

A Series of Occasional Papers in Draft Form Prepared by Members of

# STAFF MEMORANDA

## RESERVE REQUIREMENTS, DEPOSIT INSURANCE AND MONETARY CONTROL

Robert D. Laurent

FEDERAL RESERVE BANK OF CHICAGO

**Reserve Requirements, Deposit Insurance and Monetary Control**

by

**Robert D. Laurent**

**Department of Research  
Federal Reserve Bank of Chicago**

**The views expressed herein are solely those of the author and do not necessarily represent the views of the Federal Reserve Bank of Chicago or the Federal Reserve System. The material contained is of a preliminary nature, is circulated to stimulate discussion, and is not to be quoted without permission.**

## Reserve Requirements, Deposit Insurance and Monetary Control

Reserve requirements are usually justified on grounds that they enhance the monetary authorities' control over monetary aggregates. Using reserve requirements to control a monetary aggregate has long posed a problem for economists in devising an institutional structure in which to operate monetary policy. Higher reserve requirements give more accurate control over the target monetary aggregate, but they impose higher taxes on banks and bank customers.

Building on a reserve computation system presented earlier, this paper proposes a change in institutional structure that essentially merges the monetary policy functions of the Federal Reserve with the deposit insuring authority of the Federal Deposit Insurance Corporation. The proposed system would provide accurate weekly control over the target monetary aggregate while completely eliminating the reserve requirement tax. The proposal would also simplify banks' portfolio and reserve management tasks and help insulate the target monetary aggregate from replacement in the public's demand function by other financial assets. Aside from the benefits of an improved monetary policy, banks, bank customers, and taxpayers would receive direct pecuniary benefits. Finally, the proposal would simplify (and provide a compelling economic rationale for) the role of government in the financial system. These benefits would be obtained without any additional compulsory measures.

The paper is divided into four sections. The first reviews the problem of reserve requirements and monetary control and previous proposals to deal with it. The second describes the proposed system. The third provides the economic rationale for the role of government in the proposed system. The final section describes bank techniques of reserve management under the proposed system.

### The Problem

It has long been recognized that reserve requirements affect the ability of the central bank to control any given target monetary aggregate. Generally, the higher the reserve requirements, the more accurate is control over the target aggregate. A simple way to perceive the effects of different reserve requirements ratios begins by noting that the higher reserve requirements, the lower the multiplier between reserves and deposits. By reducing the multiplier between reserves and deposits, higher reserve requirements reduce the size of the disturbances to deposits caused by aberrations in reserves. More importantly, the higher are reserve requirements, the lower and presumably less volatile are excess reserves. Banks hold less excess reserves because higher levels of reserve requirements reduce the deficiency resulting from a deposit outflow. The less volatile are excess reserves, the more predictable is the relationship between reserves and money and the better the control over money.

Higher reserve requirements act as a tax on banks and bank customers. Banks essentially economize on currency. They offer depositors a convenient, safe, and economical way to perform transactions without physically transferring currency. In addition, because banks need reserve levels that are only a fraction of deposits, they are able to pay interest on deposits. These interest payments on deposits are a benefit of the technological innovation banking represents. In a world of commodity currency, these interest payments reflect the physical resources saved in economizing on the commodity currency (e.g., the real resources consumed in mining gold). In a world of fiat currency, these real resources are already saved in the production of currency. With fiat currency, deposit interest, which represents one benefit of banking, is a transfer from government to deposit holders.

To control a monetary aggregate effectively, reserve requirements should be higher than banks would voluntarily hold. This is necessary so as to have banks' excess reserves close to zero and, therefore, predictable.<sup>1</sup> The higher reserve requirements are raised above the voluntary level, the closer excess reserves move to zero and the more predictable the relationship between reserves and deposits. But, the higher are reserve requirements, the greater the tax on deposits and the smaller the interest payments to depositors. There is nothing unique about the relationship between government and the banking industry that justifies a government tax on banking. Banks can exist alongside commodity currency and without government chartering as well

as with government fiat currency and government chartering. The justification for the reserve requirement tax rests simply on the need to accurately control a target monetary aggregate.

One's preferences on the trade off between monetary control and the reserve requirement tax is likely to be determined by the importance one attaches to monetary control. Some economists who place great importance on monetary control have advocated 100 percent reserve requirements in the form of vault cash and reserves at the Federal Reserve against demand deposits. This proposal was first circulated in the 1930s by a group of University of Chicago economists, the most prominent of whom was Henry C. Simons.<sup>2</sup> The proposal was subsequently advanced in slightly different forms by other economists.<sup>3</sup> One hundred percent reserve requirements would give the monetary authorities very accurate control over demand deposits and the target monetary aggregate. However, without the ability to economize on reserves, banks could not afford to pay interest on demand deposits. Banks could still accept demand deposits and provide depositors with the convenience and safety of check transfers, but they would require payment for these services.

In contrast, one could easily hold a diametrically opposing view (eliminate reserve requirements) if one believes either that monetary policy is not important or that, if important, it is implemented through measures other than monetary aggregates (e.g., interest rates). For an economist with such views, there would be little gained from the tax imposed by reserve requirements if monetary policy is not effective.

Similarly, for a monetary policy implemented through interest rates, reserve requirements would seem superfluous.<sup>4</sup>

An important refinement was added to the 100 percent reserve requirement proposal in the 1940s. In an effort to eliminate the tax effect of 100 percent reserves, it was suggested that government pay interest on reserves. Perhaps the most familiar of these proposals was made by Milton Friedman,<sup>5</sup> who also proposed the elimination of controls on interest payments on deposits combined with free entry into banking. Like the basic 100 percent reserve requirement proposal, this system would give accurate control over the target monetary aggregate. The interest payment on reserves would serve to offset the reserve requirement tax.<sup>6</sup> Allowing market rates of interest on deposits along with free entry into banking would insure that interest payments on reserves were passed along to depositors. Paying interest on reserves remains one of the most viable proposals for resolving the problem of monetary control and the reserve requirement tax. One major problem with the proposal is the practical difficulty of determining the interest payment needed to offset the cost of holding reserves. Ideally, the interest payment to each bank would just compensate for the additional cost of meeting reserve requirements. Any higher payment would be a subsidy, any lower payment would not eliminate the tax. In addition, the specifics of how interest would be paid on reserves and how this would ensure accurate control over the monetary target have not been precisely spelled out.<sup>7</sup>

### The Proposal

This paper proposes a different solution to the problem of monetary control and reserve requirement taxes. This solution uses a reserve computation system presented by the author in an earlier article.<sup>8</sup> This system, referred to as the reverse lag, reverses the present system in which the required reserves a bank must meet is based on deposits two weeks before. Under the reverse lag, a bank matches required reserves in the current week to its reserves in the previous week. The reverse lag system allows the monetary authorities to accurately set weekly required reserves. Most importantly, it works no matter how low the level of reserve requirements. The essence of the operation of the reverse lag is that it allows a bank to easily match and keep required reserves equal to its reserves in the previous week.<sup>9</sup>

The problem dealt with in this paper is to translate the reverse lag's control over required reserves into a system giving accurate weekly control over a target monetary aggregate. Aside from the necessity of setting appropriate reserve requirements,<sup>10</sup> there is the problem of deposits held at non-member banks with reserve requirements different from those of member banks. An obvious solution is somehow to force every bank to meet the same reserve requirements. The problem with simply imposing uniform reserve requirements is that this imposes a tax on banks. Granted, reserve requirements could be reduced quite sharply so that the tax would be minimal. But a much better solution is available.

The problem of monetary control and the reserve requirement tax is essentially that banks receive no benefit for the imposition of reserve requirements that allow the monetary authority to control the target monetary aggregate. What is needed is something to compensate banks for reserve requirements. Fortunately, there already exists a benefit the government is uniquely qualified to provide and for which there appears to be great demand on the part of banks. This benefit is deposit insurance, presently provided by the Federal Deposit Insurance Corporation. It is proposed that the monetary policy functions of the Federal Reserve be merged with the deposit insuring authority of the Federal Deposit Insurance Corporation. This would allow the complete elimination of the present reserve requirements and reserve requirement tax while effectively translating control over required reserves into control over a target monetary aggregate. Present reserve requirements can be eliminated because changing the form in which deposit insurance charges are collected allows deposit insurance to replace the reserve requirement tax in controlling the target monetary aggregate.

Presently, insured banks pay an annual premium of  $\frac{1}{30}$  of 1% of all deposits (not just insured deposits) for deposit insurance. This would be transformed into a reserve requirement level that yields the same deposit insurance charges. Thus, with interest rates of 10%, a reserve requirement of  $\frac{1}{3}$  of 1% would cost banks the same amount as the present premium for deposit insurance. Any bank presently paying for deposit insurance (and almost all do) would be willing instead to hold reserves in payment for deposit insurance.<sup>11</sup>

Monetary policy would be conducted through changes in reserves. Banks holding reserves would be purchasing deposit insurance for deposits with that level of required reserves. Under the reverse lag computation system, banks can easily match required reserves to their reserve level in the previous week. Since all insured banks are matching required reserves to reserves, required reserves for the entire banking system are under control. Given appropriate reserve requirements, control over required reserves is equivalent to control over the target monetary aggregate. This control has been achieved while completely eliminating the present reserve requirements and the reserve requirement tax and without adding any new compulsory measures.

#### Role of Government

Merging the government's money issuing and deposit insuring functions might seem strange at first. But, even aside from the benefit for monetary control and the elimination of the reserve requirement tax, there are a number of attractive aspects to the merger. Most important, the proposal is consistent with a compelling economic rationale for both improving and simplifying the role of government in the financial system.

Why are deposits insured? A facile answer would be that insurance protects deposit holders from losses in the event of bank failure. But there are many financial assets held by the public that are not insured by government--insurance policies, real estate, bond holdings, stock holdings and some pension funds, Keogh Plans, and IRAs. There is an economic rationale for deposit insurance that uses the

same reasoning underlying reserve requirements. Reserve requirements are imposed to give the monetary authorities control over a target monetary aggregate. Presumably, control over a monetary aggregate is related to macroeconomic goals of importance to the economy. It seems natural that deposits included in the target monetary aggregate be under deposit insurance, because deposits are insured not to protect individual deposit holders, but rather to prevent widespread bank failures and the effects of a monetary contraction on the economy.

Why does government provide deposit insurance? If every bank failure were an independent event, deposit insurance could probably be provided more efficiently by private institutions. However, deposit insurance is most critical in a situation of widespread bank failures, such as the Great Depression. Providing deposit insurance against such possibilities seems a service that only government could provide.

What characteristics should be possessed by the government agency insuring deposits? Certainly, the most critical requirement is that the deposit insuring agency be capable of reimbursing depositors in the event of a bank failure. Under the present arrangement, it appears likely that in a serious emergency, additional governmental resources would be made available to the deposit insuring agency. Nevertheless, it is clear that concern over the adequacy of its reserves has been a factor in past actions of the deposit insuring agency. If this agency had the money creating powers of the monetary authority, such concerns--and indeed the necessity for a reserve at all--would be eliminated.

What factors determine the risk in providing deposit insurance? Again, if every bank failure were an independent event the risk of a bank failure would be determined solely by the characteristics of the individual bank. However, the possibility of widespread bank failures was a prime motive for the establishment of government deposit insurance. The periodic occurrence of widespread bank failures suggests that economic conditions play an important role in determining the risk of bank failure. This being the case, it seems reasonable to subject the monetary authority which is responsible at least in part, for economic conditions, to the effects on the deposit insuring agency.<sup>12</sup>

This section has argued that there are a number of attractive aspects to a merger of the money creating and deposit insuring functions of government. The same deposits whose control is thought important for monetary policy purposes because of their impact on economic activity, should, for the same reasons be protected by deposit insurance. Government has an advantage in providing deposit insurance, and the most important characteristic for the deposit insuring agency is the money-creating power of the monetary authority. Finally, because the behavior of the monetary authority is an important determinant of the risks involved in insuring deposits, it appears reasonable that it share in the costs and benefits.

The proposal presented here has another very important advantage for a monetary policy operating through control of a monetary aggregate. One major problem at present, even given accurate control over the

target aggregate, is the integrity of the target monetary aggregate. For example, one potential target monetary aggregate (M-1) was originally defined by including all those assets readily exchangeable for goods and services. The appearance of NOW accounts, ATS accounts, money market mutual funds, and corporate repurchase agreements that can serve the same role as demand deposits has raised the question of how accurately M-1 satisfies its original purpose. One result of the proliferation of new types of deposits and quasi-deposits has been an explosion in the number of different monetary aggregates published. Unquestionably, the principal reason for the proliferation of various surrogate deposits has been interest rate controls on various deposit categories, particularly the prohibition of explicit interest on demand deposits. Probably no single step would do as much to improve monetary policy as the total elimination of interest rate ceilings. Interest rate controls have been inequitable, inefficient, and ineffective, while introducing a great deal of uncertainty and confusion into monetary policy. But even if interest rate controls were removed, there would remain a problem in controlling the target monetary aggregate. There is always an incentive for the creation of an instrument that serves the same function as components of the target aggregate but is exempt from reserve requirements.<sup>13</sup> Linking reserve requirements to the purchase of deposit insurance eliminates the incentive to avoid the reserve requirement tax by removing the tax itself.

This paper deals exclusively with the form and ignores completely the appropriate level of charges for deposit insurance. It is possible

that a set of optimal charges for deposit insurance, however determined, might not be consistent with control over the target monetary aggregate. It suffices to show that any potential conflict can be resolved quite simply. Since the reverse lag will work no matter how low reserve requirements, it is always possible to find an appropriate set of relative reserve requirements to control the target monetary aggregate, at levels low enough that the cost of deposit insurance for any deposit is no higher than the optimal deposit insurance charge. Having achieved control over the target monetary aggregate, the charge for deposit insurance on any deposit is raised to the optimal level by imposing the appropriate insurance premium on the deposit. Thus, deposit insurance on some deposits could be purchased through both required reserves and premium payments.

#### Reserve Management

One aspect of the reverse lag requires a more elaborate exposition for a system with low reserve requirements like that proposed in this paper. If reserve requirements are very low (e.g., the 1/3 of 1% mentioned in this paper), it is possible that a bank with a severe deposit outflow at the end of the settlement week could end the week with negative reserves. Since under the reverse lag, a bank must match required reserves one week with its reserves the preceding week, negative reserves would appear to pose a grave problem for a bank. However, there are at least three solutions for this problem. One of the solutions, though unusual, would improve interbank adjustment and reserve management beyond its present functioning.

First, notice that because banks could use Federal funds transactions to eliminate negative reserve levels earlier in the settlement week, the problem of negative reserves would occur only at the end of the week. Notice also that reserves could not go negative for the entire banking system. These conditions suggest two solutions to the problem. One would be to allow banks to trade Federal funds after the close of business at the end of the settlement week as a way of eliminating any negative reserves. Another would allow banks to trade reserves held in the previous week.

A third solution is much different and probably superior. Strange though it seems, under both the present reserve computation system and the reverse lag, it is possible for a bank to have negative deposits for reserve requirement purposes. Since deposits "due from" other banks are subtracted from demand deposits, a bank can have negative deposits if its "due from" deposits at other banks are greater than its deposits held by the non-bank public. This arrangement suggests an alternative to the Federal funds market as a method of interbank adjustment. A bank that has more deposits than its reserves in the past week allow can achieve equilibrium by paying for deposits in its name at a bank with fewer deposits than allowed. These deposits move both banks to equilibrium, since the deposits serve both as "due from" deposits that are subtracted from demand deposits in computing required reserves for the deficient bank and "due to" deposits added to demand deposits for the surplus bank. This adjustment through deposits moves the banks to equilibrium and is a substitute for the Federal funds market in the

present lagged reserve system. Adjustment through interbank deposits makes bank adjustment consistent with banking system adjustment (the entire banking system must adjust through deposits, since it cannot change reserves).

Adjustment through interbank deposits has one important advantage over reserve adjustment through the Federal funds market. A Federal funds transaction involves the transfer of reserves through an unsecured loan. Lending banks are not indifferent to the credit worthiness of the borrowing bank and it is not surprising that banks have lists of approved borrowing banks. Banks in financial difficulty are cut off from the Federal funds market. The use of interbank deposits provides an additional instrument for interbank adjustment where the borrowing bank's credit worthiness can be essentially ignored. This is because the lending bank grants only a deposit on its books-- a deposit that should not be withdrawn and with specific maturity. Interbank deposit adjustment simplifies the adjustment process by removing the necessity of considering credit worthiness, and in contrast to the Federal funds market, eliminates the dependence of rates on the identity of the bank reducing its deficiency.

A remaining problem aggravated by the low level of reserve requirements is the risk involved for the clearing institution (whether the monetary authority or a private clearing house) in allowing negative reserves. Monetary authorities prohibit banks from ending the day with negative reserves, but they do allow a bank's intraday reserves to go negative. This phenomenon, dubbed "daylight overdrafts", has occurred with greater frequency in recent years. Ideally, a system should be

designed to give banks the flexibility of negative reserves (especially since negative reserves do not inhibit control of the target monetary aggregate) and yet remove the risk to the clearing institution. One solution would be to allow banks to deposit acceptable securities, such as Treasury bills, as collateral against possible negative reserves. A bank would be allowed negative reserves only to the extent of the value of the securities it had deposited as collateral.<sup>14</sup> This would protect the clearing institution against loss from bank failure, while allowing banks the flexibility of negative reserves.

Allowing banks to cover negative reserve positions with acceptable collateral helps answer a question that may occur to the reader. The proposal in this paper describes a system with very low reserve requirements. Yet, banks would voluntarily hold reserves even in the absence of reserve requirements. Is it possible that, under the proposal, banks will choose to hold more reserves than required for deposit insurance and thereby disrupt control over the monetary aggregate? To see why this will not happen, consider why banks hold reserves. A bank holds reserves because it believes them the cheapest way to avoid a deficiency. Under the reverse lag system a bank knows both how to eliminate any reserve requirement deficiency at the beginning of the week and that outside factors cannot make it deficient within the week. So it has no incentive to hold any reserves against a deficiency in required reserves. Indeed, as noted above, it can even have negative reserves within the week and come to reserve requirement equilibrium in the following week.

However, the deficiency against which a bank would voluntarily hold reserves in the absence of reserve requirements is of another type. Suppose a depositor withdraws currency from his checking account. The rise in currency offsets the fall in demand deposits and since, under the reverse lag, vault cash is subtracted from demand deposits in computing required reserves, required reserves do not change. But suppose the bank does not have enough vault cash to meet the demand for currency. This is deficiency in a more fundamental sense. A bank will have to hold vault cash to protect against this type of deficiency even under the reverse lag. The vault cash a bank holds might be much larger than the reserves held to purchase deposit insurance, but it will not interfere with control over the target monetary aggregate.

A similar type of deficiency can occur if a bank's net clearings at the clearing institution are sufficiently adverse to cause reserves to become negative. If the clearing institution requires collateral but lets reserves go negative it eliminates the possibility of a bank being deficient. The bank's deficiency problem is then transformed into whether it has sufficient collateral to cover any possible negative reserves.

A bank's voluntary demand for protection against these fundamental types of deficiency is satisfied by its vault cash and securities on deposit at the clearing institution. These may be many times the value of the bank's reserves used to purchase deposit insurance but, under the proposal, neither the vault cash nor securities on deposit affect reserves or the target monetary aggregate. In effect the proposal

separates the two functions currently served by reserves--control over the target monetary aggregate and protection against deposit outflows. Additionally, the proposal allows banks to earn interest on protection held against clearing imbalances.

#### Conclusion

The merger of the monetary authority with the deposit insuring agency would simplify and rationalize the government's role in the financial structure. Monetary policy would be directed to changes in the target monetary aggregate and implemented entirely through open market operations. Under the reverse lag computation system, banks would accurately match required reserves in one week to reserves in the previous week. In doing this banks would obtain deposit insurance on all reservable deposits in return for reserves held in the previous week. This would give accurate weekly control over the target monetary aggregate and would completely eliminate the reserve requirement tax without additional compulsory measures. Reserve requirements could be set at a level that produces the same charges as presently imposed for deposit insurance. However, the proposal neither requires nor depends upon any particular arrangement of either charges for deposit insurance or regulatory responsibilities and is compatible with any arrangement.<sup>15</sup>

The merger of the money issuing and deposit insuring agencies seems to have advantages for everyone. It gives the monetary authorities accurate weekly control over the target monetary aggregate. It removes the necessity of their compensating banks for reserve requirements either by interest payments or by the provision of services,

eliminating the problem of determining the appropriate interest payments on reserves and the problem of pricing services provided to banks.<sup>16</sup> Further, it reduces the possibility of other financial instruments serving as substitutes for components of the target monetary aggregate.

The proposal helps the deposit insuring agency by removing all questions of the agency's ability to meet its contingent liabilities. Indeed, it makes the question of the adequacy of reserves superfluous. The proposal does not change the agency's revenues from deposit insurance, only the method by which they are obtained. To the extent that more accurate control over a monetary aggregate reduces economic volatility, the deposit insuring agency benefits from the reduction in the risk of bank failure.

Banks benefit from the proposal, both from the reduction in the costs of portfolio and reserve management due to the adoption of the reverse lag and from the elimination of the reserve requirement tax. The public shares in the benefits to the economy of an improved monetary policy. Bank customers benefit from the passing on of the gains obtained from elimination of the reserve requirement tax.

The only possible loser might be the taxpayer through the reduction in Treasury receipts from the reduced level of reserve requirements. Whether there would, in fact, be a loss is not clear. First, the great majority (approximately 75 percent) of securities held by the monetary authorities arise from currency issuance, not reserve requirements, and would be unaffected by the proposal. Second, the monetary authorities

provide such services as check clearing and discount window lending free or below cost. These services are provided, and their attendant expenses to the Treasury arise, solely in an effort to offset the cost of reserve requirements and would be unnecessary under the proposed system. More importantly, it is almost certain that the present system will eventually, if it does not now, cost the taxpayers rather than benefit them. As withdrawal from reserve requirements becomes more widespread, only banks that receive services that exceed in value the cost of their reserve requirements (primarily big banks that can market such services as check clearing to their correspondents) will continue to meet reserve requirements. Unless one believes that these services can be more efficiently provided by the monetary authority than by the private sector, this will involve both a cost to taxpayers and an inefficient allocation of resources for society.<sup>17</sup> Finally, it is not clear why banks and bank customers should be taxed to benefit society with a more accurate monetary policy. But if reserve requirements are intended as a revenue raising device then, in the interests of equity, they should be made universal. The system proposed here gives accurate control over a monetary aggregate without either the reserve requirement tax or the necessity of an offsetting subsidy.

## FOOTNOTES

The views expressed are those of the author alone and do not necessarily represent the views of the Federal Reserve Bank of Chicago or the Federal Reserve System. The author has benefited from the comments of Jack A. Galbraith, Chayim Herzig-Marx, Larry Mote, and Neil Pinsky.

1. If the monetary authorities could accurately predict excess reserves at any level, the level of reserve requirements would not be so critical.
2. Originally published in mimeographed form, Simon's proposal was reprinted in [11].
3. See [1, 3].
4. Interestingly, the author has been unable to find such an argument. The few arguments such as Carson's [2] against reserve requirements have been that they are not all that necessary in controlling a monetary aggregate.
5. See [4].
6. Interest payments were also proposed in [9, 12]. The earliest explicit proposal, the author has found, for paying interest on reserves is [10].
7. Some problems in using interest payments on reserves to help control a target monetary aggregate are described in [7].
8. See [6].
9. This paper and the reverse lag paper present only the basic framework of the proposed system. The complete system in extensive detail is described in [8].
10. That is, reserve requirements ought to be consistent with the target monetary aggregate. Control over M-1 calls for the elimination of reserve requirements against time and savings deposits, while control over M-2 calls for the same reserve requirements against all deposits.
11. Reserve requirements can be adjusted periodically (e.g., annually) to offset the effect of changes in interest rate levels and maintain the same charge for deposit insurance.

12. This connection between the actions of the monetary authorities and the risk of bank failure was noted by Gibson [5].

13. It's conceivable that even with market interest rates paid on all deposits, ATS accounts, NOW accounts, repurchases, and money market mutual funds would still be attractive since they have the advantages of interest yielding demand deposits while effectively reducing the reserve requirements against demand deposits. This is particularly true at times of high interest rates.

14. Experience indicates that banks would voluntarily hold securities equal to less than 7% of their deposits for clearing purposes since they apparently find present reserve requirements excessive.

15. Although outside the topic of this paper, the proposal is ideally compatible with open entry into banking and confining government regulation to the granting of deposit insurance.

16. One prominent service presently offered without charge by the monetary authority is check clearing. It seems desirable to have check clearing performed by the private sector. A private clearing house could settle by reallocating reserves held with the monetary authority among banks at the end of the day.

17. Another way of expressing it is that a voluntary tax, once understood to be voluntary, will not raise revenue.

### Literature Cited

1. Angell, J. W. "The 100 Per Cent Reserve Plan." Quarterly Journal of Economics, L (November 1935), pp. 1-35.
2. Carson, Deane. "Is the Federal Reserve System Really Necessary?" Journal of Finance, XIX (December 1964), pp. 652-661.
3. Fisher, Irving. 100% Money. New York: Adelphi Company, 1935.
4. Friedman, Milton. A Program for Monetary Stability. New York: Fordham University Press, 1959.
5. Gibson, William E. "Deposit Insurance in the United States: Evaluation and Reform." Journal of Financial and Quantitative Analysis, VII (March 1972), pp. 1575-1594.
6. Laurent, Robert D. "Reserve Requirements--Are they Lagged in the Wrong Direction?" Journal of Money, Credit, and Banking, XI (August 1979), pp. 301-310.
7. Laurent, Robert D., and Larry R. Mote. "Some Neglected Problems in Paying Interest on Reserves." Forthcoming Staff Studies, Federal Reserve Bank of Chicago.
8. Laurent, Robert D. "A Comprehensive Proposal for Revision of the Institutional Structure in which Monetary Policy is Conducted." Forthcoming Staff Studies, Federal Reserve Bank of Chicago.
9. Mints, Lloyd W. Monetary Policy for a Competitive Society. New York: McGraw-Hill, 1950.
10. Seltzer, Lawrence H. "The Problem of Our Excessive Banking Reserves." Journal of the American Statistical Association, 35 (March 1940), pp. 24-36.
11. Simons, Henry C. Economic Policy for a Free Society. Chicago: University of Chicago Press, 1948.
12. Tolley, George S. "Providing for Growth of the Money Supply" Journal of Political Economy, LXV (December 1957), pp. 465-485.