Regulatory innovation: The new bank accounts

Gillian Garcia and Annie McMahon

Financial innovations are new ways to make money. Many, and usually the most successful innovations are initiated by the market. They are introduced by financial firms in response to opportunities to earn profits. Some innovations take advantage of technical progress.

Others occur in response to government regulation. Yet other innovations, such as the money market deposit and Super NOW accounts, are initiated by the regulators themselves.

Whatever their source, financial innovations have repercussions for the management of financial institutions. And they have important implications for the conduct of monetary policy. Both of these topics are discussed in this paper.

The Money Market Deposit Account

In the Garn-St Germain Depository Institutions Act of 1982, the Congress authorized an account to provide depository institutions with an instrument that is "directly equivalent to and competitive with money market mutual funds." The result was the money market deposit account (MMDA). Money market mutual funds (MMMFs) had grown rapidly after their introduction in 1972 (Figure 1). They allowed the public to earn market rates of interest, at times when Regulation Q was binding, and they offered limited transactions features. This set of characteristics proved very popular.

The MMDA offers these features and more. It has been widely available since December 14, 1982. It is federally insured and pays an interest rate that is restricted only by the discretion of the institution (on initial and maintained average balances of $2,500 or more). Its features vary from institution to institution, but the authorizing act decrees some common denominators. The account offers limited transaction features: six transfers per month—pre-authorized, automatic, or by telephone, of which no more than three may be by check. Personal withdrawals are unlimited, however. On personal accounts the account carries no reserve requirements; a 3 percent reserve is imposed on nonpersonal accounts. If the average balance falls below $2,500, the NOW account ceiling comes into effect.

The finer details of the account's configuration were established by the Depository Institutions Deregulation Committee (DIDC).[1] The DIDC was so pleased with the press and financial community's enthusiastic response to the pending account that it was encouraged to quickly authorize another account, the Super NOW account (SNOW), that became available on January 5, 1983.

The Super NOW Account

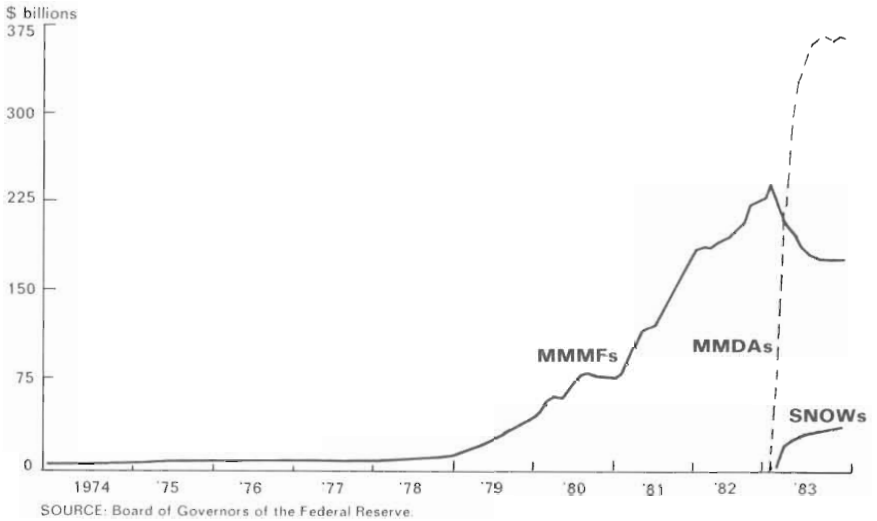
This account is a second regulatory innovation to help banks and thrifts to compete with money market mutual funds. The SNOW account clientele is more limited than that of the MMDA (which is unrestricted). SNOWs are available to households, government agencies, and nonprofit organizations, as are NOW accounts in general.[2] The SNOW account has unlimited transaction features, and pays unregulated interest rates on

Gillian Garcia is a senior economist at the Federal Reserve Bank of Chicago. Annie McMahon, a student intern at the Chicago Fed when this article was written, is now a banking associate at Continental Bank of Illinois. The authors thank Thomas Gittings, Anne Marie Gonczy, Randall Merris, and Harvey Rosenblum for helpful comments.

[1]The DIDC was established by the Depository Institution's Deregulation and Monetary Control Act (DIDMCA) of 1980, to co-ordinate the different federal regulators progress toward the deregulation of interest rates.

[2]The NOW account was extended nationwide in January 1981, as authorized by the Depository Institutions Deregulation and Monetary Control Act. At that time it was available only to households and to nonprofit organizations. Its clientele was extended by the Garn-St Germain Depository Institutions Act, to include federal, state, and local government deposits.

Figure 1
Funds in MMMFs, MMDAs, and SNOW accounts



SOURCE: Board of Governors of the Federal Reserve.

initial and maintained balances of $2,500 or more. But it carries reserve requirements as a transaction account (currently at 12 percent).

Account experience

The MMDA has been extremely popular to date and has been a notable success in attracting funds. As the data in Figure 1 show, it grew rapidly after its introduction, surpassed MMMFs, which were declining in volume, six weeks after its introduction. After one more week, MMDAs had exceeded the $242 billion peak that MMMFs had attained in November 1982, ten years after their introduction. By the end of May 1983, MMDAs had reached $360 billion in value. They are a success by any standard.

The SNOW experience has been less spectacular. Its particular configuration of features has proved less popular than that of the MMDA. The account exceeded $25 billion after nine weeks and had reached $38 billion by December 1983.

Effects on depository institutions

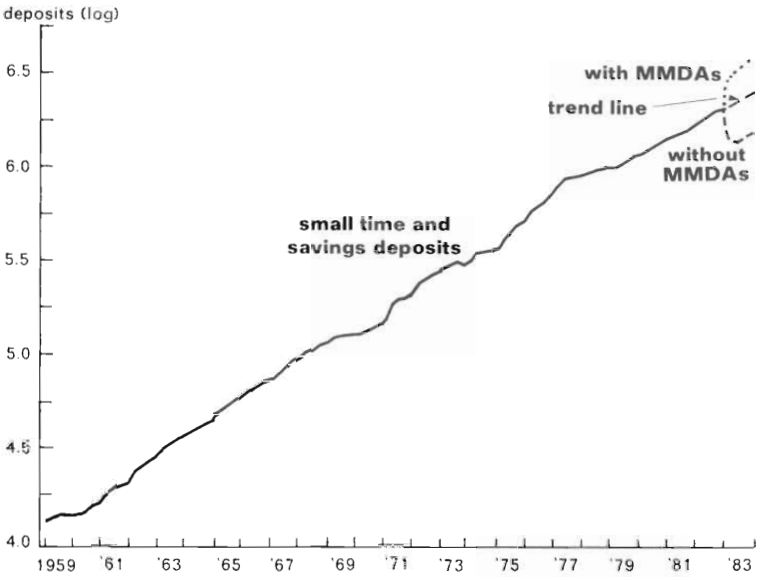
It is evident that the two accounts have been successful and that MMMFs have suffered as a result. In an attempt to measure these effects, a simple time series analysis of the behavior of the three accounts was undertaken. The motivation for this approach is described in the box. The results of these analyses are reported in the figures that follow.

Commercial banks:

The simple time series model that best fits commercial bank savings and small time deposits was estimated from monthly data for the period January 1959 through November 1981. The data show that the model tracked the behavior of the actual series so well that it is virtually impossible to discern divergences between the actual and model values in Figure 2. Based on this past behavior, the series is extrapolated into the period after November 1981 in the chart. It shows that the regression model continued to fit well, until the advent of the MMDA. Thereafter, the series diverges noticeably from trend.

While MMDAs are considered to be primarily a household sector savings vehicle, they have some transactions features. For this reason, they are excluded from Federal Reserve data on savings and small time deposits. Figure 2 shows that funds in this small account series fell sharply

Figure 2
Commercial bank deposits forecast



after November 1982. On the other hand, the value of MMDAs *plus* savings and small time deposits at commercial banks has risen sharply since that time. These findings reinforce the intuitive notion that some, but not all, of the funds entering the new accounts have come from in-house sources, such as passbook savings deposits and six-month money market certificates.

The residuals, that is the differences between the actual and the predicted values for commercial bank combined deposits, are shown in Figure 3. The chart demonstrates that the introduction of the MMDA raised the growth rate of small deposits far above the previously expected experience. In short, the account's introduction dramatically raised the total value of funds that commercial banks obtained from consumers and small businesses.

Money Market Mutual Funds:

A similar simple representation of the experiences of money market mutual funds is given in Figure 4. The chart shows the deviations of the actual from the predicted values for money market mutual fund volumes. Here the predictions arise from a time series regression equation that is estimated through November 1982, just prior to the advent of the new accounts. After prediction difficulties during 1974—typical in the period immediately following the introduction of a new financial instrument—the regression successfully tracks the behavior of MMMFs until the advent of MMDAs. Thereafter, the behavior of the money market mutual funds series stands in marked contrast to the experience of banks' consumer deposits. Actual growth rates of MMMF assets in the post-November 1982 period fall substantially below those predicted by the pre-MMDA behavior.

To make sure that this finding did not arise artificially as a result of ending the estimation period for the regression immediately before the introduction of the new account, another experiment was conducted. The regression was recalculated with the estimation period ending twelve months before the initiation of the new account.[3] The conclusions are unchanged. This second

[3]The commercial bank model was also estimated for both periods. The commercial bank series produce undistinguishably similar results regardless of whether the estimation period runs through November 1981 or November 1982.

Figure 3
Bank small time and savings deposits including MMDAs—residuals

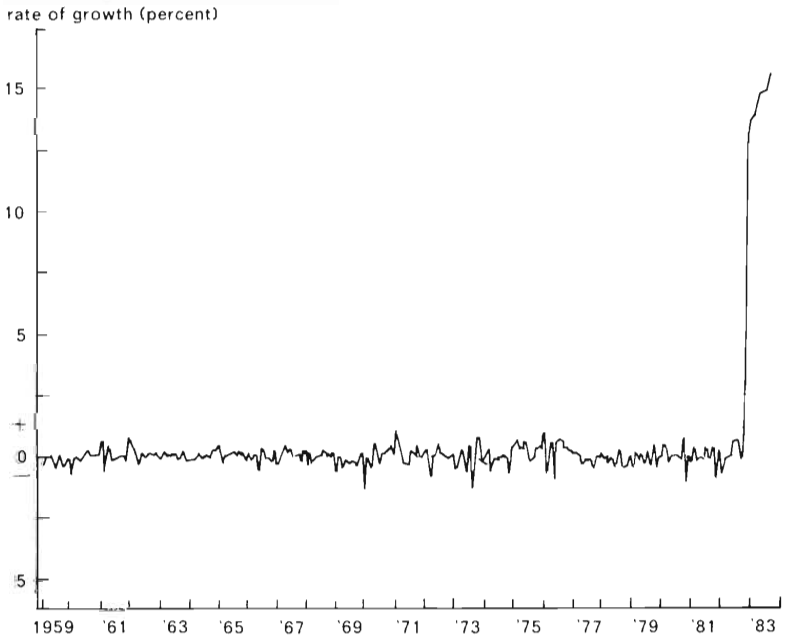
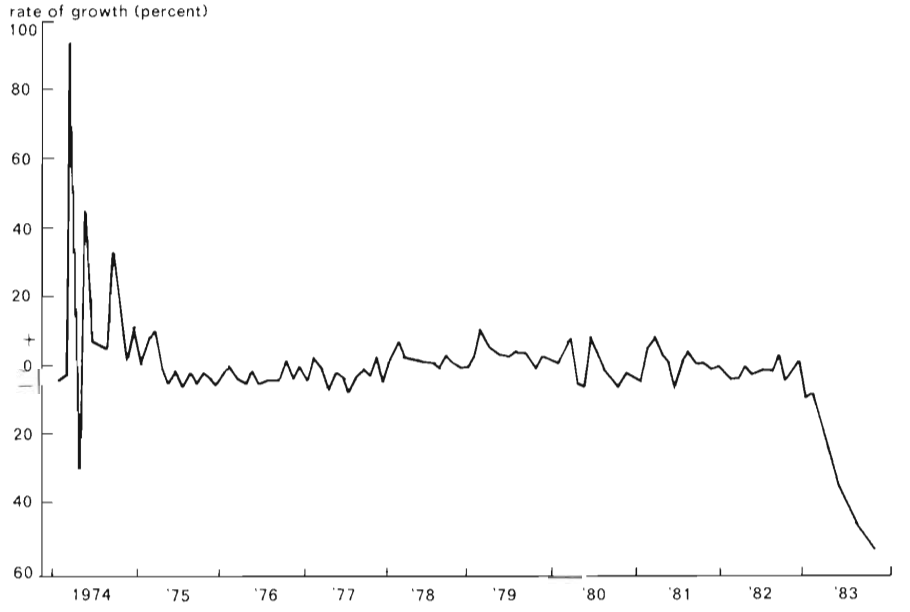


Figure 4
MMMFs—residuals



simple model is reasonably successful in estimating the behavior of MMMFs until December 1982. From that month on, as previously, the regression substantially overestimates fund residuals. This second MMMF regression, not reproduced in this article, highlights one new facet of fund behavior. While the funds continued to grow during 1982, their growth rate had begun to decline even before the introduction of the new accounts. However, the MMD account has significantly worsened the environment for money market funds.

Thrifts:

The results of similar experiments for thrift savings and small time deposits do not produce such unambiguous results. The reason is that in December 1982, when the new accounts began to be available, thrift deposit levels were already substantially below trend (Figure 5). This experience resulted partly from disintermediation, partly from the recession that was then bottoming out, and partly also from some public loss of confidence in the industry as a result of the S&L crisis.[4]

The worst of the thrift deposit losses occurred during 1982. Consequently estimating a time series model through that year and projecting future deposit levels based on past, weak experience shows the actual growth rates achieved after the introduction of the new accounts to have been substantially and beneficially affected. This interpretation is shown in Figure 6 which portrays regression residuals from the full period (through November 1982) regression.

However, re-estimating the regression to stop in November 1981 leaves the industry expecting a more optimistic outcome for 1982 than, in fact, occurred. Predicting industry performance beyond that year and comparing actual experience with the projections show substan-

[4]The S&L crisis is described in Carron (1982) and the Federal Reserve Bank of Chicago 1983 a,b).

Figure 5
Thrift institution deposits forecast

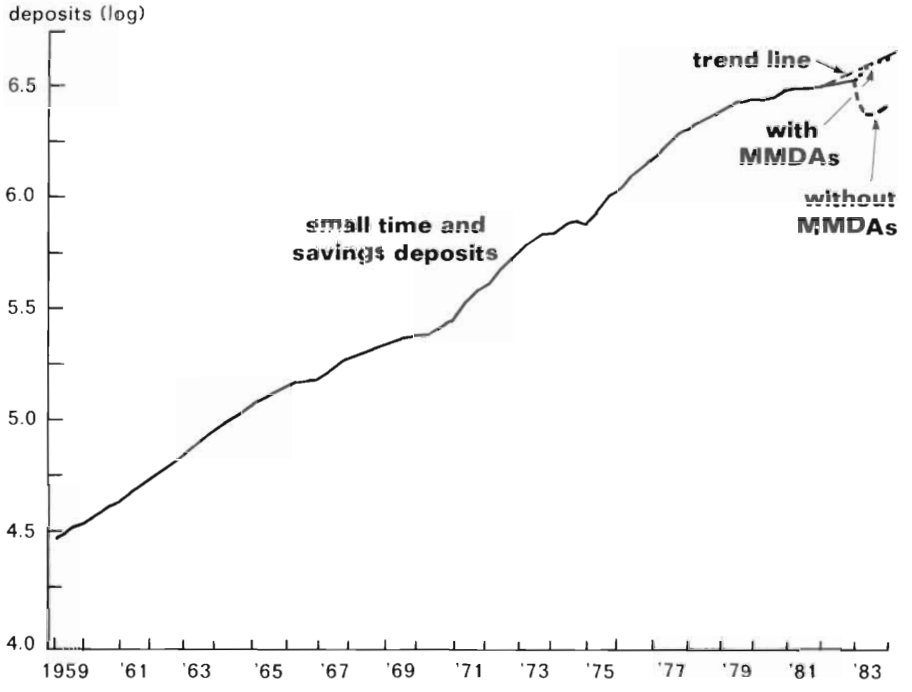
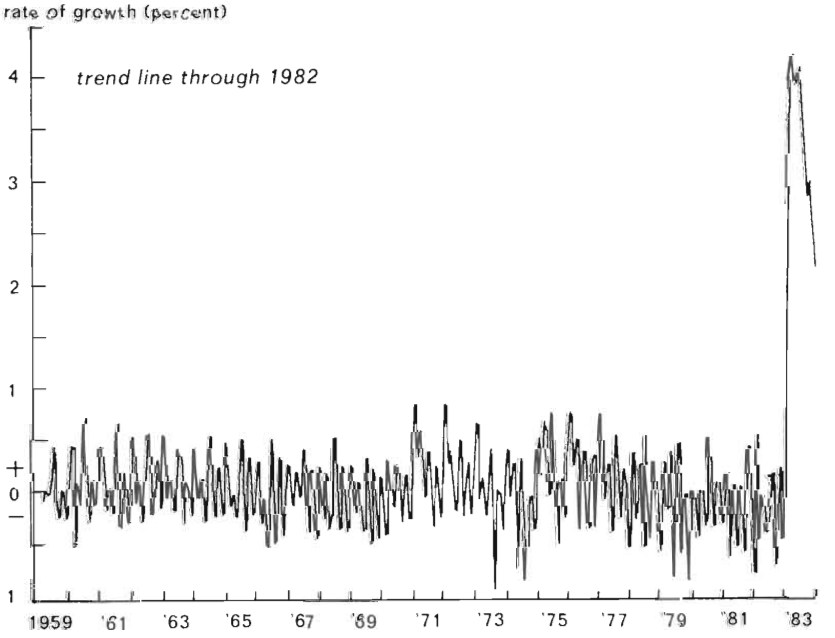


Figure 6
Thrift small time and savings deposits including MMDAs—residuals



tially negative residuals (Figure 7). The introduction of the two new accounts a year later reverses the deteriorating deposit position. The actual growth rates early in 1983 are restored to levels approaching those expected from experience through 1981. But they do not return the industry near par for long—the early 1983 gains are lost by the end of the year.

Contrasting experiences

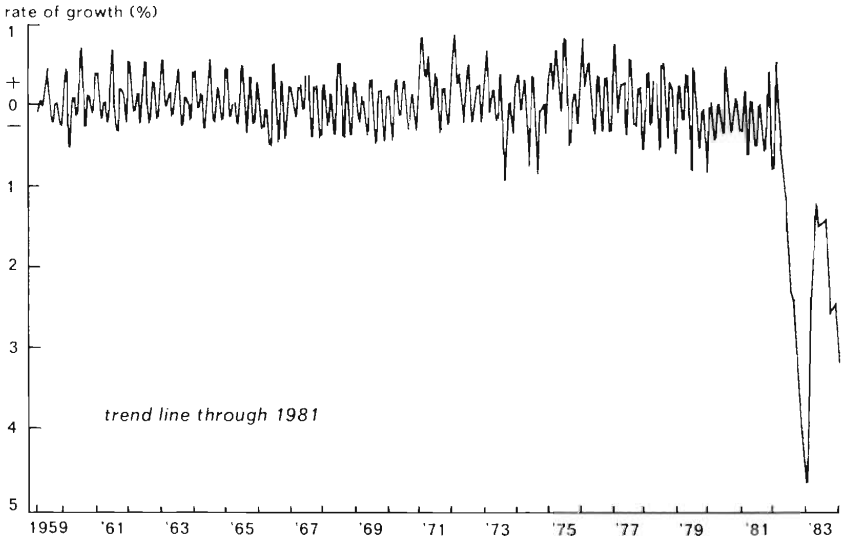
Thus, after November 1982, the values for commercial bank and thrift savings and small time deposits were raised substantially above their earlier levels. Although both banks and thrifts benefited from the two accounts, the two residual series show some differences. Commercial banks benefit unambiguously and more than thrifts. Moreover, commercial banks account growth was sustained after the initial spurt, while thrifts relinquished some of their initial gains as 1983 progressed. Indeed, during the second half of 1983, the value of MMDA funds in commercial banks continued to grow, while those at thrifts were declining.[5] Consequently, while the total, combined value of bank and thrift funds in MMDA accounts varied little in the second half of 1983, their composition was changing markedly—shifting from thrifts to banks. In sharp contrast, MMMF levels were seriously depleted following the introduction of the two regulatory innovations.

Implications for managers

The inflow of funds into banks and thrift consumer-type accounts has the potential for two effects upon operations. To the extent that

[5]It is acknowledged that deposit flows are not totally exogenous to banks and thrifts. In particular, where deposits pay unregulated rates, institutions can influence their deposit flows by varying the rates they pay. Advertising and other promotional activities are also relevant, as will be discussed in a later article in this journal. Moreover, MMDAs, which can be instantly withdrawn, are potentially more useful to banks than to thrifts, because banks' asset portfolios have shorter maturity and duration than thrifts (Kaufman 1984).

Figure 7
Thrift small time and savings deposits including MMDAs—residuals



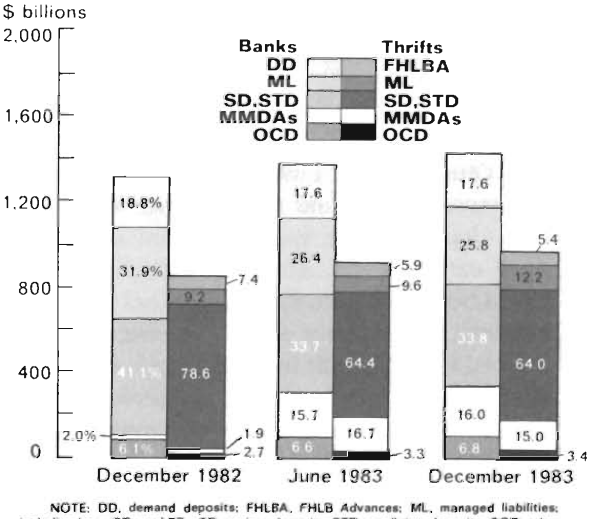
the total volume of funds received by banks and thrifts rises, they are in a position to increase their lending activities. They can make more mortgages, consumer, and business loans and/or purchase more government securities. Profitable uses for the new funds must be found. Such overall changes are expected to show up in the data for the money aggregates. These will be discussed in the following section.

On the other hand, the inflow in one area may be counterbalanced by outflows elsewhere. If MMDAs and SNOWs merely replace other funds, the total value of bank and thrifts liabilities (and, therefore, their assets) will not change. But the composition of their liability portfolios will be different.

In fact, both of these possibilities occurred after the introduction of the new accounts. Total resources available to depository institutions rose and the composition of their portfolios changed. Figure 8 shows these changes in total volume and in composition for commercial banks and thrifts.

During the first six months of the accounts, the sum of the most important elements in commercial bank liability portfolios rose 4.1 percent. It rose another 4.0 percent during the second half of 1983. Among the components, commercial bank demand deposits rose lethargically, while other checkable deposits (which include SNOWs) continued the strong growth that they have shown since NOW accounts first became available nationwide in January 1981. The bank savings and small time deposit series

Figure 8
The composition of bank and thrift liabilities



NOTE: DD, demand deposits; FHLBA, FHLB Advances; ML, managed liabilities; including large CDs and RPs; SD, savings deposits; STD, small time deposits; OCD, other checkable deposits.

declined as did the major managed liabilities. These declines are more pronounced in the first half of the year than the second. Among the two components of managed liabilities included here, large time deposits declined, while RPs increased.[6]

The level of the principal market sources of thrift funds rose 9.0 percent in the first half of 1983 and 5.9 percent in the second half. Other checkables gained strongly, but savings and small time deposits declined significantly. RPs increased and in contrast to banks, so did large CDs, so that managed liabilities in general rose.[7] However, S&L reliance on advances from the Federal Home Loan Bank Board (FHLBB) was substantially reduced. Consequently the semiannual increases in total thrift funds including advances was smaller (at 7.2 percent in the first half of the year and 5.3 percent in the second half).

Implications for the monetary aggregates

Particular caution must be exercised in applying the methodology described in the box to any discussion of monetary policy. The monetary aggregates are closely monitored by the Federal Reserve. When it is clearly apparent that any aggregate (M1, M2, M3 or total domestic nonfinancial credit) is deviating from the System's targeted ranges, remedial policy action is (normally) taken. For this reason, when a deviation from trend occurs, it is not apparent whether this has been engineered by the Fed in some change in policy, or whether the deviation results from some other event, such as the unexpected popularity of a financial innovation.

The Federal Reserve eased its policy stance during the summer of 1982, and the growth rate of the monetary aggregates accelerated. Consequently, to estimate the time series models for the monetary aggregates with the date ending in November 1983 would confuse the issue. By 1983 the growth rate would have increased both in response to policy and possibly also because of the innovation of the two new accounts. For this reason, the estimation period ends in November 1982, immediately prior to the introduction of the MMDA.

The time series models (Figures 9, 10, and 11) show that all three money aggregates were affected by the new accounts. The relative extent of the impact varies among the aggregates, however.

Figure 9 shows that the level of M1 was subjected to a positive shock during the first half of 1983. This is an interesting finding, because it was not known at that time whether the likely positive inflows of funds into M1 from SNOWs and expiring All Savers Certificates would be counterbalanced by possible outflows to MMDAs (which enter the aggregates first at the M2 level). Figure 11 shows that the inflows more than compensated for the outflows, so that the account grew rapidly.

By midyear 1983, the surge in M1 growth was over. Since midyear 1983, M1 appears to be growing at a rate parallel to that experienced in late 1982, albeit at a higher level. This finding is reassuring, for it suggests that it is now more feasible to return to using M1 as the principal monetary target. Indeed, the Board has recently announced that it will pay more attention to M1 during 1984 (Board of Governors, the Federal Reserve, 1984, p. 72).

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[6]The large time deposit series most often quoted come from Federal Reserve Release H.6, which provides time series data on the components of the monetary aggregates. The M2 monetary aggregates include the majority of MMMF funds. Consequently, to avoid double counting at the M3 level (where large CDs enter the monetary aggregates), commercial bank sales of large CDs to MMMFs are excluded. However, the data on the availability of funds to depository institutions should include such CD holdings. These data are provided in the Federal Reserve series G10. The G10 series shows, as might be expected, sharper declines in large CD holdings at banks:

Bank CD holdings
n.s.a. $ billions

	December 1982	June 1983	December 1983
H.6 series	270.0	226.2	230.9
G 10 series	353.9	283.5	287.1

[7]The rise in the thrift holdings of large CDs may be a reflection of the increase in brokered deposits. Federal Home Loan Bank staff estimated that brokered deposits at FSLIC-insured associations rose from $9.3 billion in December 1982 to $28.8 billion at the end of December 1983. Brokered deposits present problems to the bank and thrift deposit insurance agencies. (See Federal Home Loan Bank Board, 1984).

As expected, because MMDAs are included first in the monetary stock hierachy at the M2 level, this aggregate has been the most sharply affected of the monetary aggregates (see Figure 10). M2 has not yet returned to its pre-innovation rate of growth.[8]

[8]The conclusion is reinforced by the behavior of the residual series, which is not shown in order to conserve space.

The picture for M3 (in Figure 11), however, is different. An important part of the substitution in depository institution portfolios has occurred within the M3 level. For example, large time deposits enter at this level. Thus the picture of M3 behavior shows that this aggregate was only slightly affected by the new accounts. This picture is also borne out by the behavior of the residuals (not shown).

Time series forecasting

The methodology adopted in this paper involves forecasting. The predictions, derived from simple time series analysis, are then used in an innovative way. The combined impact of the two financial innovations is measured by comparing what actually happened after the introduction of the new accounts, with what is predicted to have happened if the accounts had not been introduced. The time series analysis provides these predictions.

The method used for predicting what would have happened, absent the accounts, is intended to be agnostic. That is, it bases the forecasts of the future behavior of any economic variable at different, regular intervals in time (a time series) entirely on the past behavior of that series. No information about the behavior of any other series is needed for this kind of forecast. This simplifies the forecasting process. Time series analysis says essentially: there is a pattern to the behavior over time of the series. Absent some innovation or other disturbance, this pattern is expected to continue.

Computer programs exist for experimenting with many different patterns and statisticians have described ways to distinguish patterns that fit well from those that do not. Some of the patterns that might be observed result from seasonal variation in the data. These patterns are eliminated when the Federal Reserve seasonally adjusts its data. Consequently, because seasonally adjusted data are used (whenever available) in this study, only non-seasonal patterns were (in general) found in the data.

The model chosen

The model that best fits the different series is a simple one—an autoregressive, integrated, moving average (ARIMA) of order (1,1,0) fitted to the logarithms of the data. Further technical information on forecasting using time series modeling can be found in texts devoted to that subject (Box and Jenkins, 1976; Nelson, 1973).

Interpreting the model

Essentially, an ARIMA of order (1,1,0) applied to log data says that the rate of growth of the time series in this period is equal to some proportion, of the previous period's growth rate plus some error.

To estimate the impact created by the new accounts on any variable, the time series behavior of that variable is estimated up to some time before the new account is introduced. Future behavior is then forecast based on this past experience. Next, the actual behavior is compared to that predicted. The differences between the two series (called *the residuals*) then estimate the effects of the innovation on the series' growth rates.

A caution

It must be emphasized that this technique is not definitive. It can only be indicative of the effect of the innovation. Other events, beyond the introduction of the new accounts, have occurred and these may have affected the behavior of the variables being studied. The present methodology takes no explicit account of these other factors. It should be used with appropriate caution, therefore. This caveat is particularly applicable to the money stock data, whose behavior is responsive to changes in Federal Reserve policy as well as other economic forces.

Figure 9
M1 forecast

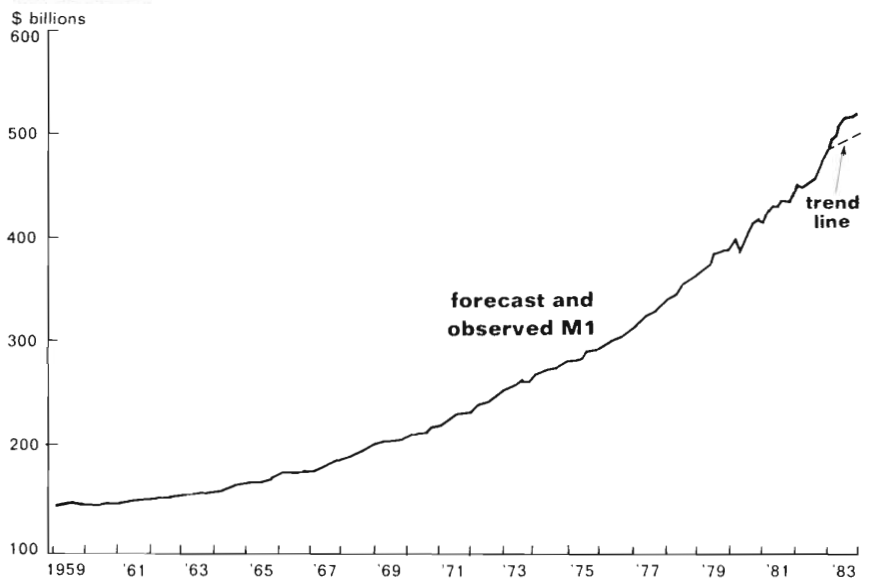


Figure 10
M2 forecast

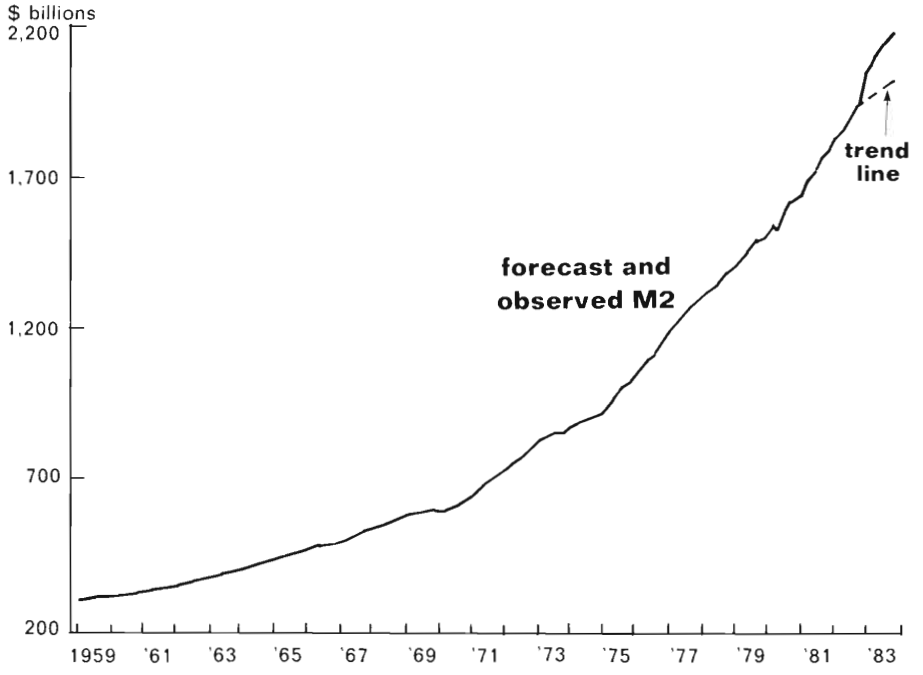
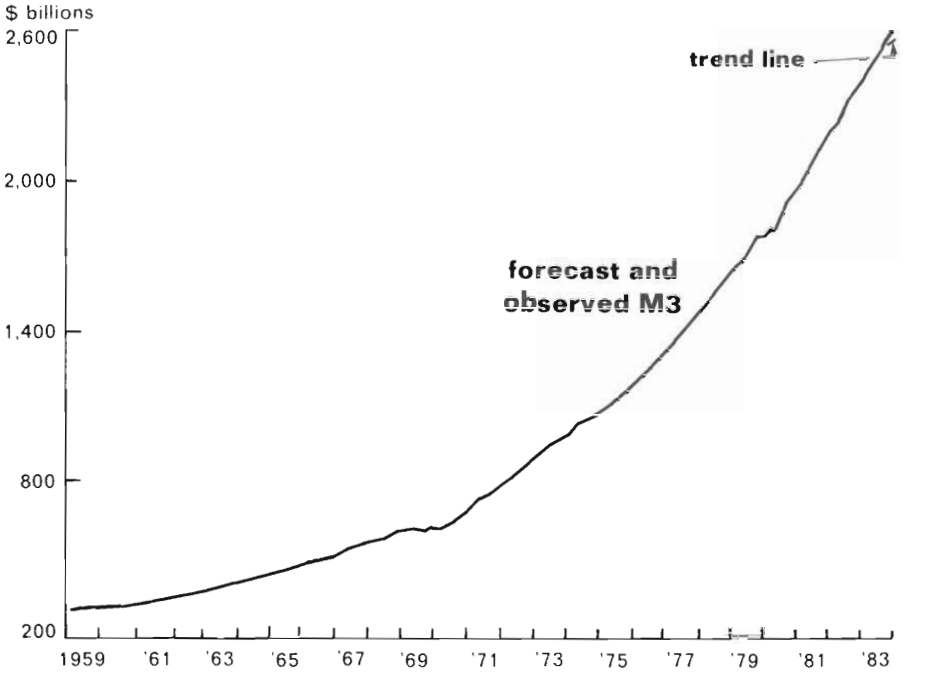


Figure 11
M3 forecast



Summary

The analysis in this paper shows that the negative impact of the 1981-82 recession, disintermediation, and the S&L crisis on thrift deposit levels were reversed by the introduction of the new accounts. Thrift deposit levels were raised above their 1982 trend during the early months of the account and thereafter returned to trend. The effects on bank consumer deposits were far more positive. They were raised, and have remained, substantially above trend. Money market mutual funds have lost their earlier advantage. Their strong pre-MMDA and SNOW growth has been reversed and declines have continued into January 1984.

The accumulation of funds in the new accounts has been counterbalanced to a substantial extent by decreased depository institution reliance on other sources of funds, such as savings and small time deposits. Banks, but not thrifts, have decreased the levels of their large CD liabilities. S&Ls rely less on FHLBB advances.

The changes have had implications for the behavior of the monetary aggregates. The level and the growth rate of M1 rose during the first half of 1983. However, by the end of the 1983 the impact of the changes in the financial system on M1 appeared to be over. Consequently, it is now feasible to place increasing reliance on M1 again in monetary policy determination and implementation. M2 was the most affected of the aggregates and M3 the least.

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