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Payment of Interest by the Federal Reserve to Depository Institutions: An Analysis

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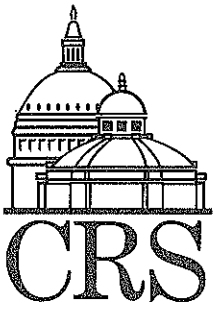

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ABSTRACT

This report examines the proposal for Federal Reserve Banks to pay interest on reserves that are held with them by depository institutions. The nature of reserves and their recent trends are presented. The rationale for paying interest on these reserves is explained. Alternatives, potential benefits and costs, and budgetary impact are analyzed. The report will be updated only to reflect important developments or new research concerning the potential economic effects of paying interest on reserves.

Payment of Interest by the Federal Reserve to Depository Institutions: An Analysis

Summary

During 1997, the reserves of banks held with the Federal Reserve System (Fed) fell below $10 billion for the first time since 1939. Reserves are *the* part of the money supply generated and controlled by the government. The Fed manipulates these reserves to influence interest rates and the money supply in an $8 trillion economy. As they grow smaller, the Fed has become increasingly concerned about its ability to continue conducting its policy using its current operating procedures.

The problem for the Fed is that with lower required reserves, the cash in the vaults of banks is enough to meet reserve requirements, and many banks are only holding reserves for clearing purposes. This phenomenon has the potential to increase the volatility of the federal funds interest rate. The Fed regards this volatility as serious because market participants watch the rate to gauge the stance of Fed policy. So far, there is not much evidence of a connection between federal funds rate volatility caused by thin reserves and overall economic performance.

Raising reserve requirements is not an attractive option. The higher (non-interest bearing) reserve requirements are, the more likely it is that more of the payments system will move out of the banking system, and the Fed finds more of the monetary system outside its direct influence.

The Fed has helped smooth out some of this volatility by creating "required clearing balances" which earn implicit interest. The Fed, however, wants to be able to pay interest on required reserves. It hopes this will boost the funds held in accounts that require reserves, boosting reserves and reducing potential interest rate volatility. If the Fed paid interest on reserves, it would earn less and the Treasury would get less. The annual revenue loss would probably be $500 million or less.

Interest on reserves is not the only option for dealing with potential federal funds interest rate volatility. One option would be to change the Fed's policy toward discount window lending. Another alternative would be to have the open market desk intervene in the market more frequently during the day. Another approach might be to announce more explicitly the Fed's interest rate targets. If interest is to be paid on reserves, it is also possible to limit the payment only to reserves above a certain level. In any case, it has not been established whether a change in reserve policy would have any discernable effects on economic management.

The Federal Reserve would also like to be able to pay interest on reserves held in excess of requirements. If interest were paid on excess reserves, banks would be encouraged to hold even greater reserve levels. Moreover, such a policy would put a floor under the federal funds rate. But payment of interest on excess reserves would have different effects on monetary control than payment on required reserves. The use of any type of reserve aggregate target would be substantially foreclosed by the payment of interest on excess reserves. With interest on excess reserves, an interest rate target of the type currently used by the Fed would require much greater injections or removal of reserves to accomplish any given interest rate change.

Contents

Reserves 1
The Nature of Bank Reserves 1
Recent Trends in Bank Reserves 2

The Policy Problem 2
Fed Operating Procedures 2
Thin Reserves and Interest Rate Volatility 3

Responses 4
"Required" Clearing Balances 4
Sweeps 5
Why Not Higher Reserves? 6

Interest on Reserves 7

Concerns 8
Options 8
Caveats 9
Cost and Who Bears It 10
The Seriousness of the Problem 11

List of Figures

Reserves Held at Federal Reserve Banks 2

Payment of Interest by the Federal Reserve to Depository Institutions: An Analysis

During 1997, the reserves of banks held with the Federal Reserve System (Fed) fell below $10 billion for the first time since 1939. A decline in these bank reserves has been under way for at least a decade, and has been especially pronounced over the past 4 years, largely due to financial innovation.

It is upon these reserves that the Fed conducts its monetary policy for an $8 trillion economy. As they grow smaller, the Fed has become increasingly concerned about its ability to continue conducting its policy using its current operating procedures. One approach to dealing with this potential problem is for the Fed to pay interest on these reserves, making it less onerous for banks to hold them, and thereby decreasing the current incentive of banks to minimize their size. This approach has been advocated by the Fed and has been embodied in proposed legislation, most notably S. 1405 and H.R. 2323.[1]

Reserves

The Nature of Bank Reserves

In any modern economy, most money is generated by the banking system[2] in the form of checks, wire transfers, and other debiting mechanisms. For a given bank, checks are both credited and debited, funds are both deposited and withdrawn, and other fund transfers occur as inflows and outflows. Consequently, the *net* outflow or inflow is but a fraction of the total amount of transactions conducted with the bank.

To handle the net outflow at any given time, a bank keeps on hand a certain amount of cash. In addition to this, it will usually maintain funds on deposit with the Federal Reserve System (Fed) for clearing transfers between banks. These balances, along with the currency held in banks' vaults, constitute reserves.

Reserves are important because they are *the* part of the money supply generated and controlled by the government. It is through the manipulation of reserves that the

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[1] This report focuses on the issue of declining reserves and the proposal to pay interest on reserves. It is not intended to track legislative developments. It will be updated only to reflect important developments or new research concerning the potential economic effects of paying interest on reserves. For current information about pending legislation, please consult the Legislative Information System (LIS) at http://www.congress.gov.

[2] "Banking" and "banks" in this report refer to all depository institutions, including savings and loans and credit unions, as well as banks narrowly defined.

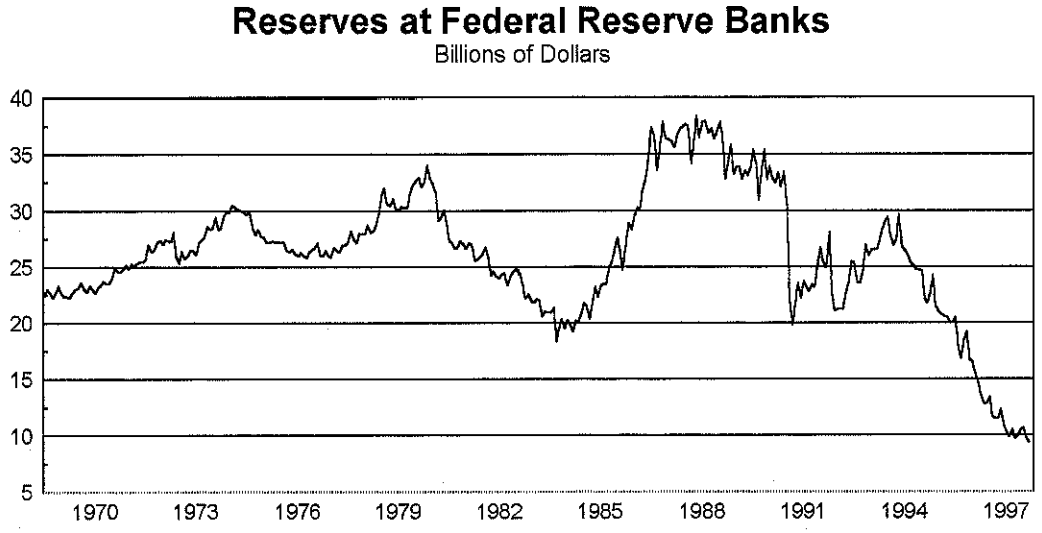
Fed influences interest rates and the money supply. In buying government securities and crediting the purchase amount to a bank's account, the Fed creates reserves. When selling reserves and debiting a bank's balance, the Fed reduces reserves. Since bank reserves bear a relationship to the total amount of business conducted by the bank, the Fed's actions thereby affect the amount of accounts banks generate, and the interest rate at which funds are borrowed and lent.

To augment the Fed's influence, the Federal Reserve Act requires banks to hold a certain percentage of their accounts as reserves. Requirements boost the amount of reserves that banks hold to a level higher than would be held simply for clearing purposes. The reserves held on account with the Fed do not earn interest.[3]

Recent Trends in Bank Reserves

Reserves are but a small fraction of the total money supply. Currently, they are about $45 billion. This compares with a narrow money supply measure (M1) in excess of $1 trillion. Most of the reserves consist of vault cash. Reserves on deposit with the Fed are about $10 billion. This means that the Fed conducts its monetary policy for an $8 trillion economy by buying and selling in a market of only $10 billion.

As shown in the above figure, reserves have been declining. In inflation-adjusted



terms (the figure above is in nominal dollars) or relative to the total money supply, the decline has been even more dramatic. A dollar in 1998 has the buying power of about 26 cents in 1969, at the beginning of the period shown in the figure. Depending on the measure used, the aggregate money supply is 5 to 7 times what it was in 1969. Yet, reserves are well under half the level they were.

In 1990, the Fed eliminated reserve requirements for non-transactions accounts. Consequently, reserves are required only for accounts upon which funds may be

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[3] There is a mechanism for paying implicit interest on certain clearing balances, as explained below.

transferred to third parties, such as checking accounts. Requirements against transactions accounts were lowered in 1992. These two changes lowered reserves significantly. Reserves increased somewhat as the economy improved in 1993, but since early 1994, reserves have fairly steadily declined. An important reason for the decline since 1993 has been a series of innovations that have assisted banks in reducing their requirements.

The decline in reserves does not necessarily make the Fed less powerful. While it is true that the amount of money the Fed controls directly has become very small relative to the economy, the implication is that the Fed's leverage has actually *increased*: dollar for dollar, a given change in reserves has the potential to affect the economy more than it had in the past. The problem with reduced reserves is that they create problems for the Fed's operating procedures.

The Policy Problem

Fed Operating Procedures

The Fed buys and sells securities, crediting and debiting bank accounts in the process. Credits create bank reserves while debits reduce bank reserves. The immediate aim of policy is to achieve a given level of the federal funds rate, which is the rate at which banks borrow and lend reserves to each other. The Fed's monetary policymaking body, the Federal Open Market Committee (FOMC) chooses a federal funds rate goal based on its assessment of what rate will be associated with a given level of economic activity.

On a daily basis, the Fed's open market desk conducts its operations to keep the rate relatively steady. It tries to do this without churning the market with many interventions. But it conducts its business with the knowledge that swings in the federal funds rate are often interpreted as changes in policy. Consequently, it tries to estimate banks' demands for reserves so that it can supply the appropriate amounts in a limited number of transactions.

If banks are short of reserves, they have the alternative of borrowing reserves from the Fed through its discount window. Although the discount rate is typically lower than the federal funds rate, banks are generally reluctant to resort to the discount window. The Fed discourages discount window borrowing by imposing conditions on such advances. And because the onerous conditions of borrowing make banks reluctant to borrow, borrowing at the discount window is seen in the market as a sign of distress, making banks even more reluctant to borrow because of the stigma attached.

Reserve requirements are calculated as an *average over two weeks*. That is, a bank does not have to meet a specified percentage of its deposits each day, but over

two weeks it has to have an average level of reserves equal to a percentage of the average of deposits over two weeks.[4]

Balances needed for clearing, however, are needed on a *daily basis*. During the day, the Fed permits banks to overdraw their accounts. If funds transferred from bank A to bank B exceed bank A's reserve account balance, the negative balance is permitted — during trading hours. But at the end of the day the account balance must be positive. Overnight overdrafts are penalized so substantially that no bank wants to complete the day with a negative account balance at the Fed.

Consequently, if a bank is holding reserves for the purpose of meeting reserve requirements, it does so over a two-week period, so that an excess or shortage in one day can be averaged against the opposite the next day. But if a bank holds reserves for clearing purposes, it does so on a daily basis. A shortage one day cannot be offset the next, and therefore cannot be tolerated. An excess in one day cannot be carried over, and thus is wasted in the sense that it earned no interest and served no useful purpose.

Thin Reserves and Interest Rate Volatility

The problem facing the Fed is that because reserve requirements have been lowered, many banks are only holding reserves for clearing purposes. The cash in the vault is enough to meet reserve requirements (or the cash plus clearing balances are). Hence, the only reason to have funds on account at the Fed is for clearing. This means that many banks are no longer making decisions about reserves based on a two-week period, but must make their choices on a daily basis.

The smoothing properties of averaging reserves over a two week period are lost when banks must choose a level of reserves for one day at a time. This introduces volatility into the reserves market. When a bank feels it must absolutely have sufficient reserves (but no more) to avoid a negative balance at the end of the day, it will be willing to pay a very high interest rate to borrow enough reserves should it find itself short. Moreover, if it turns out to have an excess at the end of the day, the bank is willing to lend out its extra reserves at even a low interest rate. Consequently, the federal funds market can experience dramatic swings as banks either scramble for funds when they are short or dump funds when they have an excess at the end of the day.

This contrasts with the situation in which banks are holding funds to meet required reserves in addition to clearing balances. In this instance, a bank has a cushion in case it suddenly experiences a drain at the end of the day. If the cushion is partly used, extra can be held later in the week to achieve the average level that is needed to meet reserve requirements. Consequently, the federal funds rate tends not to fluctuate as much when substantial reserves are required.

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[4] The calculation is somewhat more complicated. Vault cash applied against reserve requirements is the vault cash from the reserve maintenance period of 30 days before. There are also provisions for a limited carryover into the next maintenance period of excess or deficient reserves.

Because the Fed tries not to intervene in the market too many times during the day with its open market purchases and sales, it has constrained itself in just how much it can smooth out the federal funds rate during the day. Because banks try to avoid the discount window, another potential route for smoothing the federal funds rate is also lost. The Fed regards the fluctuations as serious because market participants watch the rate to gauge the stance of Fed policy. A fluctuating rate also makes it difficult for banks to judge the cost (in terms of forgone interest) of holding reserves, which in turns affects their decision on how much in reserves to hold.

Responses

During the early 1990s, the federal funds rate became significantly more volatile as a result of the phenomenon just described. Since then, the situation has improved. Volatility has decreased even though reserves are lower (as a percent of deposits) than they were immediately after the decreases in reserve requirements. In all likelihood, this has occurred because banks have become more skilled in choosing a level of reserves to hold that will avoid scrambling for or dumping of reserves on the federal funds market.

"Required" Clearing Balances

This term is something of a misnomer since the balances are neither required nor entirely for clearing. But the program permits the Fed to pay a form of interest on reserves that banks otherwise would not be holding. The way in which the program works is that each bank has the option of declaring how much in such reserves it will be holding during the two week maintenance period. As an incentive to hold the reserves, the Fed pays interest in the form of credits that the bank can use to reimburse the Fed for services the Fed provides (and by law must charge for) such as check clearing.

The bank gets no credits if it fails to reach its "required" clearing balance level. But since the "requirement" is a two-week average, the maintenance of these reserves helps smooth out the federal funds rate much the same way as required reserves. Banks are still subject to the same penalties for overnight overdrafts. Consequently, the extra reserves from one day cannot be used to cover clearing needs the next. But extra reserves one day can be averaged in calculating the achievement of the two-week requirement so that the arrangement encourages banks to hold more reserves on a bi-weekly basis and helps smooth the volatility in the market.

Because the credits are only good for Fed services, there is an upper limit on the interest that a bank can earn on its required clearing balances. Once it earns enough to pay for the services it gets, there is nothing more to be gained by holding more reserves.

Sweeps

Despite the institution of the required clearing balance program, reserves have continued to decline. Because interest is not paid on reserves, and reserves are not

imposed on all types of accounts, an incentive exists to minimize the amount of money in the accounts that require reserves. The incentive applies to banks and depositors alike. Because a bank earns less on reservable accounts, it pays less interest on them. Depositors, then, look for ways to place more money in other, non-reservable accounts, in order to earn more interest on their funds.

A variety of cash management techniques are employed to minimize the opportunity cost that indirectly comes from required reserves. Interestingly, the biggest customers, corporations, have an added incentive to reduce the sums they keep in reservable accounts. Under Federal statute, corporations are not permitted to hold checkable deposits that earn interest.

A holdover from interest rate ceilings on deposits imposed in the 1930s, no interest may be paid on demand deposits — the most common form of checking accounts. For individuals, this prohibition is no longer very meaningful because reforms in the early 1980s permit individuals to earn interest on other accounts upon which they can write checks, virtually indistinguishable from demand deposits. However, these alternative checkable accounts are not available to corporations.

As a result, corporations have a strong incentive to minimize what they keep in their checking accounts. Since checking accounts are the very kind of accounts against which reserves must be held, the prohibition of interest on demand deposits serves to reduce required reserves in the banking system even more than would otherwise be the case.

The innovation on the part of banks that has had the most dramatic effect on the size of reserve requirements is the "sweep" account. Under sweep arrangements, a bank at the end of the day automatically removes the balance in a transactions account and places it in another, higher interest earning account.

Sweep arrangements for corporations have existed in some form for well over a decade. But technology has reduced the costs of implementing them, thus making them more popular. Recently, sweeps have become available to individuals. Some of these arrangements permit the sweep of part of a checking balance into a savings account, with provisions for a limited number of overdrafts that can be funded out of the savings account. The significance of the consumer sweep accounts is that they are motivated entirely by the costs imposed by reserve requirements, in contrast to the corporate sweeps, which were at least partly motivated by the prohibition of interest on demand deposits.

With the decrease in costs of administering such devices, they can be offered more commonly. But smaller banks tend not to be able to set up such arrangements. And smaller corporations are often unable to secure them.

Why Not Higher Reserves?

A natural question to ask is why the Fed doesn't simply raise required reserves. The rationale for lowering reserves was to improve the financial health of banks. Bank balance sheets were in poor condition in the early 1990s. The Fed ostensibly reduced reserves to increase banks' earning power. By reducing reserve requirements

(and thereby reserves), the Fed increased the percentage of bank assets on which banks could earn interest.

While this may have possibly helped bank profitability in the period immediately after the reduction, it is unlikely to have helped much over the longer run. Banking is a competitive industry and banks are likely to pass on the interest earnings to depositors as they compete for the deposits. This is particularly true of reserves against transactions deposits, which non-bank financial institutions don't provide.

Nonetheless, required reserves, because they are imposed only on depository institutions, put banks at a competitive disadvantage to other financial institutions. While other institutions are currently limited in their ability to provide bank-like products to consumers, the existence of reserve requirements gives non-banks a financial incentive to innovate ways to compete with banks. The pace of innovation in the financial industry has been rapid. It has often outpaced the ability of the government to deal with it in regulations. Consequently, while the payments system largely resides in the banking system now, there is no doubt that with enough incentive, it can move out of banking and into other financial firms more quickly than can regulations or laws be changed to control it.

The higher (non-interest bearing) reserve requirements are, the more likely it is that over time more of the payments system will move out of the banking system. As it does, the monetary system becomes more fragile and the Fed finds more of the monetary system outside its direct influence. Higher reserve requirements, therefore, may very well worsen the Fed's control of the money supply rather than enhance it.

Interest on Reserves

Paying interest on reserves held at Federal Reserve Banks[5] is one way in which reserve requirements could be raised without squeezing bank competitiveness. Current law does not appear to permit the Fed to pay interest on reserves (hence the system of credits for services used for the "required" clearing balances).

Section 19 of the Federal Reserve Act addresses bank reserves. The Fed is permitted to set reserve requirements between 8 and 14 percent on transactions accounts[6] and 0 and 9 percent on nonpersonal time deposits. The Fed is also permitted to impose supplemental reserve requirements equal to another 4 percent of transactions deposits.

The Fed is required under statute to pay interest on such supplemental reserves. But the Fed cannot impose supplemental reserves for the purpose of being able to pay

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[5] The proposals to pay interest on reserves are all limited to reserve balances held at the Federal Reserve Banks. There is no proposal to pay interest on vault cash used to meet reserve requirements.

[6] The rate is only 8 to 14 percent on deposits above $25 million; below that level, it is 3 percent.

interest. And in order to impose them, bank reserve requirements must already be 12 percent for transactions accounts and 3 percent for nonpersonal time deposits.[7] This latter feature clearly implies that the Fed is not permitted to pay interest on required reserves that are not supplemental.

The payment of interest on required reserves by itself would not do much to reduce volatility in the federal funds market. Reserves held in excess of requirements would not earn interest. Hence, there would be no incentive for banks to boost their reserves to a higher level than required. *The proposal envisions an increase in required reserves.*

To the extent that the payment of interest on required reserves reduces the cost of reservable deposits at the bank, the cost saving would be passed on to depositors who would have an incentive to hold more in such deposits — one source of an increase in required reserves. Coupled with an elimination of the interest ceiling on demand deposits (which it often is), there would be even greater incentive to increase funds held in reservable deposits.

So far, the proposal has not envisioned a formal increase in the reserve requirement. But a consequence of the proposal would be to make it easier to increase requirements. With the payment of interest on required reserves, a higher reserve requirement could be imposed without imposing greater costs on banks and putting them at a competitive disadvantage relative to other potential providers of financial payments services.

Concerns

Options

Interest on reserves is not the only option for dealing with the problem of potential federal funds interest rate volatility. The problem that the Fed is dealing with is a direct consequence of the operating procedures used. While these procedures have worked well in the sense that they have been part of a very successful anti-inflation policy, they are not the only procedures available to the Fed. Indeed, it is possible to conduct monetary policy without any reserve requirements.

In terms of decreasing federal funds rate volatility, another option would be to change the Fed's policy toward discount window lending. Recall that part of the problem with such thin levels of reserves is that banks typically do not avail themselves of the potential safety-valve provided by discount window lending, preferring to borrow federal funds at high rates rather than incur the stigma and heightened Board scrutiny that goes with discount window borrowing.

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[7] More technically, total required reserves must not be less than what they would be if the rates were 12 percent and 3 percent. Presumably, one rate could be reduced and the other raised as long as the total remained the same.

A significant enough change in discount window policy could remove the stigma that contributes to banks' current unwillingness to use the facility. In particular, if the Fed lent freely at a "penalty rate," it would be possible to set a ceiling on fluctuations in the federal funds interest rate.

Another alternative would be to have the open market desk intervene in the market more frequently during the day. In this way, reserves could be injected or removed as more information becomes available to the desk with respect to a likely shortage or surplus of funds.

Another approach might be to announce even more explicitly the interest rate targets the Fed is trying to achieve. The main concern with federal funds rate volatility is that it sends misleading signals to the market about the Fed's monetary policy stance. If the market knows what rate the open market desk is after, it will not misread temporary deviations from that rate as the reserve market adjusts to each day's changing demands. Thus, while volatility would remain, it would presumably cause little harm to the implementation of monetary policy. It is interesting to note that the problems of federal funds rate volatility attending low reserves were primarily in the early 1990s. It was only later that the Fed embarked on its current policy of announcing the results of its FOMC meetings. We do not yet know whether federal funds rate volatility would cause any problems in the current atmosphere of greater FOMC disclosure.

If interest is to be paid on reserves, one option is to limit the payment only to reserves above a certain level. For example, the statutory language of section 19 could be changed so that supplemental reserve requirements (which earn interest) could be imposed regardless of the level of current reserve requirements. Thus, the Fed could pay interest on required reserves *above* 10 percent of transactions deposits, but the first 10 percent would not earn interest.

Caveats

The Federal Reserve, in supporting the proposal to pay interest on required reserves, has indicated an interest as well in the ability to pay interest on excess reserves.[8] Payment of interest on excess reserves is not currently part of any of the legislation now before the Congress. Neither S. 1405 nor H.R. 2323 provide for more than interest on required reserves.

The reasoning behind the idea of interest on excess reserves is simple. If interest can be paid on reserves in excess of requirements, banks would be encouraged to hold even greater reserve levels, and would be much less subject to day-to-day variations in their need for clearing balances. Moreover, such a policy would put a floor under the federal funds rate, so that if banks had a surplus of reserves, they need not flood the market with them and drive the fed funds rate down below a certain level; they would find it more profitable to simply keep the funds as reserves and earn interest from the Fed.

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[8] Testimony of Laurence Meyer, Board of Governors of the Federal Reserve System, before the Senate Committee on Banking, Housing, and Urban Affairs. March 10, 1998.

But payment of interest on excess reserves could have radically different effects on monetary control than payment on required reserves. For open market operations to have any reliable connection to changes in economic activity, there must be a significant difference between the return on excess reserves and on alternative bank investments. If not, the bank becomes indifferent between whether it holds its assets as reserves or lends them out. An injection of bank reserves by means of an open market purchase by the Fed would not necessarily lead to increased lending by the bank, since the bank would find it nearly as profitable to hold the excess funds as reserves as to lend them.

The difference between what banks earn on reserves and vault cash on one hand, and investments and loans on the other is *the* critical linkage in the system that gives the Fed the ability to conduct monetary policy. When there is little or no difference, an open market purchase could easily result in reserves just sitting in the banks and not being used to expand lending -- because it is only the opportunity cost of holding reserves that causes banks to respond by lending more when an open market sale injects more reserves into the system.

The use of reserve aggregates (and possibly some types of monetary aggregates) as a target for implementing policy would be substantially foreclosed by payment of interest on excess reserves. With interest on excess reserves, even an interest rate target of the type currently used by the Fed would require much greater injections or removal of reserves to accomplish any given interest rate change.

Of course, the Fed would necessarily maintain some difference in the interest rate it pays on reserves and what banks could earn on alternative investments. Indeed, it could use the difference in the rates as an additional policy variable. But the smaller the difference in rates, the larger open market interventions would have to be to achieve a given level of monetary stimulus or restraint in the economy. More important, the "tightness" of the linkage between a given open market action and the economy would be reduced.

Moreover, the Fed's policy with respect to the discount rate suggests some skepticism about the likely use of the interest rate on reserves as a policy tool. The use of a penalty discount rate as an additional policy variable has been available to the Fed for some time, but not used. Even as the current discount rate policy exacerbates the problem of thin reserves, the Fed has not changed it. It seems possible that once the Fed started paying interest on excess reserves, it would find itself similarly constrained not to do otherwise, and thereby seriously prejudice its ability to shift to an operating procedures built around reserve aggregates.

This is not just an unlikely hypothetical scenario. The Fed has changed its operating procedures and targets a number of times over the last few decades, and may very well need to do so again. A policy of paying interest on excess reserves, even paying interest on required reserves, may not be something the Fed would feel free to change easily.

Cost and Who Bears It

Reserves are part of the money supply that the government creates.[9] And traditionally the government does not pay interest on money. The earnings from creating money (called "seigniorage") have traditionally been the province of government. Under current institutional arrangements, seigniorage is earned by the Fed as the interest on the government securities it holds. It passes the interest back to the Treasury. If it paid interest on reserves, the Fed would earn less and the Treasury would get less. To the extent that it would pay less on reserves than it earns on its investment of those reserves in Treasury securities, the Fed would receive some offset to its losses as reserves increased. But in any case, given the low current level of reserves (and the fact that they are continuing to fall), the revenue loss would be small, probably in the vicinity of $500 million or less per year.

Superficially, the payment of interest on reserves would benefit banks, increasing their earnings and producing greater profitability. But banks over time would likely compete away these profits in an effort to garner more accounts. The benefits of interest on reserves would almost entirely fall to depositors.

Small banks, however, might be adversely affected. To the extent that a bank meets its requirements with vault cash, it earns no interest, and small banks typically meet their requirements with vault cash, keeping only clearing balances at the Fed. Larger banks, which tend to meet their requirements on the margin with accounts held at the Fed, would then be able to offer more attractive terms on checking accounts as a result of payment of interest on reserves. The smaller banks would either have to give up business or earn a lower return on their transactions accounts.

The Seriousness of the Problem

The missing linkage in the case for interest on reserves is whether volatility in the federal funds market has any real economic effects. The thinking at the Fed is that the market gets important signals from movements in the federal funds rate, and that these signals result in market reactions that are an important part of the transmission of monetary policy to economic activity. Yet, if federal funds rate volatility does not have much in the way of real economic consequences, then the "problem" presents no difficulties.

So far, there is not much evidence of a connection between federal funds rate volatility caused by thin reserves and overall economic performance. The period in the early 1990s when volatility was greatest, does not seem to be characterized by any weakening of the Fed's ability to conduct monetary policy. The current environment of low reserves has neither produced federal funds interest rate volatility nor generated any obvious policy problems. More significantly, the Fed's recent policy

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[9] Formally, reserves are not added in as part of common money measures such as M1 and M2. That is because reserves don't circulate; banks hold them and replace them with deposit money. Hence, adding them in would double count their contribution. They are nonetheless the initial "money" in the system that gives rise to all other money in the system.

of announcing its policy changes after each FOMC meeting should mean that market participants no longer have to place so much importance on federal funds rate swings.

Research in the field has not established whether a change in reserve policy would have any discernable effects on economic management. Consequently, *there is yet little evidence that interest payments on reserves are essential for preserving the Fed's ability to implement monetary policy.*