Automatic Transfers and Monetary Policy

By Scott Winningham

Since November 1, 1978, banks and their customers have been permitted to arrange automatic transfers of funds from personal savings accounts to checking accounts whenever a checking account balance falls below a level previously agreed upon by the bank and customer. The idea to allow automatic transfers is not new. The Board of Governors of the Federal Reserve System originally proposed automatic transfers in 1976 and revived the proposal in February 1978. By May 1, the Federal Reserve System had received a record number of comnients on the proposal, the majority of which were favorable. After. extensive review of the comments, an amended version of the proposal was approved, effective November 1. The Board's action applied only to the approximately 5,600 commercial banks that are members of the Federal Reserve System. However, on May 5, the Federal Deposit Insurance Corporation approved a regulatory change that allows the 8,731 commercial banks and 324 mutual savings banks that it regulates to offer automatic transfers.

Most decisions about the terms of automatic transfers have been left to banks. Banks are allowed to decide such terms as minimum balances, minimum amounts to be transferred, per transfer fees, per check fees, fixed monthly fees, forfeiture of interest, and the specified level of demand deposit balances at which transfers occur. However, automatic transfers can be used only by individuals, not by businesses, government agencies, or nonprofit institutions. Also, a bank must still reserve the right to at least 30 days' notice prior to withdrawal of a savings deposit.

This article examines the monetary policy implications of allowing automatic transfers. The first section considers the effects of automatic transfers on several measures of the money supply--called monetary aggregates—while the second section analyzes the effects of automatic transfers on the Federal Reserve System's ability to control the monetary aggregates. The last section briefly discusses the objectives of monetary policy, the relationships between the monetary aggregates and these policy objectives, and the effects of automatic transfers on these relationships.

THE EFFECTS OF AUTOMATIC TRANSFERS ON THE MONETARY AGGREGATES

Automatic transfers (AT's) may affect the monetary aggregates by affecting the demand and supply factors for the various components of the aggregates. The monetary aggregates

considered in this article are usually denoted M1, M2, and M3. M1 consists of currency and demand deposits (checking account balances) held by the nonbank public. M2 is equal to M1 plus time and savings deposits at commercial banks other than large negotiable certificates of deposit at weekly reporting banks. M3 is equal to M2 plus deposits at nonbank thrift institutions. This section first considers the demand effects, then discusses the supply effects, and finally illustrates how estimates may be obtained of the demand and supply effects of AT's on the monetary aggregates.

Demand Effects

AT's may affect M1 by reducing the public's demand for demand deposits. Since demand deposits do not pay interest, one might wonder why individuals hold any demand deposits since most other financial assets do pay interest.[1] The answer, of course, is that checks may be written on demand deposit balances but not, in general, on funds held in other financial assets. In other words, demand deposits are transactions balances while these other assets are not.

Transactions balances are funds that can be used as a medium of exchange. Besides currency, transactions balances include funds in financial institutions with which payments for goods and services can be made directly using checks or check-like instruments. The costs of a transactions balance are any service costs charged by a financial institution plus the interest that is foregone from not holding higher yielding, interest-bearing assets. The benefit of a transactions balance is the convenience.

AT's allow individuals to keep larger amounts in their savings accounts and smaller amounts as transactions balances in their checking accounts. Because savings deposits pay interest while checking accounts do not, AT's may reduce the cost to individuals of maintaining transactions balances because less interest is foregone. Therefore, unless service costs on AT's are prohibitive, AT's induce the public to hold more savings deposit balances and less demand deposit balances.

The extent that savings and demand deposit balances are affected depends largely on the terms that banks establish for AT's. Individuals will shift funds from demand to savings deposit accounts with AT services if shifts increase interest income net of service costs. Abstracting from all terms except fixed and per transfer (or per check) fees, individuals will shift demand deposit funds into savings deposits with AT services if $rB > f + tN$, where $>$ means greater than, r is the monthly interest rate on savings deposits, B is the average balance, f is a monthly fixed fee, t is a per transfer (or per check) fee, and N is the number of automatic transfers (or the number of checks) made in a month.[2]

Banks have established a wide range of different values of the monthly fixed fee, f, and the per transfer (or per check) fee, t. For example, one large New York bank has set f equal to $3.00 and t equal to $0.25. The f and t values established by an Ohio bank holding company for its affiliate banks vary inversely with the sizes of depositors' balances: For deposits up to $500, f is $5.00, and t is $0.20;

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1 Federally insured commercial banks have been legally prohibited from paying interest on demand deposits since 1933. For background information and a discussion of the current controversy about paying interest on demand deposits, see Bryon Higgins, "Interest Payments on Demand Deposits: Historical Evolution and Current Controversy," Federal Reserve Bank of Kansas City *Monthly Review,* July-August 1977, pp. 3-11.

2 In the above formula, the interest earned from the savings account is on an after-taxes basis. To the extent that income taxes reduce these earnings, a larger balance would be required to make an AT account profitable.

Table 1
MAXIMUM NUMBER OF PROFITABLE AT'S PER MONTH FOR BANK CUSTOMERS WITH VARIOUS BALANCES

Average Balance	Maximum Number of Profitable AT's Per Month		
	NY Bank	Ohio Holding Company	KC Bank*
$ 100	–	–	2
200	–	–	5
300	–	–	8
400	–	–	11
500	–	2	13
600	–	5	16
700	–	7	19
800	1	9	22
900	3	11	25
1,000	4	17	27
1,500	13	31	41
2,000	21	45	55
2,500	29	89	69

'For this bank the numbers refer to checks, not AT's, per month.

for deposits between $500 and $5,000, f is $1.50 and t varies between $0.20 and zero depending on the size of the account; and for deposits over $5,000, f and t are both zero. Still another combination of f and t has been established by a Kansas City bank: For combined demand .and savings accounts balances less than $5,000, f is zero and t (a per check fee in this case) is $0.15; for balances over $5,000, f and t are zero.

Table 1 shows that the effects of AT's on demand and savings deposits depend on how banks price AT's. The table indicates the maximum number of AT's per month that a bank customer could profitably make under the various pricing schedules cited, using the formula described earlier and assuming the present 5 per cent annual interest rate ceiling on commercial bank savings deposits. With a pricing schedule similar to that of the New York bank, AT's benefit only those households that currently maintain relatively large demand deposit balances. For example, with an average balance of $1,000, monthly interest income is approximately $4.17 (.00417 x $1,000).[3] The monthly service costs for four transfers with this pricing schedule are $4.00 ($3.00 + $0.25 x 4), but for five transfers these costs would be $4.25. Therefore, the maximum number of four profitable AT's per month with this pricing schedule for an average balance of $1,000 suggests that many shifts of funds from demand to savings deposits are unlikely. On the other hand, with the other two pricing schedules, AT's benefit many more demand deposit holders so that more shifts of funds from demand to savings deposits are possible. For example, with the pricing schedule of the Kansas City bank, an average balance of $1,000 would make it profitable for an

3 .00417 is approximately the monthly interest rate associated with an annual rate of 5 per cent.

individual to write up to 27 checks per month since the monthly service costs for 27 checks are $4.05 ($0 + $0.15 x 27), which is less than the $4.17 monthly interest income on $1,000.

AT's may affect M2 and M3 by inducing the public to shift some funds into savings deposits from assets other than demand deposits. For example, deposits at nonbank thrift institutions may shift into commercial bank savings deposits in order to take advantage of banks' AT services. Funds in other assets may also shift into commercial bank savings deposits due to AT's.

In brief, the demand effects of AT's may tend to decrease M1, but may increase M2 or M3. The impact on M1 is probably greater than on M2 or M3, since AT's are likely to induce the largest shifts of funds from demand deposits.

Supply Effects

In addition to affecting individuals' demands for various money supply measures, AT's may also affect the monetary aggregates through the supply side. These supply effects may be either positive or negative, unless offset by the Federal Reserve System. Positive supply effects may occur if individuals shift some of their funds from demand deposits to savings deposits. This reduces banks' required reserves and increases their excess reserves because reserve requirements on savings deposits are lower than those on demand deposits.[4] Banks, in turn, are likely to respond by acquiring more assets and creating more deposits. If the Federal Reserve System supplies a given amount of reserves or base money, the supply effects of AT's given shifts of funds from demand to savings deposits lead to increases in the monetary aggregates. However, if the System absorbs the liberated reserves, these positive supply effects of AT's on the monetary aggregates can be offset.

Negative supply effects may occur if individuals shift some of their funds from nonbank thrift deposits or other assets to savings deposits at commercial banks. This increases banks' required reserves and reduces their excess reserves because nonbank thrift deposits are not subject to reserve requirement~Banks, in turn, are likely to respond by acquiring fewer assets and creating fewer deposits. If the Federal Reserve System supplies a given amount of reserves or base money, the supply effects of AT's given shifts from nonbank thrift deposits and other assets to commercial bank savings deposits lead to decreases in the monetary aggregates. However, if the System supplies additional reserves, these negative supply effects of AT's on the monetary aggregates can be offset.

To summarize, the supply effects of AT's affect each of the monetary aggregates in the same direction. To the extent that AT's induce a flow of funds from demand to savings deposits, the supply effects tend to increase each of the monetary aggregates if not offset by the Federal Reserve System. In this case the supply effects partly offset the demand effects of AT's on M1, but reinforce the demand

4 For example, the reserve requirement on savings deposits of Federal Reserve member banks is 3 per cent, while the reserve requirement on demand deposits of the largest member banks is 16% per cent. If a customer of one of these large banks were to shift $1,000 from his checking account to his savings account at that bank, the bank's required reserves would decline by (.1625 - .03) x $1,000 = $132.50. Congress has been considering legislation that would establish the same reserve requirement for demand deposits as for savings deposits with an AT service. Obviously, should such a change become effective, there would be no supply effects of a shift from demand to savings deposits.

5 Although savings and loan associations have liquidity requirements and credit unions are required to set aside a specific percentage of gross income, nonbank thrift institutions do not hold reserves with the Federal Reserve System. It is the quantity of reserves held with the Federal Reserve System that influences the monetary aggregates.

effects of AT's on M2 and M3. To the extent that AT's induce a flow of funds from nonbank thrift deposits and other assets to commercial bank savings deposits, the supply effects of AT's tend to decrease each of the monetary aggregates if not offset by the Federal Reserve System. In this case the supply effects reinforce the demand effects of AT's on M1, but partly offset the demand effects on M2 and M3.[6]

Estimating the Demand and Supply Effects—An Illustration

The demand and supply effects of AT's on the monetary aggregates may be estimated by utilizing the monetary base-multiplier framework. In this framework, each monetary aggregate may be expressed as the product of the monetary base, B, and the corresponding money multiplier, m1, m2, or m3:

$$M1 = Bm1$$
$$M2 = Bm2$$
$$M3 = Bm3$$

The precise relationships between the money multipliers and their determinants are:

$$m1 = (c + d)/(r_d \cdot d + r_s \cdot s + c + e)$$
$$m2 = (c + d + s)/(r_d \cdot d + r_s \cdot s + c + e)$$
$$m3 = (c + d + s + n)/(r_d \cdot d + r_s \cdot s + c + e)$$

The letters in the formulas are defined as follows:

- d = ratio of demand deposits to total deposits,
- s = ratio of time and savings deposits to total deposits,
- n = ratio of nonbank thrift deposits to total deposits = 1 - d - s,
- c = ratio of currency held by the public to total deposits,
- e = ratio of excess reserves to total deposits,
- r_d = fractional reserve requirement on demand deposits, and
- r_s = fractional reserve requirement on time and savings deposits.

The multipliers are important because if their components are known or can be predicted, then the Federal Reserve System can influence the monetary aggregates by controlling the monetary base. For example, an increase in the currency or c-ratio reduces the multipliers. If the increase in the c-ratio can be predicted, though, the monetary base can be increased precisely enough to offset the impact of the change in this ratio on any one of the monetary aggregates. However, to the extent that the change in the c-ratio cannot be predicted, the Federal Reserve System cannot determine the level of the monetary base that is consistent with the desired level of any monetary aggregate.

AT's affect the monetary aggregates by affecting the multipliers. Any increase in savings deposits and decreases in demand deposits and nonbank thrift deposits that are induced by AT's imply a larger s-ratio and smaller d- and n-ratios. These changes can be shown to decrease m1, increase m2, and decrease or increase m3. Thus, holding the monetary base constant, these changes in the

[6] Because the supply effects of AT's on the aggregates appear to depend on how the Federal Reserve System reacts, it is useful to review briefly the current procedure for implementing monetary policy. While the Federal Reserve System has in recent years progressively emphasized the behavior of the monetary aggregates in formulating monetary policy, it is still true that the Federal funds rate is the primary day-to-day vehicle of policy used by the System open market account manager. The Federal funds rate objective is the estimate of this interest rate that appears to be consistent with desired short-run growth rates of the monetary aggregates. As the Federal funds rate comes under pressure due to AT's, the immediate response of the account manager may be to absorb or to add enough reserves to hold the funds rate steady. Thus, at least in the short run, the supply effects of AT's may be automatically offset. Ultimately, however, monetary policymakers may estimate to what extent pressure on the funds rate is due to the supply effects of AT's and to what extent it is due to changes in economic conditions that require a different Federal funds rate objective.

Table 2
EXAMPLES OF ESTIMATES OF THE DEMAND AND SUPPLY EFFECTS OF AT'S

	Actual	Demand and Supply Effects	Demand Effects Only
M1*	350.3	337.4	335.0
M2*	840.5	846.4	840.5
M3*	1,429.7	1,439.8	1,429.7
m1	2.676	2.577	2.577
m2	6.420	6.465	6.465
m3	10.921	10.998	10.998
B*	130.915	130.915	129.993
d	.1926	.1811	.1811
s	.3666	.3781	.3781

*In billions of dollars.

s-, d-, and n-ratios decrease M1, increase M2, and decrease or increase M3.

Table 2 shows some estimates of the demand and supply effects of AT's on the monetary aggregates and money multipliers. These estimates, it should be emphasized, are illustrative in nature and—although the data used are judged to be reasonable—should not be construed as official estimates. The first column contains the actual seasonally adjusted June 1978 values of the monetary aggregates and the d- and s-ratios. The multipliers in the first column are calculated from June 1978 data using the formulas for the multipliers described earlier. The value of the monetary base, B, in column one is the amount which, when multiplied by any one of the calculated money multipliers, yields the corresponding monetary aggregate.[7] For example, M1 = Bm1 = $130.915 billion x 2.676 = $350.3 billion.

The second column of Table 2 contains some estimates of the combined demand and supply effects of AT's on the monetary aggregates and money multipliers. While AT's certainly differ from NOW accounts, estimates of AT effects for purposes of illustration may be obtained from the NOW account experience.[8] In four New England states, an estimated 17 per cent of household demand deposits shifted to NOW accounts in the first year that NOW accounts were offered. Therefore, the d- and s-ratios in the second column have been changed to reflect a 17 per cent decrease in household demand

[7] The values used to calculate the multipliers are as follows: d = '1926, s = .3666, n = .4408, c = .0695, e = .0001, r_d = .09, and r_s = .03. r_d and r_s are approximations. r_d is calculated as the ratio of required reserves behind demand deposits to the demand deposit component of the monetary aggregates. r_s is calculated in a similar manner. The value of the monetary base is also an approximation.

[8] NOW accounts differ from AT's in that NOW accounts allow depositors to write drafts—called negotiable orders of withdrawal—on savings balances while AT's simply allow depositors to transfer funds automatically from' savings deposits to demand deposits. Presently, legislation limits NOW accounts to individuals, sole proprietorships, and nonprofit organizations having deposits in depository financial institutions in several northeastern states.

deposits and an equal increase in savings deposits.[9] Since AT's apply only to household demand deposits and since households currently hold about 35 per cent of total deposits, the d-ratio decreases 5.95 (= .17 x .35 x 100) per cent to .1811, and the s-ratio increases to .3781. These changes in the ratios result in a 3.7 per cent decline in the multiplier m1 and, therefore, in M1. Thus, m1 declines to 2.577 and M1 declines to 337.4. The other aggregates and multipliers increase slightly. The relatively large change in M1 is due to the dominance of the negative demand effect of AT's over the positive supply effect. M2 and M3 change little in this experiment because there are no demand effects of AT's on these aggregates, since demand deposits and savings deposits are both included in these aggregates. The small increases in M2 and M3 are due solely to the supply effects of AT's.

The third column of Table 2 shows some illustrative estimates of only the demand effects of AT's on the monetary aggregates and money multipliers. The d- and s-ratios are assumed to change as they did in the second column and, in addition, the Federal Reserve System is assumed to offset the supply effects of the AT's by decreasing the monetary base $922 million.[10] As a result of these assumptions, M1 declines even more than in column 2 (by 4.4 per cent now) and the other two monetary aggregates are unchanged from their actual values given in column 1. M1 declines in column 3 more than in column 2 because the third column assumes that the positive supply effect on M1 is offset. The 4.4 per cent decline represents solely the demand effect. M2 and M3 remain unchanged from their actual values in column 1 because their only reason for increasing in column 2 was the supply effect, which is now offset.

THE EFFECTS OF AUTOMATIC TRANSFERS ON THE FEDERAL RESERVE SYSTEM'S ABILITY TO CONTROL THE MONETARY AGGREGATES

There are two ways in which AT's may affect the Federal Reserve System's ability to control the monetary aggregates. First, AT's may temporarily decrease monetary control by making the structure of deposits more uncertain during the period of transition in which new AT accounts are established. In terms of the formulas given in the previous section, AT's may make it more difficult in the short run for the Federal Reserve System to predict the values of the d-, s-, and n-ratios. The arguments presented in the previous section suggested the likely directions of change that AT's induce in the various types of deposits. However, it is difficult to estimate the magnitudes of these changes. Since a different structure of deposits implies a different relationship among the monetary aggregates, the Federal Reserve System's ability to control any particular aggregate may be temporarily adversely affected by AT's.

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9 This figure agrees with other estimates which suggest that during the first year AT's are offered, banks should expect 16 to 22 per cent of their household demand deposits to shift to savings deposits having AT services. For more information, see the *American Banker*, August 30, 1978, pp. 4-6; September 12, 1978, pp. 1, 15; and September 18, 1978, pp. 1, 19. See also *The Money Manager*, October 16, 1978, p. 28.

10 Since total deposits in June 1978 were $1,336.7 billion, the implied required reserves before AT's are $R = r_d \bullet D + r_s \bullet S = (r_d \bullet d + r_s \bullet s)T = (.09 \times .1926 + .03 \times .3666) \times \$1{,}336.7$ billion = $37.871 billion, where R is implied required reserves, D is demand deposits, S is time and savings deposits, and T is total deposits. The implied required reserves after AT's are (.09 x .1811 + .03 x .3781) x $1,366.7 billion = $36.949 billion. Thus, AT's reduce required reserves by $922 million in this experiment. The monetary base has therefore been reduced by $922 million in column 3 to reflect the assumption that the Federal Reserve System absorbs these liberated reserves.

Secondly, AT's may affect the Federal Reserve System's ability to control the monetary aggregates by altering the responsiveness of the aggregates to changes in either the monetary base or the money multipliers. The Federal Reserve System's ability to control the monetary aggregates depends on the sizes of the money multipliers. Specifically, the larger the multiplier, the greater the fluctuation in the corresponding monetary aggregate, given unpredictable changes in either the monetary base or the multiplier itself.[11] In turn, the sizes of the multipliers may depend on the demand and supply effects of AT's. For example, if AT's induce a substantial shift of funds from demand deposits to savings deposits, the multiplier m1 may decline substantially, as Table 2 indicates, and the multipliers m2 and m3 may increase slightly. However, if AT's also induce a substantial shift of funds from nonbank thrift deposits to commercial bank savings deposits, the multiplier m2 may increase much more than in Table 2.[12]

AUTOMATIC TRANSFERS, THE MONETARY AGGREGATES, AND THE OBJECTIVES OF MONETARY POLICY

There are several important objectives of monetary policy. Over the years, these objectives have included a sustainable growth in output, a high level of employment, price stability, and a balance in transactions with foreign countries.

The monetary aggregates are related to these policy objectives through a concept called velocity. The income velocity of a monetary aggregate is the ratio of nominal GNP to the monetary aggregate. It measures the average number of times in a given period that each dollar of a monetary aggregate is spent for currently produced goods and services. From this definition of velocity, it follows that the sum of the growth rate of each monetary aggregate and its income velocity equals the rate of growth of nominal GNP which, in turn, can be represented as the sum of the growth rates of an output index and a price index. Thus, if the income velocity of a monetary aggregate is known, the rates of growth of output and prices can be influenced by changing the growth rates of the monetary aggregates. As an illustration, a rate of M1 growth of 5 per cent and income velocity of 2 per cent are consistent with growth rates of 3 per cent in output and 4 per cent in prices. Employment and balance of payments figures can similarly be influenced because they are related to output and prices.[13]

Given expectations of the rate of change in velocity, the Federal Reserve System regularly establishes ranges for the growth rates of the monetary aggregates that appear to be consistent with the desired or expected behavior of output, prices, unemployment, and the

11 Unpredictable changes in the monetary base can result from changes in such factors as U.S. Treasury deposits in Federal Reserve Banks, Treasury purchases and sales of gold, Federal Reserve Bank float, member bank discount window borrowings, and Treasury cash holdings. Unpredictable changes in the money multipliers can result from changes in such factors as the public's currency holdings and banks' excess reserves. See J. A. Cacy, "Reserve Requirements and Monetary Control," Federal Reserve Bank of Kansas City Monthly Review, May 1976, pp. 3-13; and "Modern Money Mechanics: A Workbook on Deposits, Currency, and Bank Reserves," Federal Reserve Bank of Chicago, for more information on how these factors affect the monetary base and money multipliers.

12 For example, if in addition to a 17 per cent reduction in household demand deposits, 5 per cent of nonbank thrift deposits are assumed to shift into commercial bank savings deposits, then m2 increases 3½ per cent to 6.646. In this case, d = .1811, s = ,4001, and n = .4188.

13 For example, Okun's law suggests that each extra percentage point in the unemployment rate is associated with approximately a 3 per cent decrease in output; and the higher are output and/or prices in the United States, the worse our balance of payments is likely to be.

balance of payments. For example, the current ranges for the period from the second quarter of 1978 to the second quarter of 1979 are 4 to *6%* per cent for **M1**, *6%* to 9 per cent for M2, and 7% to 10 per cent for M3.

Since AT's may affect the monetary aggregates, AT's may also affect velocities and the rates of growth of the aggregates that are consistent with the objectives of monetary policy. For example, AT's may increase Ml's velocity by decreasing **M1**. Therefore, if the System's ranges for the growth rates of the aggregates were consistent with the monetary policy objectives before the introduction of **AT's**, the range for **M1** might need to be lowered—during any time that AT's increase the growth of **M1's** velocity—to remain consistent with the objectives of monetary policy. Similarly, the ranges for M2 and M3 might need to increase slightly since AT's may decrease their velocities slightly.

There are several ways in which the conduct of monetary policy might be altered to adjust for the possible effects of AT's on the monetary aggregates. First, in view of the uncertain effects of AT's on the aggregates, the Federal Reserve System might simply widen the ranges. Second, the System could attempt to estimate the effects of AT's on the aggregates and adjust the ranges accordingly. Third, since the examples of estimates contained in Table 2 suggest that the effects of AT's on M2 and M3 may be much smaller than on **M1**, the System could rely less on **M1** and more on M2 and M3. Finally, the System could define and use a new monetary aggregate that includes savings deposits with AT services as well as assets already included in **M1**. Shifts of funds between demand deposits and savings deposits with AT services would have no demand effect on this new aggregate. Federal Reserve System researchers are now studying a variety of new money supply definitions which account not only for AT's but also for other recent innovations in the payments mechanism.[14] In light of the above and other considerations, the Federal Open Market Committee established at its October meeting the following ranges for the third quarter of 1978 to the third quarter of 1979: for M2, *6%* to 9 per cent, and for M3, 7% to 10 per cent. The Committee expects **M1** to grow within a range of 2 to *6* per cent over this period.

CONCLUSIONS

This article has examined the implications for monetary policy of 'allowing AT's. One conclusion of the analysis is that the effects of **AT's** on the monetary aggregates depend importantly on how banks price this new service. Specifically, the smaller are the service costs, the greater may be the shifts in deposits and, hence, the greater may be the effects on the monetary aggregates.

AT's have both demand and supply effects on the monetary aggregates. The demand effects of AT's tend to decrease **M1**, but increase M2 and M3. The impact on **M1** is probably greater than the impacts on M2 and M3 since AT's are likely to induce the largest shifts of funds from demand deposits. The supply effects of AT's probably tend to increase each of the monetary aggregates if not offset by the Federal Reserve System.

In addition to affecting the monetary aggregates, AT's may temporarily affect the Federal Reserve System's ability to control the monetary aggregates. There are two ways in which this may happen: first, by making the structure of deposits more uncertain and, second, by altering the responsiveness of the aggregates to changes in either the monetary

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14 For more information on these innovations, see Carl Gambs, "Money—A Changing Concept in a Changing World," Federal Reserve Bank of Kansas City *Monthly* Review. January 1977, pp. 3-12.

base or the money multipliers. The first may tend to diminish the Federal Reserve System's ability to control each monetary aggregate; and the second may tend to increase the ability of the System to control M1, but decrease its ability to control M2.

A final conclusion of this analysis is that AT's may affect the rates of growth of the monetary aggregates that are consistent with the objectives of monetary policy. The conduct of monetary policy could be altered in several ways to correct for this possibility. For example, the ranges for the monetary aggregates could be widened to reflect the uncertain effects of AT's on the aggregates. Alternatively, the effects of AT's on the aggregates could be estimated and the ranges for the aggregates adjusted accordingly. Or, more reliance could be placed on M2 and M3 since AT's may have smaller effects on these aggregates than on M1. Finally, a new aggregate could be defined and used that includes savings deposits with AT services in addition to assets already included in M1. Given the considerable uncertainty about the effects of AT's on the aggregates, more definite statements concerning the operation of monetary policy are not possible.