in other checkables shifted from all other sources from the level of M-1B should produce adjusted figures more consistent with the 1981 target-growth ranges.[7] Specifically, to calculate the adjusted level of M-1A each month, the estimated fraction shifted from demand deposits is multiplied by the monthly change in the level of non-seasonally adjusted other checkable deposits, less the estimated trend growth in this component; this monthly value is cumulated and added to observed M-1A after seasonal adjustment by the demand-deposit seasonal factor. To calculate the adjusted M-1B level, the estimated fraction from non-M-1B sources is multiplied by the monthly change in the level of non-seasonally adjusted other checkable deposits in excess of trend growth; this monthly value is cumulated and, after seasonal adjustment by the commercial-bank savings deposit seasonal factor, subtracted from observed M-1B.[8]

Although the nationwide authorization of NOW accounts on December 31, 1980, has had a marked impact on the observed levels of the narrow M-1 aggregates, these money measures are still useful guidelines for policy action if allowance is made for the unusual deposit shifts. Adjusting observed levels may be preferable to adjusting target-growth ranges. Development of reliable, adjusted long-run target ranges for the whole year will be possible only at year-end, when the full set of actual values become available. Although the adjusted levels of the aggregates also incorporate actual values, target ranges with which they can be compared are already established for the entire year.

Target-Setting Implications

Either of the adjustment alternatives alleviates the distortion of the monetary aggregates caused by introduction of nationwide NOW accounts. This makes it possible to compare incoming money data with the Federal Open Market Committee targets for the year.

Another complication that arises in interpreting Federal Reserve policy and money-stock growth in a longer-run context is base drift. This is the "let-bygones-be-bygones" practice that bases the target-growth range for the current period on the actual, rather than targeted, final value of the previous period. While this issue may not be relevant to day-to-day Fed-watching, it is meaningful for longer-run monetary policy considerations.

The 1981 targets for the narrow aggregates incorporate two forms of base drift. The first is unrelated to NOW accounts and can be illustrated by reviewing the target ranges for 1980 and 1981. The upper limit of the growth target for M-1B was 6½ percent for 1980 and is 6 percent for 1981. The maximum expansion desirable for that aggregate over the two years is 6.44 percent, implying a maximum 1981:IVQ level of $434.4 billion. However, the 1981 M-1B target is based on the actual (above-target) $412.5-billion level of M-1B in 1980:IVQ, implying a maximum 1981:IVQ level of $437.3 billion, and a growth rate over two years of 6.82 percent. The figures used in this illustration obviously would be different if the calculations were made from the midpoint of the announced money-growth ranges.

A second form of base drift has been introduced through inclusion of a portion of other checkable deposits in the M-1B base level. A portion of other checkables represents funds shifted from sources not previously included in M-1B. One reason for above-target growth of M-1B in 1980 was that other checkable deposits increased by a significantly larger amount than had been anticipated when 1980 targets were set. Because of the impending introduction of NOW accounts, banks began to market ATS accounts aggressively in the latter part of the year, causing a greater diversion of funds into these other checkable M-1B accounts than had been expected. If approximately one-third of the unforeseen growth of these accounts represented portfolio shifts from non-M-1B assets, then the 1980:IVQ measured level of M-1B was distorted in the same way that currently observed M-1B is distorted. Removing this distortion from the 1980:IVQ level of M-1B suggests that the base on which 1981 growth targets are constructed might as consistently be set at $410.6 billion rather than $412.5 billion.

This second form of base drift, like the more familiar form, is not relevant to short-run evaluation of money growth relative to annual targets. However, an understanding of the sources of base drift is useful for interpreting growth-rate targets in a longer-range context.

Conclusion

Both policymakers and market participants are dependent on the accuracy of money-stock data to reflect current economic conditions. Although the introduction of nationwide NOW accounts has greatly complicated the interpretation of the money-supply statistics and growth ranges, the distortion is likely to diminish as the introductory phase passes. Allowance for these changes is necessary and appropriate for interpreting money-supply statistics and growth ranges.

7. In notation form,

$$M\text{-}1A^a_t = M\text{-}1A_t + \left[\sum_{i=1}^{t}(1\text{-}P_i)\cdot(\Delta OC_i)\right] \div DSF_t,$$

$$M\text{-}1B^a_t = M\text{-}1B_t - \left[\sum_{i=1}^{t}P_i \cdot (\Delta OC_i)\right] \div SSF_t,$$

where

$M\text{-}1A^a_t$ ($M\text{-}1B^a_t$) = the adjusted level of M-1A (M-1B) at month (t),

$M\text{-}1A_t$ ($M\text{-}1B_t$) = the observed level of M-1A (M-1B) at month (t),

$(1\text{-}P_i)$ = the fraction of increase in other checkable deposits, assumed to stem from demand deposits at month (i),

DSF_t = the seasonal factor for demand deposits and other checkable deposits at month (t).

NOTE: Other symbols are defined in fn. 5.

8. An example may be useful. In January 1981, the observed level of M-1A was $373.3 billion; if 77.5 percent of the $16.2-billion increase in other checkables originated from demand deposits, then adjusted M-1A was $385.6 billion (373.3 + [0.775 (16.2) ÷ 1.019]). If the remaining 22.5 percent of the increase stemmed from non-M-1B sources and the observed level of M-1B was $416.0 billion, then adjusted M-1B was $412.3 billion (416.0 − [0.225 (16.2)] ÷ 0.995). In February, if M-1A was $366.6 billion, and 72.5 percent of the $8.6 billion non-trend growth in other checkables came from demand deposits, adjusted M-1A would be $385.9 billion (366.6 + [0.775 (16.2) + 0.725 (8.6)] ÷ 0.972). Similarly, if observed M-1B was $419.0 billion in February, then adjusted M-1B would be $412.9 billion (419.0 − [0.225 (16.2) + 0.275 (8.6)] ÷ 0.989).

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Interpreting the Ms after the NOWs

by Theresa Gwazdauskas

The nationwide introduction of negotiable order of withdrawal (NOW) accounts on December 31, 1980, has produced large shifts of funds from other assets into these interest-bearing transaction accounts. The deposit shifts distort standard money-supply figures compiled by the Federal Reserve System, adding to the difficulty of interpreting money growth. The bulk of the $37.5-billion increase in other checkable deposits in the first four months of the year appears to have been transferred from regular checking accounts, thus tending to depress growth of the narrow definition of money, M-1A.[1] NOW accounts also have boosted M-1B expansion, because the remaining portion of the increase in other checkable deposits originated in funds previously held in savings accounts and other instruments not included in this aggregate. As a result, growth of these two narrow monetary aggregates has deviated significantly from the normal patterns. Moreover, the money-supply measures are not directly comparable with figures reported for periods prior to the introduction of NOW accounts. Distortions in the measurement of the monetary aggregates pose problems for the Federal Reserve in setting and achieving money-growth targets. These distortions also pose problems for monetary-policy observers and market participants whose decisions are influenced by expectations about short-run System operations in the money market.

This *Economic Commentary* examines possible methods to help gauge and evaluate the NOW-account phenomenon and its impact on the money-supply statistics. It is important to note, however, that the introduction of NOW accounts, and the large shifts of funds that have resulted, has had a sharp impact on the statistics. Although adjustments are necessary, they are bound to be less than fully satisfactory.

Interpreting the Money-Supply Figures

Because the narrower M-1 aggregates are distorted more than either M-2 or M-3, some analysts have turned to the broader aggregates for policy insight. However, data for M-2 are only available on a monthly basis, precluding weekly Fed-watching. Furthermore, many of the components of M-2 are less controllable by the Federal Reserve System and have tended to receive less emphasis than the narrower M-1 transactions aggre-

1. Other checkable deposits include ATS (automatic transfer service) accounts and NOW balances at all depository institutions, credit union share draft balances, and demand deposits at mutual savings banks.

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gates.[2] Other analysts have turned to narrower aggregates such as the monetary base, which directly reflects Federal Reserve operations. However, the Federal Reserve does not set targets for this variable, making it difficult to use the base as a guide to anticipate System reactions. Through the required reserve component, the monetary base also reflects the NOW-account-related deposit shifts. Lacking attractive broader or narrower alternatives, most analysts have continued to focus on the M-1 aggregates.

The 1981 target-growth ranges of 3 percent to 5½ percent for M-1A and 3½ percent to 6 percent for M-1B make no allowance for the NOW-account-related shifts in funds. Consequently, the actual money-supply figures reported each week cannot be directly related to the target ranges without adjusting for the NOW shifts. There are two possible ways to relate current money-stock figures with the target ranges: (1) the target ranges may be adjusted to reflect incoming information about shifts of funds into NOWs, making the targets consistent with the actual path of M-1A and M-1B; or (2) M-1A and M-1B levels may be adjusted on the basis of incoming information about shifts of funds into NOWs, making the data reported consistent with the path of money targets as originally formulated.

Adjusting the Targets

Based on pre-1981 experience with NOW accounts in a small number of states and nationwide experience with ATS accounts, about one-third of the increase in other checkable deposits (in excess of trend growth) during the current year might have been expected to represent balances previously held as either savings deposits or other assets not included in the M-1B aggregate. (Trend growth is the growth that would have been expected in the absence of NOW accounts—see fn. 5.) Restating the 1981 growth-target ranges to allow for the introduction of NOW accounts reduces the range for M-1A to −4½ percent to −2 percent because of shifts of existing demand-deposit balances to NOW accounts; it increases the range for M-1B to 6 percent to 8½ percent because of shifts of existing savings and other asset balances to NOW accounts.[3]

The restatement of the targets depends on forecasts and tentative assumptions about the popularity of NOW accounts. Recent information based on survey and sample sources, although necessarily qualitative, suggests that a somewhat greater portion of incoming NOW account funds in early 1981 represents transfers from demand deposits, perhaps 75 percent to 80 percent.[4] If that estimate is more reliable than the 67 percent assumption used in the construction of the restated 1981 target ranges, then even those restated annual ranges may lead to misinterpretation of short-run money-stock growth relative to desired levels.

Moreover, neither the rate of growth of NOW accounts nor the source of the funds can be expected to be steady over the year. Growth of other checkable deposits is likely to slow after the initial adjustment to the nationwide introduction of NOW accounts. The unexpectedly large increase in the first four months of the year front-end loads the growth of other checkable deposits. The monthly target-range levels implied by the annual target ranges do not reflect this front-end loading. Without an adjustment to the original targets, actual M-1B expansion in the early part of the year will appear to be more rapid relative to its established growth range than to a target range that does not assume stable growth in other checkable deposits. This problem can be resolved by adjusting the targets monthly on the basis of actual increases in other checkable deposits rather than assuming a steady increase over the course of the entire year.

A further adjustment should be made to incorporate incoming information about the portion of other checkable deposits originating from non-M-1B sources. Actual data measuring the precise deposit shifts are not available, as it is extremely difficult to monitor portfolio adjustments of the public. Current surveys of depository-institution managers and households suggest that perhaps 20 percent to 25 percent of other checkable deposit growth in 1981:IQ resulted from shifts in non-M-1B components, such as savings deposits.

Available data suggest that the proportion of the increase in other checkable deposits (in excess of trend growth) originating from non-M-1B sources has increased since early in the year, much as was expected. In January 1981 the proportion was estimated at 22.5 percent, and in February and March it was 27.5 percent; the percentage is expected to rise gradually so that it reaches 33 percent over the course of the year (the percentage assumed in setting the 1981 target ranges). To reflect this change, an adjustment should be made to each month's M-1B target-range levels.[5] That is, the restated target level for M-1B in any month, quarter, or year is equal to the original target (3½ percent to 6 percent for M-1B), plus the portion of the growth of NOW accounts that is estimated to have been transferred from non-M-1B sources since 1980:IVQ. In January 1981, for example, the lower boundary of the M-1B long-run target range at 3½ percent was $414.9 billion; non-seasonally trend adjusted other checkables grew $16.2 billion. If 22.5 percent of this increase came from non-M-1B balances, then adding this portion, after seasonal adjustment, would make the appropriate lower end of the M-1B target range for January $418.6 billion.[6] In February the lower boundary of the M-1B long-run target range was $416.1 billion, non-seasonally adjusted other checkables grew $7.9 billion, and trend growth amounted to −$700 million. If 27.5 percent of the trend-adjusted increase came from non-M-1B balances, then adding the January and February portions, after seasonal adjustment, to targets would make the appropriate lower end of the M-1B target range $422.1 billion.

Target-growth levels are adjusted for past months as data become available. Restated target levels for the remainder of the year can be estimated from assumptions about the unknown parameters—the portion of the increase in other checkable deposits from non-M-1B sources and the increase in other checkables in excess of trend. If the proportion of the increase in other checkables stemming from demand deposits over the 12-month period is still expected to average 33 percent, and the expected increase in other checkable deposits over the year is that assumed in the adjusted Humphrey-Hawkins target ranges, then the adjusted M-1B target-range levels should converge to the endpoints of the 6 percent to 8½ percent range.

Adjusting the Money-Supply Figures

A second method for evaluating current money-stock data is to adjust actual money-stock levels for the estimated impact of NOW-account-related deposit shifts and to use those adjusted levels to gauge growth relative to the 3 percent to 5½ percent and 3½ percent to 6 percent target ranges for M-1A and M-1B, respectively. Observed money numbers since the beginning of the year overstate M-1B and understate M-1A relative to their levels before January 1. Adding the increase in other checkable deposits shifted from demand deposits to the M-1A aggregate or subtracting the increase

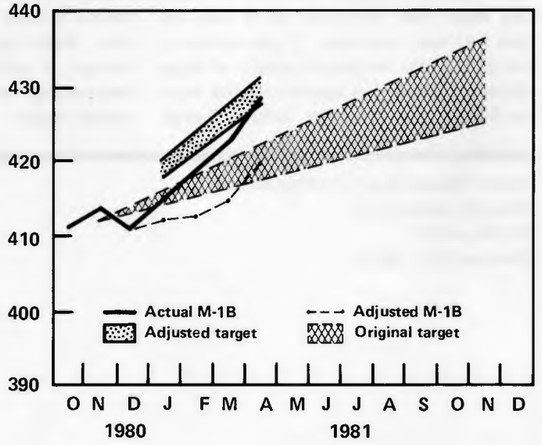
The Targets

The Federal Reserve is required by the Full Employment and Balanced Growth Act of 1978 to report monetary-aggregate growth objectives or targets to Congress. On February 25, 1981, growth ranges for 1980:IVQ to 1981:IVQ were set at 3 percent to 5½ percent for the narrowest aggregate, M-1A, which consists of demand deposits and currency; 3½ percent to 6 percent for M-1B, which includes M-1A and other checkable deposits at banks and thrift institutions; 6 percent to 9 percent for M-2, which includes M-1B plus overnight RPs and Eurodollars, money-market-mutual fund shares, and savings and small-denomination time deposits at all depository institutions; and 6½ percent to 9½ percent for M-3, the aggregate that consists of M-2 plus large-denomination time deposits and term RPs at all depository institutions.

The 1981 target-growth ranges for both of the M-1 measures represent a ½ percentage point reduction from the 1980 target ranges, reflecting System policy to slow the growth of the money stock gradually over time. Ranges for M-2 and M-3 remain unchanged from 1980.

Annual money-growth targets provide a basis for interpreting open market operations of the Federal Reserve System. Many analysts track actual money growth over the short term to evaluate System progress toward the announced long-run growth goals. Release of weekly and monthly money-stock levels by the Federal Reserve therefore is monitored by so-called Fed watchers, who attempt to anticipate the direction of System actions.

Actual and Adjusted M-1B Targets and Ranges



2. Under a reserve operating procedure, monetary control generally is strengthened with aggregates that contain a greater proportion of reservable assets. See Kenneth J. Kopecky, "The Relationship between Reserve Ratios and the Monetary Aggregates under Reserves and Federal Funds Rate Operating Targets," Staff Economic Studies 100 (Board of Governors of the Federal Reserve System, December 1978).

3. See *Monetary Policy Objectives for 1981*, Summary of Report to the Congress on Monetary Policy pursuant to the Full Employment and Balanced Growth Act of 1978. Presented by Paul A. Volcker, Chairman, Federal Reserve Board, February 25-26, 1981.

4. See "New Seasonal Adjustment," Federal Reserve Statistical Release H.6 (508), May 1, 1981.

5. This may be done by using the formula below:

$$RT_{M\text{-}1B_t} = T_{M\text{-}1B_t} + \left[\sum_{i=1}^{t} P_i \cdot (\Delta OC_i)\right] \div SSF_t,$$

where

$RT_{M\text{-}1B_t}$ = the restated M-1B target range level at month (t),

$T_{M\text{-}1B_t}$ = the original M-1B target range level at month (t),

P_i = the fraction of increase in other checkable deposits, assumed to stem from non-M-1B sources at month (i),

ΔOC_i = the monthly increase in non-seasonally adjusted other checkable deposits in excess of trend in month (i), where i=1 is January 1981. Non-seasonally adjusted trend growth in January 1981 was $0 million; in February, −$700 million; in March, $300 million; in April, $900 million,

SSF_t = the seasonal factor for commercial-bank savings deposits in month (t).

6. Some difficulty arises in seasonally adjusting other checkable deposits, because those funds originate from various sources. The estimated portion from demand deposits is added to demand deposits and divided by the demand-deposit and other checkable deposits seasonal-adjustment factor; the estimated portion from savings deposits is divided by the commercial-bank savings deposits seasonal-adjustment factor.