

## A TOUGH PUMP TO PRIME

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As the Federal Reserve guided interest rates lower during 1991, many Fed officials were surprised that their primary measure of the money supply, M2, did not expand faster than it did (e.g., Wessel 1991). The 1991 increase in M2 was 2.8 percent (see Table 1)—near the low end of the Fed's 1991 target range of 2.5 percent to 6.5 percent.

The slow growth of M2 during 1991 stemmed in part from the fact that the Fed controlled and continues to control only a small segment of M2. As a result, economic forces outside of the Fed's control can have significant and unpredictable effects on M2. During 1991, the Fed caused the part of M2 under its direct control to grow by 8.0 percent. At the same time the part of M2 not directly controlled by the Fed grew by only 1.7 percent, frustrating Fed efforts to reach at least the mid-point of its M2 target range.

### Segment of M2 Controlled by the Fed

The Fed principally exercises its influence on interest rates and the money supply by making open market purchases or sales of Treasury securities. In this way the Fed can increase or decrease the reserves of the banking system. Under the current schedule of reserve requirements, changes in reserves lead to approximately proportional changes in the total of those deposits with Fed reserve requirements, assuming excess reserves remain stable.

Today, depository institutions have no reason to build excess reserves above negligible amounts since no interest is paid on

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**TABLE 1**  
**CHANGES IN M2 AND ITS PRINCIPAL COMPONENTS 1990 IV TO 1991 IV**  
**(BILLIONS OF DOLLARS, SEASONALLY ADJUSTED)**

	M2	Currency in Circulation	Demand Deposits	Other Checkable Deposits	Zero Reserve Requirement Deposits <sup>a</sup>	Non-Institutional Money Market Mutual Funds	Other <sup>b</sup>
1990 IV	3,335.7	245.5	277.5	292.7	2,087.6	346.2	86.2
1991 IV	3,429.3	266.0	287.0	329.1	2,107.9	359.8	79.5
Percentage Change	2.8	8.4	3.4	12.4	1.0	3.9	-7.7
Percent of M2 1991 IV	100.0	7.8	8.4	9.6	61.5	10.5	2.3

<sup>a</sup>Savings accounts, money market deposit accounts, and small denomination (less than \$100,000) time deposits.

<sup>b</sup>Travelers checks of nonbank issuers, overnight Eurodollar borrowings from U.S. residents by foreign branches of U.S. banks, and overnight repurchase agreements of depository institutions.

SOURCE: Author's calculations using data from Board of Governors of the Federal Reserve System, *Federal Reserve Statistical Release H.6* (26 March 1992).

reserves<sup>1</sup> and since there are no liquidity reasons for holding excess reserves. (Liquidity requirements can be met, for example, by interest-bearing marketable securities and potential short-term borrowings from various sources including the Federal Funds market.) As a consequence, the total amount of excess reserves of all depository institutions has been relatively stable in recent years at very low levels in comparison with total reserves.

Since December 1990, only two types of deposits have been subject to reserve requirements. These are demand deposits and "other checkable deposits," both of which were subject to the same reserve requirements during 1991—3 percent of the first \$41.1 million of such accounts at a depository institution and 12 percent over \$41.1 million.<sup>2</sup>

Despite the fact that the payment of interest on demand deposits is prohibited, they are still a significant component of M2 at 8.4 percent of the total for 1991 IV. The results of a Federal Reserve study (Mahoney 1988) indicate that most of these zero interest deposits are held by businesses and count as compensating balances. Part of the business usage of demand deposits is attributable to regulations which restrict corporate checking accounts to demand deposits. However, the payment of fees has been gradually replacing the use of compensating balances, especially for the large customers of large banks, some of whom have their demand deposit balances automatically swept out at the end of the day to earn interest overnight. As a result, the increase in demand deposits outstanding in recent years has been limited. Even after a 3.4 percent growth in 1991, demand deposits outstanding at year-end were at a lower level than they were five years earlier. Due to the factors restricting the growth of demand deposits, the impact of Fed open market operations during 1991 was much greater on the only other deposit category with reserve requirements—the other checkable deposits category, which

<sup>1</sup>If a rate of interest close to short-term market rates is paid on reserves, excess reserves would likely become much more significant and volatile than they are today. This would probably make the Fed's job of managing a stable money supply more difficult. Nevertheless, as discussed in "Greenspan Asks that Fed Be Allowed to Pay Interest" (1992), Federal Reserve Chairman Alan Greenspan sought Congressional approval for the Fed to pay interest on reserves, arguing that zero interest on reserves amounts to a tax passed on to bank depositors and borrowers encouraging both to bypass the banking system.

<sup>2</sup>These were the reserve requirements in effect during most of 1991. Effective in late December 1991 the break point for shifting from 3 percent to 12 percent was increased to \$42.2 million and effective April 1992 the maximum rate was decreased from 12 percent to 10 percent.

increased by 12.4 percent during 1991 ending the year at 9.6 percent of M2.

The small part (18 percent for 1991 IV) of M2 represented by these two deposit categories with reserve requirements is the most responsive to Fed open market operations. Under the present system of reserve requirements this response is relatively predictable—the total of deposits with reserve requirements will change by approximately the same percentage as the percentage change in reserves. During 1991 the reserves of depository institutions increased by about 8.9 percent,<sup>3</sup> and for the same period the total of deposits with reserve requirements (demand deposits plus other checkable deposits) increased by 8.0 percent.

### Segments of M2 outside of Fed Control

For the purposes of this exposition those segments of M2 outside of the Fed's control are divided into three categories—currency in circulation, zero reserve requirement deposits (ZRRDs), and non-institutional money market mutual funds.

#### *Currency in Circulation*

One of three main categories of M2 outside of the Fed's control is currency in circulation. The Fed passively supplies currency to or accepts currency from depository institutions, balancing by debiting or crediting depository institution accounts at the Fed. The amount of currency in circulation increased by 8.4 percent in 1991, and it ended the year at 7.8 percent of M2.<sup>4</sup>

#### *Zero Reserve Requirement Deposits Included in M2*

The second and largest category of M2 outside of the Fed's control consists of zero reserve requirement deposits. For 1991 IV the ZRRDs of banks and other depository institutions (hereafter referred to as "banks") accounted for 61.5 percent of M2. Included in this category are three types of deposits: money market deposit accounts, savings accounts, and small denomination (less than \$100,000) time

<sup>3</sup>Based on data adjusted for changes in reserve requirements from Board of Governors (1991) and (1992). In general, the percentage changes for reserves and deposits with reserve requirements are not equal due to slippages related to how the data is compiled and changes in excess reserves.

<sup>4</sup>If one is relating M1 or M2 to economic activity in the United States, it can be argued that M1 and M2 are overstated to the extent that currency in circulation includes U.S. currency circulating in foreign countries. This overstatement may be significant as it has been estimated that more dollar currency circulates outside the United States than inside the United States (Clark and Malabre 1990).

deposits. Large denomination (\$100,000 or more) time deposits also have zero reserve requirements but are not included in M2.

Since there are no reserve requirements on ZRRDs, the Fed cannot influence their magnitude directly by increasing or decreasing reserves. The amount of ZRRDs outstanding and the rate of interest paid on them will depend on supply and demand factors including alternative rates of return available to economic units with funds to invest (affects the demand for deposits) and the availability of loans and investments that meet the banks' current criteria (affects the supply of deposits).

Widely different factors can affect the supply and demand for ZRRDs. For example, when the Resolution Trust Corporation (RTC) takes over the assets of failed thrifts that are liquidated, and the depositors are paid off, the supply of deposits (primarily ZRRDs) is decreased and M2 will be negatively impacted. Many former depositors of liquidated thrifts will shift their money to other depository institutions, but some will not due to the lower average interest rates paid by the remaining depositories. In addition, the closing of high-rate, insolvent thrifts and the movement of deposits to solvent depository institutions will put a downward pressure on deposit rates, causing some depositors of solvent institutions to shift funds to alternative assets. In the end, the liquidation of failed thrifts will lead to some resultant increase in deposits and assets at the surviving depository institutions, but such increases will not fully offset the losses of deposits and assets of the liquidated thrifts.

If banks are not seeing many loans that meet their lending criteria, they will not aggressively seek ZRRDs, thereby making the supply of ZRRDs lower than it would otherwise be. Judging from anecdotal evidence, this may have been a significant factor in the 1991 slow growth of ZRRDs.

Increases in the supply of competing assets may also reduce the demand for ZRRDs and, other things equal, the amount of M2. Increases in government debt, corporate debt, and newly issued equity securities all compete for money which might otherwise be invested in ZRRDs. During 1991 there were significant increases in outstanding amounts of all three of the aforementioned competing assets. Moreover, in many instances funds raised from the sale of newly issued corporate debt and equity securities were used (at least initially) to pay down bank borrowings.

Easy money policies designed to expand M2 and lower interest rates may put contractionary pressures on ZRRDs as depositors take money out of deposits with falling interest rates and buy other assets with potentially higher yields, such as stocks and long-term bonds.

However, some of this asset shift effect is likely to be offset by additions to ZRRDs by the sellers of existing stocks and bonds. In addition, the expected returns of competing assets such as stocks and bonds are likely to decline as interest rates on ZRRDs decline, reducing incentives to switch out of ZRRDs. The ultimate effect of easy or tight money policies on ZRRDs is uncertain.

There is a potential upper bound to the amount of funds that banks can raise from ZRRDs and all other deposits—the bank capital constraint. Losses in asset value or growth in asset holdings will usually result in a decline in capital to assets ratios unless a sufficient amount of new capital is obtained.<sup>5</sup> Whenever a bank's capital ratios decline to near the regulatory minimums or lower, its growth will be restricted until it obtains more capital.

During 1991, much bank capital was lost due to problem loans, and many banks limited asset growth and even contracted in size in order to meet minimum capital requirements. In extreme cases banks lost all of their capital and failed. In addition, banks were required to meet the two-tiered Basle Accord capital requirements in full by the end of 1992. The impact of these individual bank capital constraints on aggregate ZRRDs is unclear, but there is some evidence that the shortage of bank capital was not a nationwide problem. In those regions where a shortage of bank capital might have limited bank deposits and lending, the effect was at most a modest one (Bernanke and Lown 1991). To the extent that new sound loan opportunities were available, they may have been taken up by banks with capital ratios above the minimum or by banks with access to new capital on acceptable terms.

Capital availability or constraints and factors affecting the supply and demand for ZRRDs can all cause ZRRDs to increase or decrease for reasons outside of the Fed's control. The balance of all of these factors in 1991 led to a very small increase—about 1 percent—in ZRRDs included in M2, which made it more difficult for the Fed to achieve its M2 objectives.

#### *Non-Institutional Money Market Mutual Funds*

The third principal category of M2 outside of the Fed's control consists of non-institutional money market mutual funds, which constituted 10.5 percent of M2 as of the last quarter of 1991. Although

<sup>5</sup>The regulatory capital requirements are based on capital to risk-weighted assets ratios. The addition of very low risk assets, such as securities guaranteed by the U.S. government or its agencies, will not reduce a bank's capital ratios since the risk weight assigned to these assets is zero. For information on the risk weights and other aspects of the Basle Accord, see Board of Governors (1989).

these are not bank deposits, holders of these funds can usually write checks (often with some restrictions) against their money invested. For the year 1991, the dollars invested in non-institutional money market mutual funds increased by 3.9 percent, despite the significant decline in market interest rates. The amount of money invested in money market mutual funds is outside of the direct control of the Fed and depends on many factors including the rates of return available on competing assets.

#### *Implications for Monetary Policy*

For 1991 IV, about 80 percent of M2 consisted of bank deposits and 86 percent of bank deposits were included in M2. Despite its decreasing role in the economy in recent years, the banking sector remains a significant supplier of credit to the economy and bank deposits continue to constitute the major part of M2. When the Fed focuses on M2 it is in effect primarily focusing on bank deposits or the principal resources of the banking sector.

Considering only bank deposits,<sup>6</sup> the 1991 money and credit picture becomes bleaker than that portrayed by M2. While M2 increased by 2.8 percent from 1990 IV to 1991 IV, total bank deposits increased by only 0.2 percent over the same period. Without assigning cause and effect one may conclude that the banking sector did not respond positively to the easier money policy of 1991.

The Fed increased total bank reserves in 1991 in an effort to increase the money supply and stimulate the economy. That small part of M2 tied to the level of total bank reserves through reserve requirements increased in step with the increase in reserves. However, the larger part of M2 with no direct tie to total bank reserves did not follow the lead of the Fed. The sluggish response of the banking system to the Fed easing limited the growth of bank lending, bank deposits, and M2. Since monetary policy normally works in part through changes in bank deposits and lending, the fact that it did not do so during 1991 suggests that larger than usual (for this stage in the business cycle) percentage increases in total bank reserves were required to achieve the Fed's objectives.

<sup>6</sup>Several modifications are required to transform M2 into a 100 percent measure of bank deposits in the United States. Currency in circulation would have to be deleted (see footnote 4). Non-institutional money market mutual funds would also have to be deleted but this would be offset in part by a third modification—the addition to M2 of large (\$100,000 and over) time deposits (which are held in significant amounts by money market mutual funds as a group). Three other changes of smaller magnitude would also be necessary—the deletion of overnight Eurodollar deposits of U.S. residents in foreign branches of U.S. banks, the deletion of overnight repurchase agreements of depository institutions and the deletion of travelers checks of nonbank issuers.

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