century onward, feudal lords, merchants, and private cooperatives issued notes. In 1882, when the Bank of Japan became the monopoly issuer, private issues ceased. The record of the success of private issuers in maintaining the value of their notes has not been established (Vaubel 1984: 69).

Competitive Note Issue in Hong Kong. Most Hong Kong notes were issues of four chartered private banks, with government issues limited to one-dollar and subsidiary denominations amounting to less than 10 percent of total issues. The private banks are regulated, and the total authorized issue requires 100 percent reserves of foreign exchange. Excess issues must be covered by certificates of indebtedness of the Hong Kong Government Exchange Fund.

Australia before World War I. Until 1910 several note-issuing banks settled clearing balances with each other in specie. A law then authorized the issue of Australian government legal-tender notes, and in 1911 the Commonwealth Bank was established to act as agent in issuing these notes. A prohibitive 10-percent tax on all private bank note issues was imposed and restrictions on the issue of legal-tender notes were relaxed. In September 1914, when the government declared a gold embargo, the private banks stopped settling balances at the clearinghouse in specie. Thereafter they settled balances in the notes of the monopoly bank of issue (Copland 1920: 490–91).

Conclusion

A summary of the evidence on private competitive banking covering many geographical areas and past monetary systems is difficult. The banks were regulated in a variety of ways. Outside money was usually specie supplemented by government fiat-money elements. A convertibility requirement existed. We cannot be sure that whatever success private competitive banks achieved at different times and places confirms the theory that self-regulation limits overissue.

The Real-Bills Doctrine

Theory

The doctrine maintains that a banking system that confines its lending to discounting short-term self-liquidating commercial bills of exchange arising from real transactions in goods and services—the productive use as opposed to the speculative use of credit—cannot overissue.

Adam Smith was among the first to uphold the real-bills doctrine, although he also insisted on subjecting banks to the legal requirement to convert their notes on demand into specie. Later adherents included the antibullionists who absolved the Bank of England of the charge of overissue during the Napoleonic period when convertibility of its notes into specie was suspended. They argued that, even when inconvertible, overissue of notes was impossible if they were emitted on loans collateralized only by sound, short-term commercial paper. The Banking School, whose chief proponents were Thomas Tooke, John Fullerton, and John Stuart Mill, denied that a convertible currency could be overissued because the needs of trade automatically limited the quantity of money. Moreover, if banks lent on long term or for speculative purposes instead of on real bills only, the law of reflux would cause excess issues to return immediately to banks to repay loans. In the United States the real-bills doctrine was popular with many supporters of the act that created the Federal Reserve System. According to the Act, the amount of Federal Reserve notes to be issued would depend on "notes, drafts, and bills of exchange arising out of actual commercial transactions" (section 13), offered for discount rates to be established "with a view of accommodating commerce and business" (section 14d).

Criticism of the real-bills doctrine has an equally long history. Henry Thornton denied that the quality of the loans securing note issues provided a proper limit on the size of the issues. Ricardo was also a prominent critic. One problem with the doctrine is that even if each loan were made on short-term commercial paper, the volume of bills

depends on the turnover of goods in process. The same goods sold a number of times could generate an equal number of bills. The same applies to the term of the bills, which might exceed the period of turnover of the goods. Moreover, it is not clear how banks are supposed to be able to distinguish real from fictitious bills.

Hence the money supply could greatly exceed the needs of trade. The fact that an increase in money supply contributes to a rise in commodity prices would justify a still further increase in money supply to meet the needs of trade. The money value of real transactions therefore cannot serve as an effective regulator of the quantity of money. A further fallacy of the doctrine is its implicit assumption that no one would pay interest on unneeded funds but instead would return such loans to the bank. The doctrine ignores the fact that the loan rate of interest may be below the expected rate of return on funds borrowed. Such a differential encourages borrowing, causing money and prices to rise as long as the interest rate differential exists on discounted real bills (Humphrey 1982: 3–13). In addition, the choice of assets governing the way in which banks introduce their liabilities provides no check on the amount of liabilities banks circulate. In short, the real-bills criterion provides no effective limit on money or prices.

Recently "something of a rehabilitation of the real-bills doctrine" has been claimed (Sargent and Wallace 1982: 1214). The version of the doctrine supposedly rehabilitated, however, bears little resemblance to the actual doctrine. That version is based on a model of an overlapping-generations consumption economy in which agents have perfect foresight, population is exogenous, and there is no production. For this model Sargent and Wallace show that a laissez-faire banking regime leads to price-level instability or indeterminacy. Since real-bills advocates believed that the doctrine guaranteed price-level stability, and its critics argued that it did not, Sargent and Wallace clearly have not rehabilitated the doctrine—even if their version of it were accurate—but have instead confirmed its critics' views. Their version of the doctrine as one characterized by the absence of government restrictions on bank intermediation, however, is a caricature. The actual doctrine was not a defense of laissez faire in banking, but one that mandated specie convertibility of notes on demand and prescribed the class of bills eligible for discount. Moreover, in the Sargent and Wallace model, banks make unlimited consumption loans, whereas according to the actual doctrine banks were to lend only to finance current production and distribution and eschew all other types of lending (Laidler 1984: 149–55).

Another restatement (Smith 1994: 28–29) of the real-bills doctrine "in modern form" asserts that there is a crucial distinction between

the consequences of monetary change depending on how the change was accomplished. (It is debatable whether the restatement is "modern," since it was already expressed in 1844 by John Stuart Mill, if not earlier.) On this view what matters is whether the claims purchased in creating money are backed by real goods or a sinking fund. Thus an open-market operation that swaps an asset in private portfolios for government currency is held to have no effect on the price level. Only printing press issues that are not swapped, on this view, have price effects. Monetary changes that raise seigniorage revenue would be expected to be inflationary, and those that are pure portfolio rearrangements would not be. Theoretically, this approach elevates what happens as a result of the first round of spending to encompass the effects of subsequent rounds.

Evidence

We first look at evidence that relates to the traditional version of the real-bills doctrine, then at its "modern form."

Two bits of evidence in the literature give a negative verdict on the traditional real-bills doctrine: Britain during the Napoleonic war-period of suspension of specie payments, and Germany during the 1922–23 hyperinflation. Evidence in favor of the modern form has been offered for the American colonial period, for the Second Bank of the United States, for China, 1930–35, for the ends of four big inflations, and for Taiwan. How valid is the latter evidence?

Britain during Suspension of Specie Payments. From February 1806 to February 1811 the circulation of Bank of England notes rose from £17.7 to 23.4 million, and its accommodation to private borrowers from £11.8 to 19.0 million, while its coin and bullion declined from £6.0 to 3.4 million. The premium on bullion rose from 110.0 in 1806 to 121.1 in 1811. Commodity prices rose 15 percent over the corresponding period. The *Report of the Bullion Committee to Parliament* in 1810 arrayed the bullionists, who criticized monetary developments, against anti-bullionists, who defended the Bank of England and the government. The anti-bullionists claimed that so long as banks issued notes only to discount sound short-term commercial paper overissue was impossible. No one would borrow at interest amounts that he did not need. They attributed inflation to cost-push factors, such as wartime shortages. The bullionists pointed out that the rate of interest banks charged was no regulator of issue when usury laws prevented the Bank of England from charging more than 5 percent. Thornton also showed that with rising prices, the real rate of interest was below the nominal rate and hence made borrowing even more profitable. The anti-bullionists offered no counterargument.

German Hyperinflation, 1922–23. The Reichsbank pegged its discount rate at 5 percent until the middle of 1922, and then raised it as high as 90 percent by October 1923, when the market rate of interest was a huge multiple of the discount rate. In effect, the bank's rediscounts were cost free to the commercial banks and their debtors. Private Reichsbank credits to industry and commerce increased from .03 billion marks in June 1922 to 1,215 thousand trillion in October 1923, and the sum of Reichsbank and private bank notes was double the credits at the later date. The Reichsbank's president believed that the bank was simply meeting the legitimate needs of business and therefore was not responsible for the hyperinflation (Angell 1929: 368–71).

The evidence that has been adduced in support of the so-called modern form of the real-bills doctrine associates failure of prices to rise following injections of money as symptomatic of asset backing for the new money either through the levy of future taxes or private sector bills. One example of the evidence is the experience of China during the U.S. silver purchase program.

China, 1930–35. The experience of China during this period has been interpreted as a successful demonstration of the working of the real-bills doctrine. In those five years the money supply increased from 6.1 billion to 7.8 billion yuan, but the price index, except for a rise in 1931, fell in every other year. Bank portfolios consisted of government securities and loans to finance inventories. Both are held to be real bills, the government securities because the levy of future taxes provided backing for them, the inventory loans because they were secured by commodities deposited in warehouses of the lending banks or in other warehouses (Brandt and Sargent 1989: 33–47).[2]

The characterization of the Chinese banking regime as one that followed real-bills rules flouts the historical content of the doctrine. No believer in real bills, as the doctrine was formulated, would have accepted the presence of government securities in a bank's portfolio, whatever their backing, as validating the doctrine. It is further questionable that loans on warehoused inventories would have qualified

[2]The context in which Brandt and Sargent introduce real bills is their reinterpretation of the influence on China of the U.S. silver purchase program of 1933. They deny that that program caused internal deflation in China as its currency appreciated, and that the deficit in its balance of payment led to silver exports that contracted the internal money supply. They contend instead that China experienced no economic difficulties and that it was the deliberate choice of the Chinese government to abandon the silver standard in order to acquire the capital gain from silver appreciation and to be free of restrictions on government finance that a commodity standard imposed. For a contrasting view, see Friedman (1992: 157–88).

as real bills. Inventories more likely would have been regarded as frozen assets, especially when commodity prices were falling.

Conclusion

The real-bills doctrine, in its traditional or restated form, seeks to restrict the definition of overissue. Examples of changes in the quantity of money that are asserted not to have had price effects are cited as validating the theory. The historical examples, however, involve data of uncertain reliability. The emphasis on the source of the initial injection of money is myopic. The sources of the initial injection are not distinguishable in the money stock.

An Alternative Proposal: "Self-Regulation" by Banks, with Owners and Managers at Risk

Theory

The propositions that we have examined in the preceding sections in our judgment are an unsatisfactory basis for the case made by proponents of self-regulation by banks. We offer an alternative approach that we believe makes a better case for deregulation. Banks are not inherently unstable, provided the institutional setting in which banks operate and the incentives they are exposed to do not predispose them to excessively risky undertakings. It is possible to design a banking system in which banks are free to choose any assets yielding the highest return as they judge it and to pay whatever price for funds they deem reasonable, with minimum risk for depositors and creditors. One condition is that the institutional setting fosters price stability. The importance of this condition is related to the procedures banks rely on in making loan and investment decisions. The value of the collateral for secured loans and projections of the ratios of borrowers' current assets to current liabilities for unsecured loans serve as the basis for credit analysis. Unanticipated price-level change can invalidate the assumptions underlying bank portfolios. Price-level stability promotes a stable banking system. We defer to a later section issues related to the achievement of a stable price level.

A sine qua non of a banking system in which the activities institutions engage in are no longer monitored is that a set of restraints be imposed on the conduct of owners and managers. Any mistakes they make that wipe out capital and reserves would prompt the immediate closing or reorganization of the institution. Stockholders might be liable for an assessment equal to their equity, and managers would lose their jobs. Depositors and creditors under these arrangements would be

fully protected, as net worth would not have turned negative, should the marginal costs of products and services the institution offers the market turn out to exceed market prices. Whatever risks institutions were prepared to undertake, whether the activities were on or off balance sheets, the mistakes would be borne by the owners and managers, not by depositors and taxpayers. A set of restraints that would safeguard against excessive risk taking might include capital requirements, marking assets to market, provision of information to authorities, and double liability for shareholders.

In this setup, a regulatory agency is needed to certify the integrity of individual institutions. In principle, it could be a private agency, although to have the right to close down an institution would require legislative authorization. Whether quasi-private or governmental, the agency would function under a changed set of conditions, concerned with market-value accounting, capital adequacy, and the information required from the institutions it supervises, not with bank location or branching, or the products and services that banks provided.

The existing regulatory framework encourages regulators to paper over bank failures by relaxing regulatory standards and by giving subsidies to failing institutions. They are responsive to concerns for loss of jobs as a result of bank failures, and the burden imposed on borrowers of establishing credit with a new bank. In the proposed regulatory climate, it would be in the self-interest of regulators not to delay recapitalizing, merging, or liquidating an institution the capital of which had declined to zero. Failed banks that other banks acquire entail no loss of jobs. If shut down, they will be replaced by other banks if there is a market for their services. Timely action by regulators that would safeguard depositors' interests, minimize the risk of disruption of the payments mechanism, and eliminate third-party effects would burnish their image as promoters of the public welfare.

With depositors' funds secure, bank failures would not precipitate runs. The lender of last resort would not need to anticipate panics. If deposit insurance were maintained, it could be privately administered, with the aim of providing depositors and creditors in reorganized or closed institutions immediate access to the full value of their deposits or their claims.

In such a banking system, self-regulation would prevail, in the sense that each institution would have an incentive to be prudent in acquiring assets and funding their acquisition, on penalty that foolhardy owners and managers would lose their equity and stake in the institution. Safe and sound banking would be achieved, contingent on the maintenance by monetary authorities of a stable price level.

Evidence

To identify banking systems that conform to the theory, one must establish in which periods approximate price stability prevailed and whether during those intervals banks essentially were free of restrictions on their choice of activities and provision of inside money. We are not aware that such evidence exists.

Lawrence H. White has argued forcefully that Scottish experience teaches us that government has no role to play in regulating private firms that produce money (1984: 137–50). For the period that he celebrates as validating laissez-faire principles, we lack information on the detailed assets and liabilities of Scottish banks. The record of price movements in Scotland was presumably parallel to that in Britain, since both shared similar experience in adhering to or suspending convertibility. The record was one of price instability.

But even if White could provide detailed evidence supporting superior economic stability in Scotland than in Britain, the question of the applicability of that finding to present-day economic and financial circumstances would remain. He relies on "a very short period [that] typically elapsed between the issue of a bank note and the fulfillment of a promise to pay, the note returning to its issuer through the clearinghouse after deposit in another bank" (1984: 140) to check both fraud and "indeliberate" overissue. Perhaps that was adequate in Scotland before the mid-19th century. We are skeptical that that would be adequate protection currently for note holders and depositors, in an era of global banks engaged in novel activities, given the incomplete information about today's complex world available to economic agents. That is why we can endorse White's plea for free banking in the provision of inside money at the same time that we recognize a need for safeguards. We propose giving the utmost scope for lending and investing by depository intermediaries, without interference by government, while reserving a specialized role for a regulatory agency that may be governmental as judge of institutions' performance. That role is to close or reorganize depository institutions if they have been mismanaged before losses have been sustained by their liability holders.

Whatever risks institutions were prepared to undertake, whether the activities were on or off balance sheets, the mistakes would be borne by owners and managers, not by note holders, depositors, and taxpayers. Bank failures invite government intervention either to bail out management or to make bank depositors and creditors whole, using taxpayer funds. Closing institutions before their net worth has turned negative is a way of precluding government intervention.

Possible Constraints on Outside Money

Economists can offer no well-understood prescription to achieve price-level stability other than limited growth of outside money, that is, the monetary base. Gold and bimetallic standards—commodity-money systems—have the effect of limiting excessive growth of the base. White and Selgin, who favor gold convertibility as the complement to the complete deregulation of inside money and disestablishment of central banks, do not discuss the defects of the gold standard and the absence of professional and political support for it (U.S. Gold Commission 1982).

In our judgment, restoration of either a gold- or bimetallic-based monetary standard is highly unlikely, and we doubt that central banks will cease to function as monetary authorities in the foreseeable future. With few exceptions (Canada, New Zealand), each of them now essentially operates a fiat monetary standard at its discretion, with no commitment to maintain any particular price level or rate of inflation. Under existing monetary arrangements, to the extent that banks make contracts that stipulate fixed rates of future money payments to others and from others, the consequences are arbitrary. This is so because banks have no way of knowing whether the price level or the inflation rate they expect will be realized. What is needed is a formula for central banks to follow in creating outside money that will limit its growth, with the objective of approximating a long-run stable price level.

A quarter of a century ago Milton Friedman advocated a constant rate of money growth at 4 percent a year (assuming real income growth of 3 percent a year and a 1 percent annual decline in velocity) to achieve a zero inflation rate. Although convinced that the consequences of this rule would have been preferable to the discretion that created first inflation and then disinflation, for two reasons Friedman has since abandoned this strategy. The variable the monetary authorities control directly is outside money. Their control of inside money is indirect and from quarter-to-quarter is loose. The particular numbers Friedman relied on also have not been constant over time. He believes that his suggestion has encouraged the Federal Reserve to plead inability to live by the rule and that it has thus escaped accountability. He then suggested a constitutional amendment that would establish a range of 3 to 5 percent a year in the growth of outside money, but discarded it as a half-measure of reform. As a full-measure, he proposed instead that, after a transition period, outside money be frozen at a fixed amount. Private depository institutions would then be freed to issue bank notes. The money-creating powers of the central bank would cease (Friedman 1984: 40–52).

In choosing the money stock for his initial rule, Friedman's objective was to link that magnitude to subsequent changes in national income. In the spirit of Friedman's suggestion, Bennett McCallum (1989: 329–43) has proposed a rule linking the quarterly change in outside money to the quarterly change in nominal GNP. His rule, he concludes, would lead to roughly 3 percent annual growth in nominal GNP and approximately zero inflation.

Whether monetary authorities will set aside conflicting objectives that have made their policies erratic and unpredictable and be resolute in pursuing price stability as their overriding concern, no one can say. If they fail to achieve price stability, the performance and stability of banking systems under "self-regulation" will be in jeopardy.

Conclusion

We have surveyed three theories and the evidence that is said to confirm that under private market arrangements self-regulated banking systems will limit their inside money issues. These theories argue that intermediation by note- and deposit-issuing banks can safely be deregulated because:

1. An interbank clearing mechanism checks overissue;
2. Competitive producers of money establish confidence in their issues by limiting their magnitude;
3. Banks that restrict their discounting to real bills cannot overissue.

Each of the theories is problematic. The supporting evidence is drawn from many countries and periods in the past. In no episode is it possible to isolate the particular theoretical proposition it is supposed to confirm. Bank performance may have been influenced by existing regulations and the requirement that inside money be convertible into some form of outside money. The significance of the theoretical proposition is accordingly ambiguous. Moreover, the relevance of historical banking experience to current economic and financial conditions is overdrawn.

Our support for deregulation of bank intermediation features two important provisos: First, the risks that are undertaken are borne by owners and managers, not by money holders and taxpayers, and second, monetary authorities can be relied on to achieve price-level stability.

The first proviso leads us to advocate restraints on depository institutions such as capital requirements, provision of information to a supervisory agency, marking assets to market, and possibly double liability for equity holders. The key responsibility of the regulatory agency

would be to close or reorganize promptly an institution before its net worth turned negative, thus safeguarding the funds of depositors and creditors. The agency could be administered as a private undertaking if the legislature empowered it to close troubled institutions.

The second proviso leads us to inquire about possible ways to constrain the issue of outside money. A return to a commodity-based standard by the world seems improbable. We review some suggestions to limit the issue of fiat outside money, the only prescription economists can offer to achieve price-level stability. Price-level stability in our view is a prerequisite for safe and sound banking. If the price level is stable, any mistakes that banks make in acquiring assets will be attributable to faulty credit analysis, not to price-level or inflation surprises. If the outlook for future price-level stability is doubtful, the success of a self-regulated banking system is also doubtful.

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