THE IMPACT OF LARGE TIME DEPOSITS ON THE GROWTH RATE OF M_2

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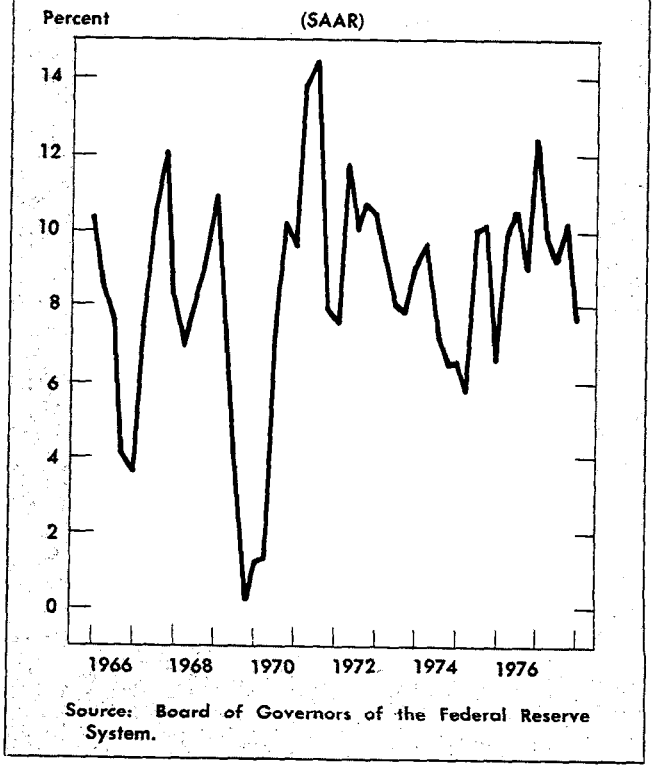
The relationship between interest rate movements and the growth rate of M_2 has changed in recent years.[1] In the 1960's large increases in short-term interest rates were associated with sharp declines in the growth rate of M_2. For instance, when the three-month Treasury bill rate rose from 4.17 percent in the fourth quarter of 1965 to 5.21 percent in the fourth quarter of 1966, the (annualized) quarterly growth rate of M_2 dropped from 10.3 to 3.6 percent, a decline of 6.7 percentage points. (The growth rate of M_2 is shown in Chart 1.) Similarly, the rise in the three-month bill rate from 5.58 percent in the fourth quarter of 1968 to 7.35 percent in the fourth quarter of 1969 was accompanied by a decline of 9.7 percentage points in the M_2 growth rate, from 11.0 percent to 1.3 percent.

In the 1970's, however, increases in interest rates of similar or greater magnitude have had a much smaller impact on M_2 growth rates. Thus, when the three-month bill rate jumped from 4.22 percent in the third quarter of 1972 to 8.32 percent in the third quarter of 1973, the growth rate of M_2 only declined from 10.7 to 7.9 percent. And when the three-month bill rate rose from 4.63 percent in the first quarter of 1977 to 6.11 percent in the fourth quarter of 1977, the M_2 growth rate experienced a relatively mild decline from 9.9 percent to 7.6 percent.

This article argues that large time deposits greater than $100,000 constitute the main factor responsible for the change in the relationship between interest rates and M_2. Although some of these large time deposits are excluded from M_2, a large portion are included. This is illustrated in Chart 2, which shows successive subdivisions of M_4. In the first stage in Chart 2, M_4 is broken down into M_2 and *negotiable* CD's of $100,000 or more issued by large *weekly reporting* banks. In the second stage, M_2 is divided

Chart 1

M_2 GROWTH RATE

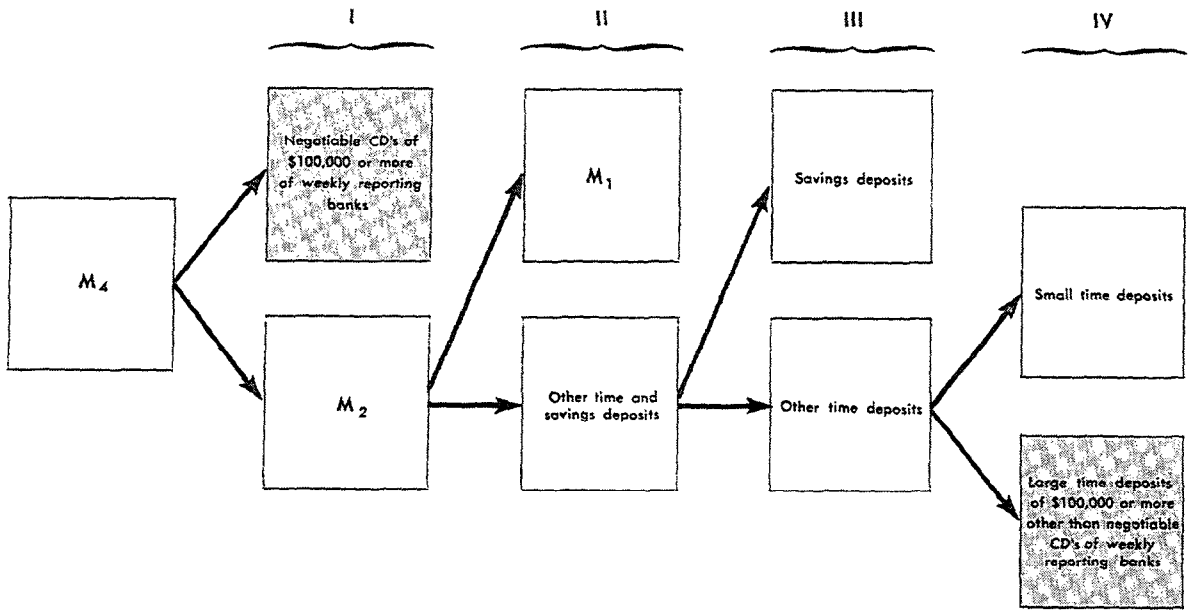


Source: Board of Governors of the Federal Reserve System.

[1] The monetary aggregates discussed in this paper are M_1, M_2, and M_4. M_1 equals currency plus private demand deposits adjusted; M_2 equals M_1 plus bank time and savings deposits other than large negotiable CD's at weekly reporting banks; and M_4 equals M_2 plus large negotiable CD's at weekly reporting banks. M_3 equals M_2 plus deposits at mutual savings banks and savings and loan associations plus credit union shares.

Chart 2

POSITION OF LARGE TIME DEPOSITS IN THE MONETARY AGGREGATES



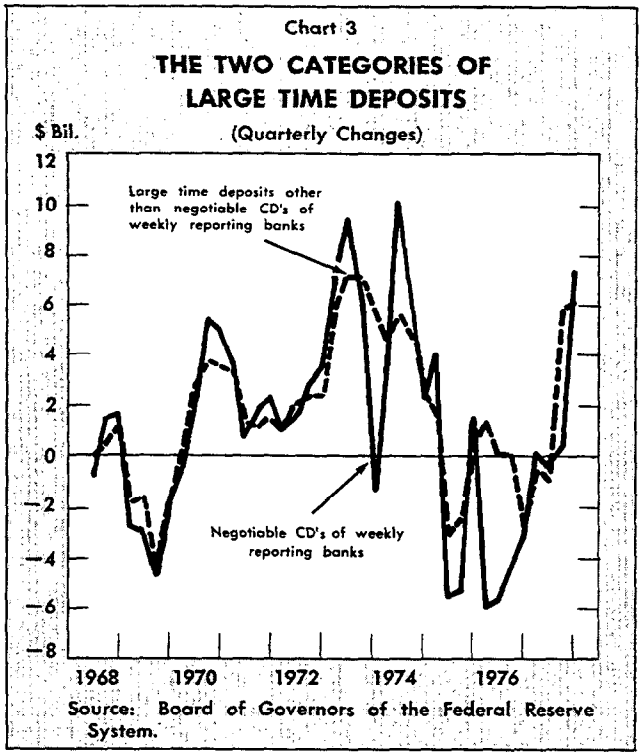
into M_1 and other time and savings deposits. Other time and savings deposits are in turn divided into savings deposits and other time deposits. As shown in stage four of the chart, other time deposits include (1) small time deposits less than $100,000 and (2) those large time deposits greater than $100,000 that are included in M_2. The latter category is composed of negotiable and nonnegotiable time deposits greater than $100,000 at nonweekly reporting banks and nonnegotiable time deposits greater than $100,000 at weekly reporting banks.

Most analyses of the behavior of M_2 go no further than stage two. When one gets to stage four, however, it becomes clear that M_2 contains a significant amount of large time deposits greater than $100,000 *not subject to interest rate ceilings.* (These ceilings were suspended in June 1970 for maturities less than 90 days and in May 1973 for all other maturities.) In fact, as of October 1977, $80.8 billion or 55 percent of total large time deposits were included in M_2.

Chart 3 shows that large time deposits excluded from M_2 behave very similarly over time to those included in M_2. Both fell rapidly in 1969 as market interest rates rose above Regulation Q ceilings for large time deposits of $100,000 or greater. Similarly, both increased sharply following the removal in June 1970 of Regulation Q ceilings on large time deposits with maturities less than 90 days. Since then, the growth rates of both categories of large time deposits have been *positively* correlated with interest rate levels. For example, large increases in both categories accompanied the rise in interest rates in 1977.

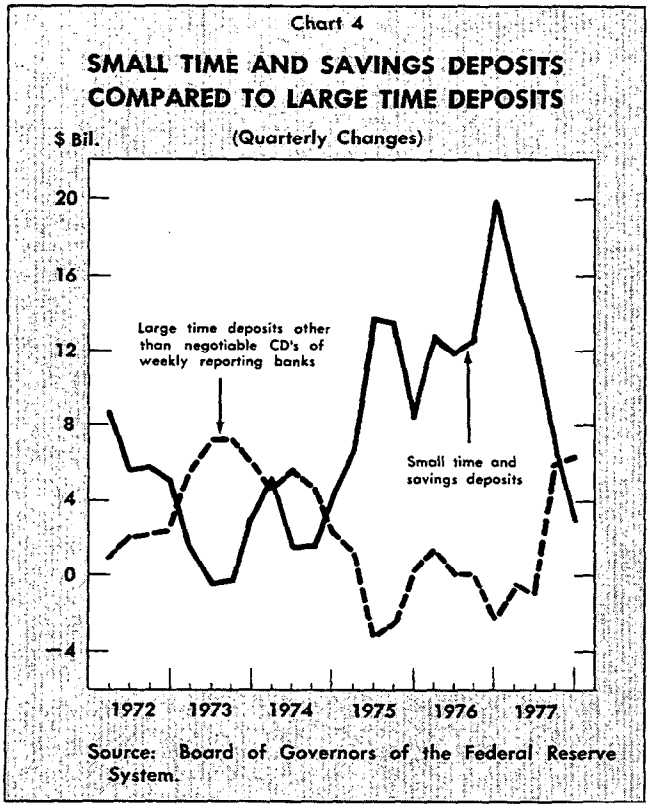
The positive relationship between market interest rates and the growth of large time deposits stems partially from the response of commercial banks to changes in the flows of small time and savings deposits induced by interest rate movements. When interest rates rise relative to the rates paid on savings deposits and small time deposits (which are constrained by Regulation Q ceilings), inflows of funds into these deposits contract. Banks try to offset these reduced inflows by bidding more aggressively for large time deposits, which are not subject to interest rate ceilings. Conversely, when inflows of savings deposits and small time deposits expand, banks are content to let inflows of large time deposits decline.[2] Chart 4 illustrates this behavior by comparing quarterly changes in the sum of savings and small time

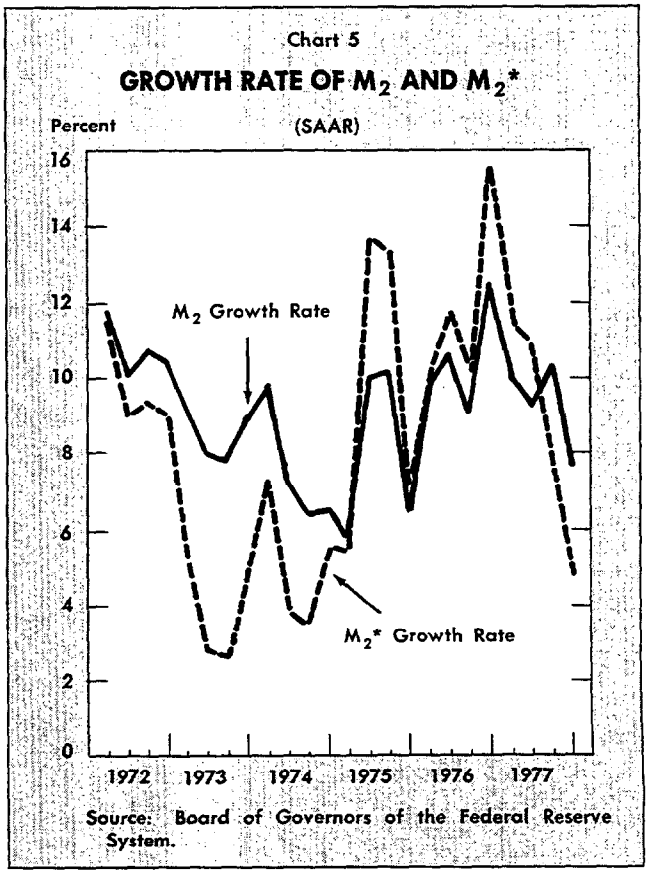
[2] Of course, this behavior is to some extent conditioned by the state of loan demand. Banks issue large time deposits not only to offset declines in inflows of small time and savings deposits, but also to finance increases in commercial and industrial loans. Large increases in these loans tend to be associated with periods of rising interest rates. This is a second channel underlying the positive relationship noted in the text between interest rates and the growth rate of large time deposits in the 1970's.



deposits to quarterly changes in large time deposits included in M_2. The inverse relationship between the two series is remarkably close. In fact, the correlation coefficient between the two series from the first quarter of 1972 through the fourth quarter of 1977 is —.91. (The correlation coefficient between the growth rates over the same period is —.89.) This phenomenon was particularly evident in 1977. As the growth rate of savings plus small time deposits plummeted in response to the rise in interest rates, the impact on bank funds was largely offset by a sharp rise in the growth rate of large time deposits not subject to interest rate ceilings.

Chart 5 illustrates the influence of large time deposits on the growth rate of M_2 in recent years. The chart compares the quarterly growth rates of M_2 and M_2*, the latter aggregate consisting of M_2 less its large time deposit component. The two growth rates often diverge by three percentage points or more. For example, the M_2 growth rates in the second and third quarters of 1973 were 8.1 and 7.9 percent, respectively, while the corresponding M_2* growth rates were only 2.8 and 2.7 percent. Furthermore, large time deposits have greatly *moderated* the cyclical swings of M_2 since 1971. For instance, from the second quarter to the third quarter of 1977 the growth rate of M_2* fell from 10.9 to 7.9 percent, while the growth rate of M_2 actually rose from 9.2 to 10.3 percent. In the fourth quarter of 1977 the growth rate of M_2* fell further to 4.8 percent, but





the surge of large time deposits maintained the growth rate of M_2 at 7.6 percent.

Prior to the June 1970 change in Regulation Q, large time deposits did not moderate cyclical swings in M_2, because as interest rates rose above Regulation Q ceilings on deposits greater than $100,000, the growth rate of large time deposits would fall below that of the rest of M_2. In fact, in the period of rapidly rising interest rates from the fourth quarter 1968 to the fourth quarter of 1969 the growth rate of M_2 dropped by 2.9 percentage points *more* than the growth rate of M_2* because of the rapid run-off of large time deposits. Consequently, the 1970 change in Regulation Q emerges as the major factor underlying the change in the relationship between the movements of interest rates and the growth rate of M_2 in the 1970's as compared with the latter half of the 1960's.

CONCLUSION

This article has demonstrated that movements in large time deposits significantly affect the quarterly growth rate of M_2, frequently increasing or decreasing it by three or more percentage points. Furthermore, since the 1970 change in Regulation Q, large time deposits have substantially moderated cyclical movements in M_2.

At least three conclusions can be drawn from these observations. First, large time deposits excluded from M_2 and those included in M_2 are very similar in their characteristics and in the regulations that apply to them. Therefore, it makes little sense to include one component of large time deposits in M_2 or any other monetary aggregate while excluding the other component. Large time deposits should either be excluded altogether, as in M_2*, or fully included, as in M_4.

Second, failure to distinguish between M_2 and M_2* could create policy problems. Since the 1970 change in Regulation Q, the response of M_2* to a change in interest rates has been greater than the corresponding M_2 response. Consequently, if the monetary authorities are focusing on M_2, the response of M_2* to a policy change might lead to a greater impact on the economy than desired.[3] A second policy problem might occur if the monetary authorities are using past (i.e., 1960's) data to forecast the relationship between M_2 and economic activity. Given the significant change in the behavior of M_2 in the 1970's, it seems quite likely that this relationship has changed. For instance, the decline in the growth rate of M_2 preceding the very deep recession in 1974 was relatively small in comparison to the sharp drop in the M_2 growth rate preceding the much milder recession beginning in 1969. (See Chart 1.)

Lastly, empirical studies of the behavior of bank liabilities generally aggregate large time deposits other than negotiable CD's at weekly reporting banks with small time and savings deposits, primarily because the data are published in that form. However, given the similar behavior of negotiable CD's at weekly reporting banks and other large time deposits on the one hand, and the disparate behavior of other large time deposits and small time and savings deposits on the other hand, a more appropriate procedure is to aggregate the two categories of large time deposits.

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[3] This point is made by Roger Waud in "CD Behavior and the Use of Broader Monetary Aggregates" (**Journal of Money, Credit and Banking**, August 1977, Vol. IX, No. 3, 483-490) with respect to the differential behavior of M_1, M_2 and M_3, on one hand, and M_4 and M_5 (which include CD's) on the other. Whether the failure to distinguish between M_2 and M_2* creates policy difficulties ultimately depends on which aggregate (if either) is a more appropriate intermediate target of monetary policy.