Managing the Money Stock: A Time of Transition

Regulating the Eurocurrency Market: What Are the Prospects?
MANAGING THE MONEY STOCK: A TIME OF TRANSITION

Richard W. Lang

... The Monetary Control Act requires adjustments by depository institutions, regulators, and the public.

REGULATING THE EUROCURRENCY MARKET: WHAT ARE THE PROSPECTS?

Nicholas Carlozzi

... Increasing supervision appears to have a better chance than imposing reserve requirements.

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The Federal Reserve Bank of Philadelphia is part of the Federal Reserve System—a System which includes twelve regional banks located around the nation as well as the Board of Governors in Washington. The Federal Reserve System was established by Congress in 1913 primarily to manage the nation's monetary affairs. Supporting functions include clearing checks, providing coin and currency to the banking system, acting as banker for the Federal government, supervising commercial banks, and enforcing consumer credit protection laws. In keeping with the Federal Reserve Act, the System is an agency of the Congress, independent administratively of the Executive Branch, and insulated from partisan political pressures. The Federal Reserve is self supporting and regularly makes payments to the United States Treasury from its operating surpluses.
In March of 1980, Congress passed a law that already is changing the shape of the American financial industry. The Depository Institutions Deregulation and Monetary Control Act of 1980—Monetary Control Act or MCA for short—affects consumers and businesses by letting banks and other financial institutions compete more directly for deposits and loan customers. It also affects the nation’s monetary policymakers by giving the Federal Reserve System more institutions and more reserve balances to keep track of.

In the past, the Federal Reserve dealt mainly with its own member banks. These banks received services from the Fed, such as check clearing and wire transfers of funds, without paying explicit unit prices for them. But these services were not cost-free to the banks, since the banks had to keep reserve balances on account with the Fed—balances that earned no interest—based on their deposits. Thus member banks implicitly paid for Fed services by forgoing interest income on their reserves.

The Monetary Control Act requires the Fed to make its services available to all deposit-taking institutions, not just member commercial banks, on an explicit price schedule. It also requires all of these institutions to hold reserve balances based on their deposits. In the short term, these changes are likely to complicate the Fed’s task of managing the money supply. The year 1981 will be a time of transition for the Federal Reserve and the U.S. financial system as they both become accustomed to the new financial environment brought about by the MCA. But in the longer run, the extension of reserve requirements to all depository institutions is intended to improve the Fed’s control of the money supply.
MANAGING MONEY

Prior to October 1979, the Federal Reserve attempted to manage money growth by monitoring and modifying movements in short-term interest rates, particularly the Federal funds rate (the rate banks charge on overnight loans to one another). Today, the Fed places less emphasis on interest rates and instead focuses primarily on controlling the growth of bank reserves, pretty much in agreement with the textbook formula that the money stock is a product of bank reserves times a factor called the money multiplier. Simply put, the Fed now tries to achieve a desired rate of growth for the money stock by manipulating the growth of reserves.

Most depository institutions are required by regulation to hold reserves in amounts based on their deposits. And some institutions may choose to hold more than the legally required reserves, even though these excess reserves earn no interest.

When an institution finds its excess reserves rising above desired levels, however, it will move quickly to loan out more funds. Putting more loans on its books typically increases its deposits, since banks usually make loans by crediting funds to the accounts of their borrowers.

Increases in bank reserves thus lead banks to create more deposits. And since banks are required to hold reserves against only a small fraction of deposits, the financial system can support a large increase in deposits with a small addition to reserves. This expansion of deposits is what the money multiplier is supposed to gauge: it measures how much the money supply increases for each additional dollar of bank reserves.

How big is the money multiplier and how does it change from one week to the next? That may not be so easy to figure, and the MCA initially may make it harder. The money multiplier depends on which definition of money is being used (the Fed uses four common ones) and on how people decide to hold their money. If money is defined most narrowly as currency plus checking accounts in the hands of the nonbank public (M1A), for example, a certain money multiplier will apply. If it is defined to include all other kinds of transaction ac-

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1 With the implementation of the MCA, it is more appropriate to refer to reserves of the entire financial system than to reserves of banks only. An alternative framework that often is used in textbooks is to make the money stock equal to the product of a different money multiplier and the monetary base (reserves plus currency in circulation). Since the Federal Reserve's operating procedure focuses on reserves, not the monetary base, however, it is more convenient to talk in terms of reserves than of the base. A more extensive discussion of the money supply process can be found in most economics textbooks. See, for example, L.S. Ritter and W.L. Silber, Principles of Money, Banking, and Financial Markets, third edition (New York: Basic Books, 1980).

2 Before the MCA, the Fed required member banks to hold reserves in the form of vault cash or deposits at Federal Reserve banks, and state banking authorities required banks under their supervision to hold certain reserve assets, usually defined more broadly than assets eligible to satisfy Federal Reserve requirements. Under the MCA, all kinds of depository institutions will be required to hold reserves according to Fed regulations, but financial institutions with assets less than $2 million have been exempted initially.

3 A more extensive discussion of these points can be found in most textbooks. See, for example, Ritter and Silber.

4 M1A is defined as currency and commercial bank demand deposits (checking accounts) held by the nonbank public. M1B consists of M1A plus all other transactions accounts (such as ATS accounts and NOW accounts) at all depository institutions (such as credit unions, mutual savings banks, and savings and loan associations). M2 consists of M1B plus savings and small time deposits at all depository institutions, money market mutual fund shares, overnight Eurodollar deposits held by U.S. residents other than banks at Caribbean branches of U.S. banks, and overnight RPs (repurchase agreements) issued by commercial banks. M3 consists of M2 plus large time deposits at all depository institutions and term RPs at both commercial banks and savings and loan associations. For more information on the construction of the monetary aggregates, see "The Redefined Monetary Aggregates," Federal Reserve Bulletin (February 1980), pp. 97-114.
counts as well (M1B), a different money multiplier will be appropriate (Figure 1). If people decide to switch some of their funds from commercial bank checking accounts to savings accounts, the multipliers will change accordingly.

The Fed itself can affect the multiplier by changing the level of reserve requirements; in fact, the MCA involved such a change. And finally, depository institutions can choose to keep their reserves right at the required level or somewhat above it, and that choice will be reflected in the multipliers. In sum, the behavior of the Fed, the public, and banks and thrift institutions all can affect the multiplier.

It used to be that only member commercial banks had their reserves measured directly as part of the process of managing money growth. But the MCA brings nonmember banks and thrift institutions directly into the process, by extending reserve requirements to all depository institutions—such as mutual savings banks, savings and loan associations, and credit unions (see APPENDIX).

How does the Fed change the overall level of reserves in the system? In most instances, by buying or selling government securities in the open market. When the Fed buys government securities from a bank, for example, it pays for them by crediting the bank’s reserve account, thus increasing its reserves and its ability to make loans. Fed sales of securities decrease reserves, since the Fed debits the reserve account of the seller. These open market operations are the source of the Fed’s provision of nonborrowed reserves. Reserves can also be increased when banks borrow directly from the Fed.

To make its money management work under the MCA, the Fed has to decide which definition of reserves will yield the best monetary control as well as gauge the effects of the MCA on the money multipliers.

WHAT COUNTS AS A RESERVE?

Before the MCA, when only member banks...
had reserve requirements, actual reserves were fairly easy to define and to count. But with the spread of reserve requirements, the Fed has had to ask anew just what to count as a reserve for monetary policy purposes.

**Updating the Definition.** Member banks hold reserves in two forms—as credits in their accounts with the Fed and as cash in their own vaults. In the past, member banks' deposits at the Fed and their vault cash were counted in total reserves—the relevant figure for policy purposes. But member bank holdings of vault cash typically are small relative to the deposits against which they have to hold reserves, especially in comparison to vault cash holdings at thrifts.

Many nonmember commercial banks and thrift institutions have more vault cash than they need to meet reserve requirements, particularly now, since their reserve requirements are being phased in over an eight-year period and still are quite low. Since including this surplus vault cash at nonmember institutions in the reserve figure would introduce a conceptual discontinuity with the Fed's past definition of excess reserves, the Fed has been focusing on a measure of reserves that excludes surplus vault cash (Figure 2).

"Reserve balances plus vault cash used to satisfy reserve requirements" does not include "surplus vault cash at other nonmember institutions" but is thought to be "most consistent with the total reserve concept published historically."⁶

More than one measure of reserves is being watched by policymakers. Among them is a measure that includes surplus vault cash. But for the present, at least, the Fed is focusing on reserve balances at the Fed and required vault cash at financial institutions for purposes of monetary control.⁷

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⁶See the special explanatory note accompanying the Federal Reserve's H.4.1 Statistical Release dated November 21, 1980.

⁷Under the MCA, a nonmember depository institu-

**Keeping Track of Reserves.** Once reserves are defined, they still have to be measured each week in order for the Fed to control money growth under its reserve targeting procedure. Under a system called lagged reserve accounting, the Fed knows in advance the amount of reserves banks are required to hold in the current week because their current requirements are based on their deposits of two weeks earlier. Because depository financial institutions must file weekly reports of their deposits at the end of each week, the Fed can calculate the reserves they must hold in the next week to meet their reserve requirements.

Since total reserves consist of required and excess reserves, and since excess reserves are small relative to required reserves, the Fed knows in advance a large portion of the reserves banks desire to have each week. The Fed then has to determine what level of reserves it will supply and in what form—either through open market operations or through the discount window.

When reserve requirements for nonmembers became effective in early November of last year, however, there was some uncertainty about how much in the way of transactions accounts at banks and thrifts would be subject to reserve requirements, even with the lagged reserve accounting system. The weekly reports of deposits should have provided the Fed with information on the amount of reservable deposits in advance of the week in which MCA reserve requirements had to be held—the week of November 13, 1980. Initially, however, the Fed found it difficult to obtain accurate reports on a timely basis from both member institutions is permitted to satisfy reserve requirements by a pass-through account with another institution which does hold reserves on deposit with a Reserve Bank. The first institution holds funds at the second institution, which holds reserves for both of them at the Fed. Ultimately, the reserve requirements of both institutions are met by a combination of vault cash and a deposit with the Fed.

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FIGURE 2

FEDERAL RESERVE

Factors Affecting Reserves of Depository Institutions and Condition Statement of F.R. Banks

Reserves of depository institutions

<table>
<thead>
<tr>
<th>Reserve Bank credit, and related items</th>
<th>Week ended January 14, 1981*</th>
<th>Change from week ended January 7, 1981</th>
<th>Wednesday January 14, 1981*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reserve Balances with F.R. Banks</strong></td>
<td>(In millions of dollars)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reserve Bank credit:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S. Government securities--</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bought outright--System account</td>
<td>120,563 -1,404 + 1,830</td>
<td></td>
<td>121,571</td>
</tr>
<tr>
<td>Held under repurchase agreements</td>
<td>-- - 2,310 --</td>
<td></td>
<td>--</td>
</tr>
<tr>
<td>Federal Agency obligations--</td>
<td>8,739 -- + 523</td>
<td></td>
<td>8,739</td>
</tr>
<tr>
<td>Bought outright</td>
<td>-- - 311 --</td>
<td></td>
<td>--</td>
</tr>
<tr>
<td>Accepted</td>
<td>-- -- --</td>
<td></td>
<td>--</td>
</tr>
<tr>
<td>Other F.R. liabilities and capital</td>
<td>4,971 + 62 - 35</td>
<td></td>
<td>4,891</td>
</tr>
<tr>
<td>Total reserve bank credit</td>
<td>143,896 - 1,574 + 11,200</td>
<td></td>
<td>142,827</td>
</tr>
<tr>
<td>Reserve balances with F.R. Banks 2/</td>
<td>26,784 - 934 - 6,013</td>
<td></td>
<td>29,807</td>
</tr>
<tr>
<td>Total vault cash (estimated)</td>
<td>20,390 + 2,549 W/A</td>
<td></td>
<td>20,390</td>
</tr>
<tr>
<td>a) Vault cash at institutions</td>
<td>14,268 + 1,770 + 1,522</td>
<td></td>
<td>14,268</td>
</tr>
<tr>
<td>with required reserve balances</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Vault cash equal to required</td>
<td>700 -- W/A</td>
<td></td>
<td>700</td>
</tr>
<tr>
<td>reserves at other institutions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) Surplus vault cash at other</td>
<td>5,422 + 779 W/A</td>
<td></td>
<td>5,422</td>
</tr>
<tr>
<td>institutions 6/</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reserve balances + total vault cash 5/</td>
<td>47,287 + 1,606 W/A</td>
<td></td>
<td>50,310</td>
</tr>
<tr>
<td>Required reserves (estimated) 5/6/</td>
<td>41,865 + 827 - 4,549</td>
<td></td>
<td>44,888</td>
</tr>
<tr>
<td>Excess reserve balances at F.R. Banks</td>
<td>41,240 + 866 - 4,791</td>
<td></td>
<td>41,240</td>
</tr>
<tr>
<td>7/</td>
<td>625 - 39 + 242</td>
<td></td>
<td>3,648</td>
</tr>
</tbody>
</table>

On January 14, 1981, marketable U.S. Government securities held in custody by the Federal Reserve Banks for foreign official and international accounts were $92,983 million, an increase of $112 million for the week.

5/ Adjusted to include $113 million waivers of penalties for reserve deficiencies in accordance with Board policy effective November 19, 1975.

6/ Reserve balances with Federal Reserve Banks plus vault cash at institutions with required reserve balances plus vault cash equal to required reserves at other institutions.

7/ Reserve balances with Federal Reserve Banks plus vault cash used to satisfy reserve requirements less required reserves. (This measure of excess reserves is comparable to the old excess reserve concept published historically.)

Vault cash and required reserves are partially estimated.

a Estimated (San Francisco District).

** Estimated (Treasury's Figures).
and nonmember institutions. Nonmembers weren't familiar with the Fed's reporting system, and member banks were faced with more complicated reporting requirements than they had had before. Furthermore, the near tripling in the number of reporting institutions resulted in processing delays at the district Federal Reserve Banks and the Board of Governors.

These kinds of difficulties are only transitional, however, and have been largely alleviated. As weekly reserve accounting becomes more familiar to nonmembers, and as member banks become accustomed to the new reporting forms, there will be less difficulty in calculating the changes in required reserves at each of the subsequent steps of the phase-in of the new reserve requirements.

But even when the definitions of reserves and the procedures for reporting them have become well established, the Fed still will have to forecast how much money a given level of reserves will generate. That is, it will have to calculate—either explicitly or implicitly—values of the money multiplier.

HOW MUCH MONEY FROM RESERVES?
The Fed's Open Market Committee meets regularly to set target rates for money growth over, say, a three-month period. There are several target rates, one for each of the several definitions of money. The Board of Governors' staff then estimates a growth path for total reserves in the financial system. They also determine a path for nonborrowed reserves by subtracting out the FOMC's estimate of the reserves institutions will borrow from the discount window. In the course of this exercise, the Board staff implicitly estimates money multipliers (one for each definition of money). Under the MCA, the levels of the multipliers could change, and so could their tendency to vary from week to week and month to month.

Phasing in Reserve Requirements. The link between reserves and money is affected by changes in reserve requirements, so that the changes in legal reserve ratios for member and nonmember financial institutions at each step of the phase-in will result in changes in the money multiplier. For example, the increase in required reserves for nonmembers was smaller (up about $1.4 billion) than the decrease in required reserves for members (down about $4.1 billion) at the first step of the phase-in, so the money multiplier tended to increase.

As long as changes in total required reserves at each step of the phase-in to the new reserve requirements are known with reasonable precision, changes in the multiplier can be offset by changing reserves in the opposite direction via open market operations. Since the Fed will have fairly accurate information about reserve positions at both member and nonmember institutions, the phase-in of reserve requirements is not likely to result in significant uncertainties for monetary control.

Excess Reserves and Vault Cash. Holdings of excess reserves or vault cash also could be affected by the extension of reserve requirements to nonmembers. An increase in holdings of excess reserves or vault cash over what financial institutions held prior to enactment of the MCA would tend to lower the money multipliers. The reason is that institutions would be using less of their reserves or cash to make loans which generate additional deposits, so that the same level of


9Some data series on reserves are adjusted for changes in legal reserve ratios in order to avoid breaks in the historical data series. At present we are referring to reserve data which are not so adjusted.
reserves would be supporting a smaller level of deposits and money.

If the Federal Reserve were not using a new definition of excess reserves which excludes surplus vault cash at nonmember depository institutions (Figure 2, note 7), excess reserves would have increased after the introduction of the MCA reserve requirements to over $6 billion from pre-MCA levels, which were typically less than $500 million. The new, more narrowly defined measure of excess reserves has averaged less than $1 billion (Figure 3). Although the Fed receives weekly data from nonmembers, the majority of excess reserves could be estimated using only member banks' excess reserves, as has been the case in the past.

Since most of the increase in excess reserves relative to pre-MCA experience has been at members, excess reserves are likely to fall over time to pre-MCA levels. Whether they will be less predictable week to week remains to be seen.

Discount Window Borrowing. Another effect on the link between reserve and money growth could result from the extension of reserve requirements and Fed services to nonmember institutions. Since the MCA has opened the discount window to nonmember depository institutions, the FOMC will have to determine whether this new borrowing privilege will materially affect its assumption or estimate about the level of borrowing that is consistent with its short-run monetary growth path. The initial nonborrowed reserve path is based on the FOMC's assumption about or estimate of borrowings. Nonmember borrowing at the discount window will have to be taken into account in setting a nonborrowed reserve path that is consistent with desired money growth.

In the past, deviations from the total reserve path have occurred even though the Fed was on its nonborrowed reserve path because borrowings were larger or smaller than expected. Sometimes such deviations help the Fed attain its objectives for money growth, but sometimes they tend to hinder it. Furthermore, an increased variability of borrowings by nonmembers from the Fed would impart increased variability to the link between the nonborrowed reserve path and the money stock.

So far in 1981, nonmember borrowing at the discount window has been limited. So long as it remains low, nonmember borrowing will not have a significant impact on the link between reserves and money.

Nationwide NOW Accounts. The public's holdings of various types of deposits will be altered in 1981 because of the MCA's introduction of nationwide NOW accounts (negotiable orders of withdrawal). Although NOW accounts previously have been available in
eight states—the New England states, New York, and New Jersey—they were first offered in the rest of the nation beginning in January 1981. In the forty-two states in which they are being offered for the first time, individuals can be expected to shift funds into NOW accounts from both checking and savings accounts. As the mix of deposits held by individuals changes, the relation of reserves to money growth may change. The nature of the effect on money growth (with an unchanged growth of reserves) will depend on the particular monetary aggregate being considered.

For example, consider the aggregate M1A, which basically consists of currency plus demand deposits at commercial banks. The introduction of nationwide NOW accounts is expected to induce people to shift funds out of demand deposits and into NOW accounts. Even with reserves unchanged, people will want to hold fewer demand deposits relative to other deposits. Hence, M1A would be reduced. Put another way, the money multiplier for M1A would decline.

Now consider M1B, which consists of currency and demand deposits plus NOW accounts and other transactions-type deposits. A shift of funds out of demand deposits and into NOW accounts has no initial effect on M1B since both types of deposits are included in it. But if NOW accounts have lower reserve requirements than demand deposits, then banks would have more funds to lend out, and bank credit and deposits would expand. All types of deposits would increase in this case, including those in M1B. Consequently, under these assumptions, M1B would increase somewhat even if reserves were unchanged. Put another way, the M1B money multiplier would rise.

Of course, if the funds that are shifted into NOW accounts come from savings accounts, which are not included in M1B, then M1B would increase even if reserve requirements on the two types of accounts were the same. Even with total reserves unchanged, the M1B measure of money would increase; the M1B money multiplier would rise.

The changes in the M1A and M1B money multipliers as nationwide NOWs are introduced will depend on a number of factors, including how successfully thrifts compete transactions accounts away from banks and whether these accounts are drawn mainly from member or nonmember banks. The introduction of NOW accounts is likely to result in effects on the monetary aggregates similar to those that occurred when ATS (automatic transfer service) accounts were introduced in November 1978—a fall in the M1A multiplier and a slight rise in the M1B multiplier. The magnitudes of the changes, however, are more uncertain than they were when ATS accounts were introduced. The reason is that the structure of reserve requirements under the MCA’s phase-in is more complicated than the structure that existed when ATS accounts were introduced in 1978, which makes it more difficult to estimate the effects on the money multipliers.

The uncertainty in estimating the link between reserves and money growth which results from the introduction of NOW accounts, however, is only transitional. Once individuals have completed changing the composition of their deposit holdings among demand, NOW, and time or savings deposits, the relation of reserves to money (M1A or M1B) should be no less predictable than it was before the MCA was enacted.

**SUMMARY**

The Monetary Control Act of 1980 was

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intended to improve the ability of the Federal Reserve to control the money stock by changing the schedule of reserve requirements and by extending reserve requirements to all transactions accounts regardless of where they were held. Nonmember banks, mutual savings banks, savings and loans, and credit unions as well as member banks now must hold reserves.

Although the MCA ultimately will provide the type of control that Congress intended to give to the Federal Reserve System, there are some transition difficulties in going from the old system to the new. For one, there is the relatively simple matter of changing the definition of reserves. For another, the Fed’s current procedure for implementing monetary policy—the reserve targeting procedure—will be subject to greater uncertainties during this transition period. These uncertainties arise from adjustments in the behavior of both the public and financial institutions. The public’s behavior with respect to deposit holdings will be changing in response to the introduction of nationwide NOW accounts. Thrift institutions’ holdings of excess reserves and vault cash and their pattern of borrowing from the discount window also may be changing over time. Until more data are available on which to base estimates of thrifts’ short-run behavior, the Fed’s total reserve and nonborrowed reserve paths could be subject to greater errors than in the past, when only member banks were subject to reserve requirements.

The provisions of the MCA have not made the Fed’s reserve targeting procedure unworkable during this transition period. But there is little doubt that the Fed will have to monitor changes in reserve behavior and changes in monetary growth quite closely in the coming year in order to maintain continuity in its monetary policy objectives.

APPENDIX . . .
The Monetary Control Act places reserve requirements on all types of transactions accounts as well as on nonpersonal time deposits with maturities of less than four years. Transactions accounts are defined to include demand deposits, NOW accounts, ATS accounts, share draft accounts, and accounts subject to telephone or pre-authorized transfer when the depositor is authorized to make more than three transfers per statement period. Nonpersonal time deposits are defined as time deposits or accounts that are transferable or are held by a party other than a natural person. The MCA reserve requirements apply to all depository financial institutions—including commercial banks, savings and loan associations, credit unions, industrial banks, U.S. agencies and branches of foreign banks, and Edge Act and Agreement corporations. The following two tables show the reserve requirements that will apply after the MCA is fully phased in and the old reserve requirements which applied to member banks before November 13, 1980.

The Phase-In

The provisions of the Monetary Control Act call for the new reserve requirements to be phased in gradually—over a four-year period for member banks and an eight-year period for nonmember depository institutions. Only NOW accounts will be subject immediately to the full reserve requirement on transactions accounts—with the exception of the NOW accounts previously

### The Old Reserve Requirements for Member Banks

<table>
<thead>
<tr>
<th>Category of Deposit</th>
<th>Reserve Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Demand Deposits</td>
<td></td>
</tr>
<tr>
<td>$0-2 million</td>
<td>7%</td>
</tr>
<tr>
<td>$2-10 million</td>
<td>9.5%</td>
</tr>
<tr>
<td>$10-100 million</td>
<td>11.75%</td>
</tr>
<tr>
<td>$100-400 million</td>
<td>12.75%</td>
</tr>
<tr>
<td>Over $400 million</td>
<td>16.25%</td>
</tr>
<tr>
<td>Savings Deposits</td>
<td>3%</td>
</tr>
<tr>
<td>Time Deposits</td>
<td></td>
</tr>
<tr>
<td>$0-5 million, by maturity</td>
<td></td>
</tr>
<tr>
<td>30-179 days</td>
<td>3%</td>
</tr>
<tr>
<td>180 days to 4 years</td>
<td>2.5%</td>
</tr>
<tr>
<td>4 years or more</td>
<td>1%</td>
</tr>
<tr>
<td>Over $5 million, by maturity</td>
<td></td>
</tr>
<tr>
<td>30-179 days</td>
<td>6%</td>
</tr>
<tr>
<td>180 days to 4 years</td>
<td>2.5%</td>
</tr>
<tr>
<td>4 years or more</td>
<td>1%</td>
</tr>
</tbody>
</table>
authorized in New England, New York, and New Jersey.

During the ten-month period beginning in November 1980, the amount of required reserves for nonmember institutions is one-eighth of the full requirement. The amount will increase by one-eighth in September of 1981 and each September of the following six years.

Reserve requirements for member banks on transactions accounts and time and savings deposits were phased down by one-fourth of the difference between the amount under the old and new reserve requirement structures on November 13, 1980. They will be reduced by an additional one-eighth in September 1981 and by a further one-eighth at six-month intervals thereafter. To reduce the phase-in calculations for member banks, reserve requirements on time deposits under the old structure are determined by applying the average reserve ratio on time deposits at each bank for the two-week period ending August 6, 1980 to the total amount of time deposits. This fixed average reserve ratio on time deposits will be used throughout the members' phase-in period.

Nonmember depository institutions with less than $2 million in total deposits will not have to hold required reserves until at least May 1981. In addition, all depository institutions with total deposits of between $2 million and $15 million have to report only on a quarterly basis rather than weekly.

Newly chartered banks and banks that become members of the Federal Reserve System after March 31, 1980 will have a two-year phase-in period.

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### The MCA's Reserve Requirements

<table>
<thead>
<tr>
<th>Category of Deposit</th>
<th>Reserve Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transactions Accounts</td>
<td></td>
</tr>
<tr>
<td>First $25 million*</td>
<td>3%</td>
</tr>
<tr>
<td>Amounts greater than $25 million*</td>
<td>12%</td>
</tr>
<tr>
<td>Nonpersonal Time Deposits</td>
<td></td>
</tr>
<tr>
<td>Maturities less than 4 years</td>
<td>3%</td>
</tr>
<tr>
<td>Maturities of 4 years or more</td>
<td>0</td>
</tr>
<tr>
<td>Personal Time Deposits</td>
<td></td>
</tr>
<tr>
<td>Nontransferable</td>
<td>(no reserve requirement)</td>
</tr>
<tr>
<td>Transferable</td>
<td>(see Nonpersonal)</td>
</tr>
<tr>
<td>Eurocurrency Liabilities</td>
<td>3%</td>
</tr>
</tbody>
</table>

*The base figure of $25 million will be adjusted annually beginning in 1982 based on the changes in transactions accounts during the previous year.*
From the Philadelphia Fed...

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Regulating the Eurocurrency Market: What Are the Prospects?

By Nicholas Carlozzi*

During the 1970s, the rising costs of complying with national banking regulations spurred many U.S. and foreign financial institutions to extend their international banking operations beyond their home countries. By channelling international borrowing and lending through foreign offices, they found that they could avoid national banking regulations and increase their profitability sharply. These offshore banking operations, denominated in currencies other than those of the nations in which the transactions take place, make up the so-called eurocurrency market. Participation in this unregulated market grew far faster than national banking operations, and eurobanking now plays an important role in international finance.

Bank regulators have responded to the rapid growth of the eurocurrency market by attempting to extend certain forms of regulation to it. Their position is that the existence of unregulated financial markets alongside the regulated ones makes it more difficult for national authorities to control the growth of the money supply and their own economic destiny. They argue also that banks ought to be required to behave as prudently in their international operations as in their domestic ones in order to preserve the soundness of the national and international financial systems.

Governments have considered a variety of measures for increasing their control over the eurocurrency market, including the imposition of reserve requirements and the extension of supervisory authority. Little progress has been made with reserve requirements because nations disagree over the desirability of eurocurrency reserve requirements and the means of applying them. Some progress has been made, however, in the supervisory area, and more can be expected even in the short term.

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THE EUROCURRENCY MARKET DEVELOPS

For over twenty years, commercial banks have been accepting dollar deposits and making dollar-denominated loans through offices outside the United States—the euro-dollar market.\(^1\) Dollar deposits on the books of any banking office located outside the United States are counted as eurodollar deposits, and dollar-denominated loans are counted as eurodollar loans. In addition to the head offices of foreign banks, branches and subsidiaries of U.S. and foreign banks are active participants in this market.

The dollar is the most widely used currency in the offshore banking network, but the Deutsche mark and Swiss franc also are traded actively there. Transactions in the U.S. dollar, the Deutsche mark, the Swiss franc, and the other currencies with offshore banking facilities together make up the euro-

\(^1\)The nonbank customers of these institutions include both residents and nonresidents of the United States. Nonresidents make dollar deposits and take out dollar loans because of the dollar’s importance in financing world trade.

currency market (see THE EUROCUR-
RENCY NETWORK).

Although domestic banking activity in the U.S. remains far larger than eurodollar activity, the growth of the eurocurrency market exceeded that of the domestic banking system in the 1970s. Total eurocurrency assets (loans to customers and deposits at other banks) of reporting banks in the European market center grew at a compound annual growth rate of 27 percent from the end of 1969 to the end of 1979 (see. . .RAPID GROWTH).\(^2\) Total assets of large commercial banks in the U.S. grew at a compound annual growth rate of only about 8 percent over the same period.\(^3\)

\(^2\)The European market center includes reporting banks in Austria, Belgium-Luxembourg, Denmark, France, the Federal Republic of Germany, Ireland, Italy, the Netherlands, Sweden, Switzerland, and the United Kingdom. The total eurocurrency assets of banks in this region were $58.17 billion in December 1969 and $639.9 billion in December 1979. Bank for International Settlements, 48th Annual Report, p. 98 and 50th Annual Report, p. 122.

\(^3\)The total assets of large, weekly reporting commercial banks were $316.4 billion at the end of 1969 and $674.0 billion at the end of 1979. Federal Reserve Board,
By June 1980, the net size of the euro-currency market was approximately $190 billion or one-tenth the magnitude of the monetary aggregate labeled M3—a measure of the financial services offered by domestic financial institutions.\(^4\) This measure of the eurocurrency market includes the deposit liabilities of reporting eurobanks to non-banks but excludes the liabilities of reporting eurobanks to other commercial and central banks in the reporting area.\(^5\)

Why has the eurocurrency market grown so rapidly? Primarily because few nations regulate foreign-currency banking activities that occur within their boundaries. Reserve requirements, which specify the percentages of deposits that must be held as readily available reserves, are not applied to eurocurrency deposits in most nations. Interest rate ceilings which limit the rates of interest payable on deposits at U.S. banks are not applied to eurocurrency deposits either. And in some nations, bank examiners who scrutinize the assets and liabilities of domestic banking offices do not review the portfolios of eurobanking branches. This absence of regulation reduces the cost of doing business in the eurocurrency market. And in the competitive world of international banking, a portion of this cost advantage is used to attract customers to the eurocurrency market through lower interest rates on loans and higher interest rates on deposits.

The growth of the eurocurrency market, though clearly a benefit in many respects, has been thought by some to make it more difficult for the Federal Reserve to achieve its monetary objectives and for banking supervisors to insure the soundness of the international banking system. Current proposals for regulating the eurocurrency market address these concerns.

**RESERVE REQUIREMENTS FOR THE EUROMARKET?**

The U.S. central bank—the Federal Re-

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\(^4\)M3 consists of demand deposits, negotiable orders of withdrawal and automatic transfer service accounts at banks and thrift institutions, credit union shares, deposits at mutual savings banks, savings and time deposits, overnight and term repurchase agreements, overnight eurodollars held by United States residents, money market mutual fund shares, and currency in the hands of the public. Data taken from Federal Reserve Bulletin, November 1980, p. A13.

\(^5\)The reporting eurobanks are located in Europe and Canada and include the branches of U.S. banks in the Bahamas, Cayman Islands, Panama, Hong Kong, Singapore, and Bahrain. All types of customers outside the reporting area are included in the net measure of the size of the market. Eurocurrency liabilities of banks in the European area to nonbanks totaled $128 billion. Banks in Canada accounted for $26 billion in eurocurrency liabilities to nonbanks, and U.S. branches in the remaining market centers booked approximately $36 billion in eurocurrency liabilities to nonbanks.
serve—requires commercial banks (and, with the passage of the Monetary Control Act of 1980, other depository institutions as well) to hold money in reserve against their commitments to depositors. At present, reserve requirement management is one of the Fed's tools for influencing the growth of the domestic money supply. Thus the extension of reserve requirements to the euromarket has appeared to some to be a reasonable move. But the reaction from foreign central banks has been less than overwhelmingly receptive.

**How Reserves Affect Money Growth.**

The Fed controls the quantity of transactions balances (currency and demand deposits) available in the domestic economy by adjusting the supply of reserves available to banks. Under this system, domestic banks must hold a fraction of their deposits as readily available, noninterest-bearing reserves (cash in their vaults or deposits at a Federal Reserve bank). Even if there were no reserve requirements, banks still would choose to hold a fraction of their deposits as reserves, but this fraction undoubtedly would be smaller than that required by national regulations.

The presence of banks in the eurodollar market complicates monetary policy for the Fed. Both domestic banks and branches operating in the eurodollar market accept dollars for deposit and hold dollar reserves, but branches active in the eurodollar market are unconstrained by domestic reserve requirements and interest rate ceilings.

When the Fed reduces the supply of reserves, interest rates rise in both the domestic and eurocurrency financial markets. But because of interest ceilings in the U.S., rates on many types of domestic bank deposits do not rise. If deposit rates in the eurodollar market rise while those in the domestic market are constrained by ceilings, deposits shift from domestic to eurodollar accounts. When interest rates fall, the incentive to shift funds into the eurodollar market is reduced and the flow of funds abates (see INTEREST RATES IN THE EUROCURRENCY MARKET).

Variations in this flow caused by changes in the general level of interest rates make the Fed's job harder. Unanticipated flows of funds from one type of account to the other can partially offset the thrust of Federal Reserve policy because the fraction of deposits held as reserves in the domestic banking system generally exceeds that of the national market.

**INTEREST RATES IN THE EUROCURRENCY MARKET**

Interest rates in the eurocurrency and corresponding national financial markets tend to move together in the absence of official controls to limit international capital flows. Many borrowers and lenders feel that the financial services offered in the eurocurrency market are close substitutes for those offered in national financial markets. They observe interest rates in these markets and are prepared to shift their activities from one market to another when interest rate differentials change. If government action causes interest rates in the United States to rise in relation to those in the eurodollar market, then the cost of borrowing funds in the eurodollar market would fall in relation to that in the national market. Borrowers would move from the national to the eurodollar market, bidding up eurodollar rates. Likewise, depositors would move funds from the eurodollar to the national market, increasing the supply of loanable funds and bidding down interest rates in the national market.

This flow of funds would cease only when the interest rate differential equaled the cost differential of operating in the regulated national market versus the unregulated eurodollar market. This cost differential is determined primarily by the reserve requirements imposed by the Federal Reserve. Fees for the provision of deposit insurance and constraints on the investment of funds also increase the cost of banking in the U.S. relative to the eurocurrency market.
eurodollar system. The impacts of fund flows on bank demand for dollar reserves make it more difficult for the Fed to calculate the effects of its operations on the monetary aggregates. If the Fed fails to anticipate the effects of its policies on deposit flows, then its forecasts of the growth of the domestic economy will be either too high or too low. When the fluctuations in deposit flows become apparent, the Fed must compensate by buying or selling securities in the open market.

Since a monetary policy based upon reserve management is more effective the more predictable the effects of open market intervention, many have argued for the extension of reserve requirements to include deposits in the eurodollar market.6

Unilateral Reserve Requirements Would Fail. One reform would be to impose reserve requirements on eurocurrency deposits, although not necessarily in the same magnitude as on domestic deposits. But then shifts of funds by depositors from domestic to eurodollar accounts would affect total required reserves. Thus under this approach the Fed would have to anticipate the effects of its open market operations on the structure of bank liabilities and adjust its intervention to produce the desired effect on transactions balances.

As long as domestic and eurodollar deposits are close substitutes, a preferred plan would be to impose the same reserve requirements on both kinds of deposits. In this case deposit shifts would not affect total required reserves. The effect of an open market transaction to reduce the supply of reserves then would not be complicated by deposit shifts.

But attempts by the Fed to impose reserve requirements unilaterally by forcing the branches of U.S. banks to hold reserves against their eurocurrency deposits would have little chance of success. These requirements would make U.S. banks uncompetitive in the market and they would be driven out by unregulated foreign banks. The ease with which the eurocurrency market can sidestep unilateral efforts at regulation has led policymakers to seek international cooperation on reserve requirements. But even these efforts promise little near-term success.

The International Way. Two internationalist approaches to eurocurrency market reserve requirements have been tried. Under the first, all nations would agree to impose reserve requirements on the eurobanking offices operating within their boundaries. These reserves would be held on deposit with the host country’s central bank, and, for simplicity, the reserve requirements of each nation on a given currency would be identical. Banks operating in London and Paris would have to hold the same dollar reserves for equal quantities of eurodollar deposits.

The difficulty with this proposal is that it would have to be accepted by all nations to be effective. If one nation failed to participate, the reserve requirements could be avoided simply by transferring all eurocurrency operations to the branches in that nation.

Under the second plan, each participating monetary authority would impose reserve requirements on all eurobanking offices, wherever located, of banks having head offices within its boundaries. These reserve requirements on the head office would cover the eurocurrency operations of all branches and subsidiaries. London as well as Caribbean
branches of United States banks, for example, would be required by the Federal Reserve to hold specified fractions of their eurocurrency liabilities as reserves.\(^7\) Once adopted by the major banking nations, this plan would make it much more difficult for banks to avoid reserve requirements, because the location of branch banking offices would be irrelevant. Wide coverage could be achieved through the agreement of a relatively small number of countries.

But banks headquartered in nonparticipating nations could upset the apple cart. Although they might be a small part of the market at first, their eurobanking operations would be very profitable compared to those of the participating nations and they would grow at the expense of the banks in participating nations. Over the longer term, their operations would make eurocurrency regulations less and less effective.

These reserve requirement proposals have received mixed reviews from central bankers around the world. Differences in financial institutions and practices among nations work against their adoption. Many nations do not rely on reserve requirements to regulate domestic banking activity and feel uncomfortable with plans to impose them in the eurocurrency market. And they fear that their banks would find it difficult to compete in a world in which reserve requirements applied to both domestic and eurocurrency market operations. Many current market centers would lose their importance as differences in regulation from nation to nation diminished. Thus reserve requirements remain only a long-term hope for the eurocurrency market. Supervision is more likely to become a reality in the short run.

MORE SUPERVISION COULD STRENGTHEN THE SYSTEM

The risks faced in international banking are pretty much the same whether a loan is made at a domestic branch or through the eurocurrency market, but bank examiners in many countries do not have access to the records of offshore branches. Thus, it is difficult for them to tell whether banks are maintaining adequate capital reserves to finance their occasional losses. Those favoring the supervision of eurobanking argue that these institutions must deal with many different types of risk and that management of these risks certainly is a matter of concern to society.\(^8\)

International Bankers Must Manage Risk.

One of the most elementary risks faced by financial intermediaries arises from the practice of borrowing short maturity funds in order to finance longer maturity loans—interest rate risk.\(^9\) The degree of risk varies according to how closely asset maturities are

\(^7\) Although reserves would be held in the same currency as the deposits, the location of the reserve accounts is an issue still to be resolved. More information on this proposal is available in “A Discussion Paper Concerning Reserve Requirements on Eurocurrency Deposits,” April 1979, prepared by the staff of the Federal Reserve Board. Further discussion of the issues associated with the reserve requirement proposal appears in Dale W. Henderson and Douglas G. Waldo, “Reserve Requirements on Eurocurrency Deposits: Implications for Eurodeposit Multipliers, Control of a Monetary Aggregate, and Avoidance of Redenomination Incentives,” International Finance Discussion Paper No. 164, July 1980, Board of Governors of the Federal Reserve System, Washington, D.C.


matched to liability maturities.

When a bank extends a loan for three months at a fixed rate of interest, for example, it must decide whether to fund that loan piecemeal through a series of short-term deposits or to seek a three-month deposit and fund it all at once. If the three-month fixed-rate loan is financed by a three-month fixed-rate deposit, then maturity mismatch is avoided and interest rate risk is obviated: the profitability of the loan is unaffected by interest rate fluctuations during its term. But if a two-month deposit is used to fund the loan initially, then, after two months, financing must be arranged for the remaining one-month term of the loan. The interest rate on the one-month deposit necessary to complete the financing is not known until two months hence, and unanticipated increases in the interest rate paid to depositors during this time could lead to a loss on the loan. Banking regulators are concerned that prudential limits on the mismatch of banks’ domestic portfolios might be circumvented by increasing the mismatch of their eurobanking portfolios.

Also, just as in the domestic banking system, there is always the chance of loan default in the euromarket. But since the nationality of the borrower often differs from that of the lender in this market, the chance of default is affected not only by economic conditions at home, but also by economic and political developments abroad. Thus eurobanks must monitor events far from home. In principle, the risks associated with international lending can be accommodated as long as the interest rates charged on loans to other countries are high enough to allow banks to accumulate adequate loss reserves. But some participants in the market argue that loan rates have not been high enough. They claim that government subsidies enable many banks to bid the eurodollar loan rate below the level necessary to provide adequate reserves.

Another risk associated with international banking involves the possibility of unexpected movements in exchange rates. Consider a eurobank with a portfolio of $35 million in eurodollar deposits, $30 million in eurodollar loans, DM 10 million in eurodeutsche mark deposits, and DM 20 million in eurodeutsche mark loans. At an initial exchange rate (DM/$) of 2.0, this portfolio is long in Deutsche marks (DM assets exceed DM liabilities) and short in dollars. The bank is purposefully exposing itself to exchange rate risk in anticipation of an appreciation of the Deutsche mark (a reduction in the DM/$ exchange rate). If this appreciation occurred, the dollar value of assets would rise faster than the dollar value of liabilities, and the bank would earn a profit. If, however, the Deutsche mark unexpectedly depreciated so that the DM/$ exchange rate rose to 2.5, then the bank would suffer a $1-million loss. A bank with $30 million in eurodollar deposits and loans and DM 20 million in eurodeutsche mark deposits and loans has no exposure to exchange rate risk. Neither appreciation nor depreciation of the Deutsche mark changes the bank's net worth.

Exchange rate risk was a factor in the failure of one major...
international bank in 1974—the Herstatt Bank—and it continues to be of vital concern to banking regulators. Those favoring the supervision of the eurocurrency market point to these risks and argue that a bank's management of these risks in offshore markets should be supervised just as in the domestic market. Not all the sources of risk are of equal concern, but some of them unquestionably require careful, constant management.

**Cooperating in Supervision.** Most nations agree that eurobanking operations should be more carefully supervised. But just as in the case of reserve regulations, unilateral action to supervise eurocurrency banking more strictly would have little effect. Increasing the extent of banking supervision in one nation could limit the ability of the banks of that nation to compete in the marketplace but have little overall effect on eurocurrency banking.

Thus the banking supervisors of many developed nations have engaged in negotiations to coordinate a supervisory approach to eurobanking. Following their April 1980 meeting, for example, the central bank governors of the Group of Ten countries and Switzerland called for

> "the supervision of banks' international business on a consolidated basis, improved assessment of country risk exposure, and the development of more comprehensive and consistent data for monitoring the extent of banks' maturity transformation."

They resolved to monitor the eurocurrency market more closely in the future by establishing a special committee to review the international banking statistics published by the Bank for International Settlements.

The Federal Reserve currently collects balance sheet data from domestic banks and their offshore branches and consolidates this information to produce an overall picture of each bank's financial health, but some European central bankers are uncomfortable with consolidation in spite of their reliance on balance sheet data for the supervision of domestic operations. Progress is being made, however, and the extension of bank supervision to the eurocurrency market has come a long way.

Thus while euromarket reserve requirements have made little headway, a consensus on the need for international supervision of offshore banking markets appears to have been reached. And this is the area in which the greatest short-term gains can be expected.

**CONCLUSION**

The rapid growth of the eurocurrency market over the past decade has raised concerns about two issues: the effectiveness of monetary policy and the soundness of the banking system. Extending reserve requirements to the eurocurrency market would strengthen the link of reserves to deposit balances in this growing offshore market, but progress in international negotiations to adopt a reserve proposal has been slow. Nations conduct their monetary policies in many different ways, and some are not prepared to accept an international agreement that would limit the attractiveness of the eurocurrency market and drive business away from existing eurobanking centers.

The consolidation of balance sheets has been proposed to help fill the information gap created by the movement of international banking offshore. This supervision would help to insure that bankers are as prudent in managing their exposure to the risks of international banking as they are in managing domestic risks. Here, despite international differences, there has been some movement, with several major banking nations agreeing to consolidate.

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The birth of the eurocurrency market was an important innovation in finance, and over the past two decades this market has become a vital part of the international financial system. As it has matured, national authorities have become interested in bringing its operations into line with their present systems of bank regulations. So far, this exercise has pointed out the vast differences among the regulatory policies of nations, and nations have been unable to agree on a single approach to the regulation of the eurocurrency market. Success in the future will depend upon the adoption of more uniform systems to deal with the policy tasks of controlling money growth and insuring bank soundness.