



BOARD OF GOVERNORS  
OF THE  
FEDERAL RESERVE SYSTEM  
WASHINGTON, D. C. 20551

STRICTLY CONFIDENTIAL (FR)  
CLASS I - FOMC

TO: Federal Open Market Committee                      DATE: December 10, 1986

FROM: Donald Kohn *DK*

The attached memorandum has been prepared as background for a preliminary Committee discussion of the factors that might affect the behavior of the monetary aggregates and their velocities in 1987. At the February meeting, as normally occurs at that time, the staff will present for Committee consideration alternative long-run ranges for growth in the monetary aggregates in 1987.

Attachment

December 1986

## Monetary Behavior in 1986 and Factors Affecting the Outlook for 1987\*

M2 and M3 are closing this year near the upper ends of the ranges set by the Committee last February and reaffirmed in July while M1, as expected in July, has run well above the upper end of its range. This is shown in the table below.

	<u>1986 Range (percent)</u>	<u>Growth from Q4 to Nov. (percent)</u>
M1	3 - 8	15.0
M2	6 - 9	8.9
M3	6 - 9	8.7

Memo: Nominal GNP growth

Central tendency of FOMC member expectations in February	6-1/2 - 7-1/4 percent
Central tendency of FOMC member expectations in July	4-3/4 - 5/3/4 percent
Actual (staff forecast Dec. 1986)	4-3/4 percent

At the same time, nominal GNP has expanded less rapidly than had been anticipated in February, falling appreciably below the central tendency of Committee member expectations, and at the lower end of the downward revised expectations in July. Velocities of the aggregates thus have all proved to be weaker than implied by the Committee's earlier expectations. Chart 1 presents velocities of M1, M2 and M3. The downtrend in M1 velocity over 1985 intensified and for 1986 is expected to register a drop of more than 8-1/2 percent, a postwar record. M2 velocity, following a small advance in the first quarter, declined sharply over the remainder of the year while M3 velocity continued on its downward path; for 1986 as a whole, the velocities of M2 and M3 are expected to contract by almost 4 percent—declines that are on the high side of historical experience.<sup>1</sup>

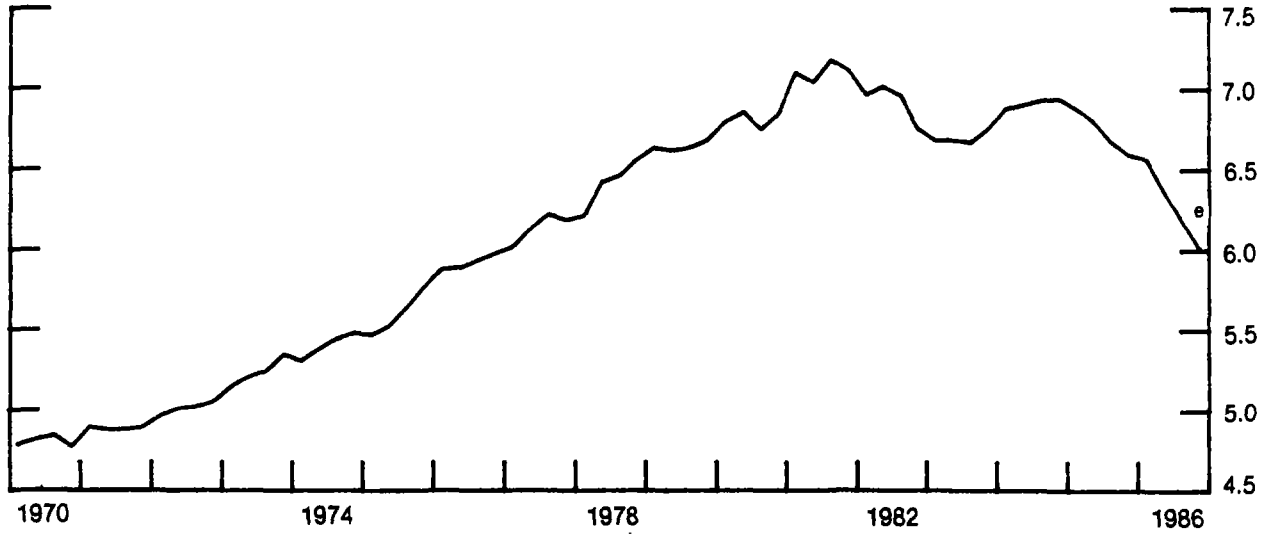
\*Prepared by Thomas D. Simpson, with contributions from Richard D. Porter and assistance from Laurence G. Kantor, all of the Division of Research and Statistics. Rachel Valcour, also of the Research Division, provided research assistance.

1. The pattern of pronounced weakness in velocities is evident also when the money stock is lagged one or two quarters, to allow for lags between movements in the money stock and GNP.

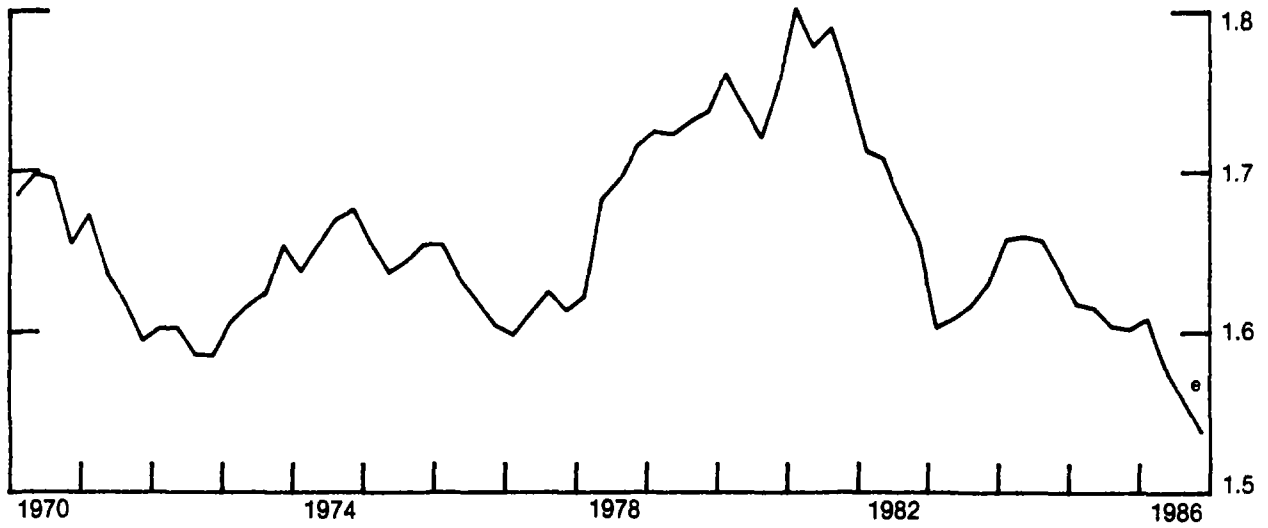
Chart 1

### Velocity (Quarterly)

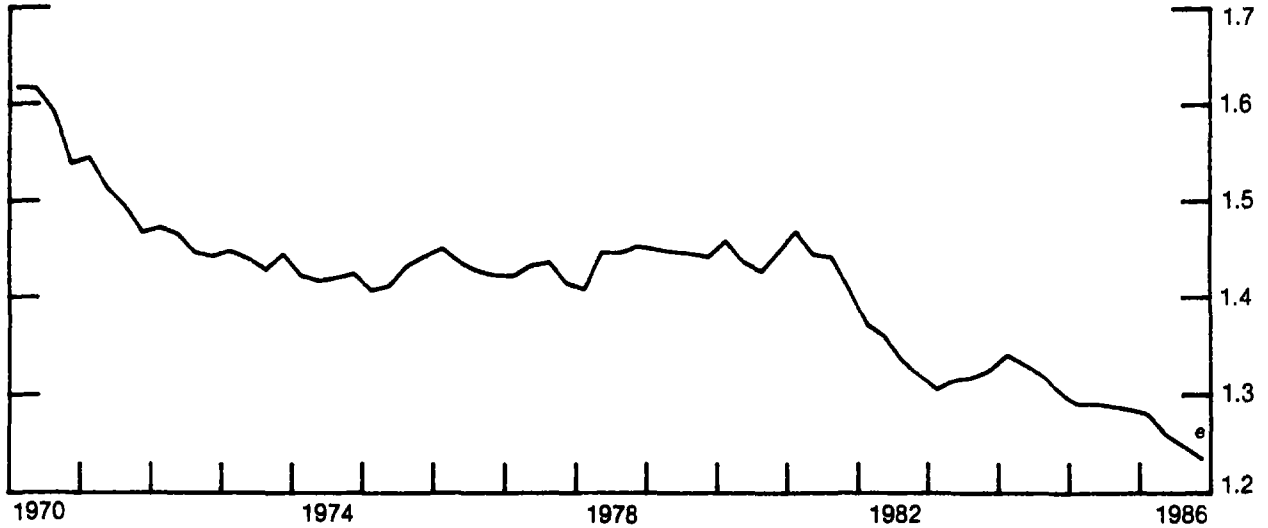
#### M1 VELOCITY



#### M2 VELOCITY



#### M3 VELOCITY



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This paper reviews the performance of these money stock measures in 1986. In addition, it examines the behavior of alternative money measures, including M1-A and the monetary services (MS) and transactions-weighted (MQ) indexes. It then proceeds to review factors bearing on the outlook for the behavior of monetary relationships in 1987, including sources of unusual uncertainty.

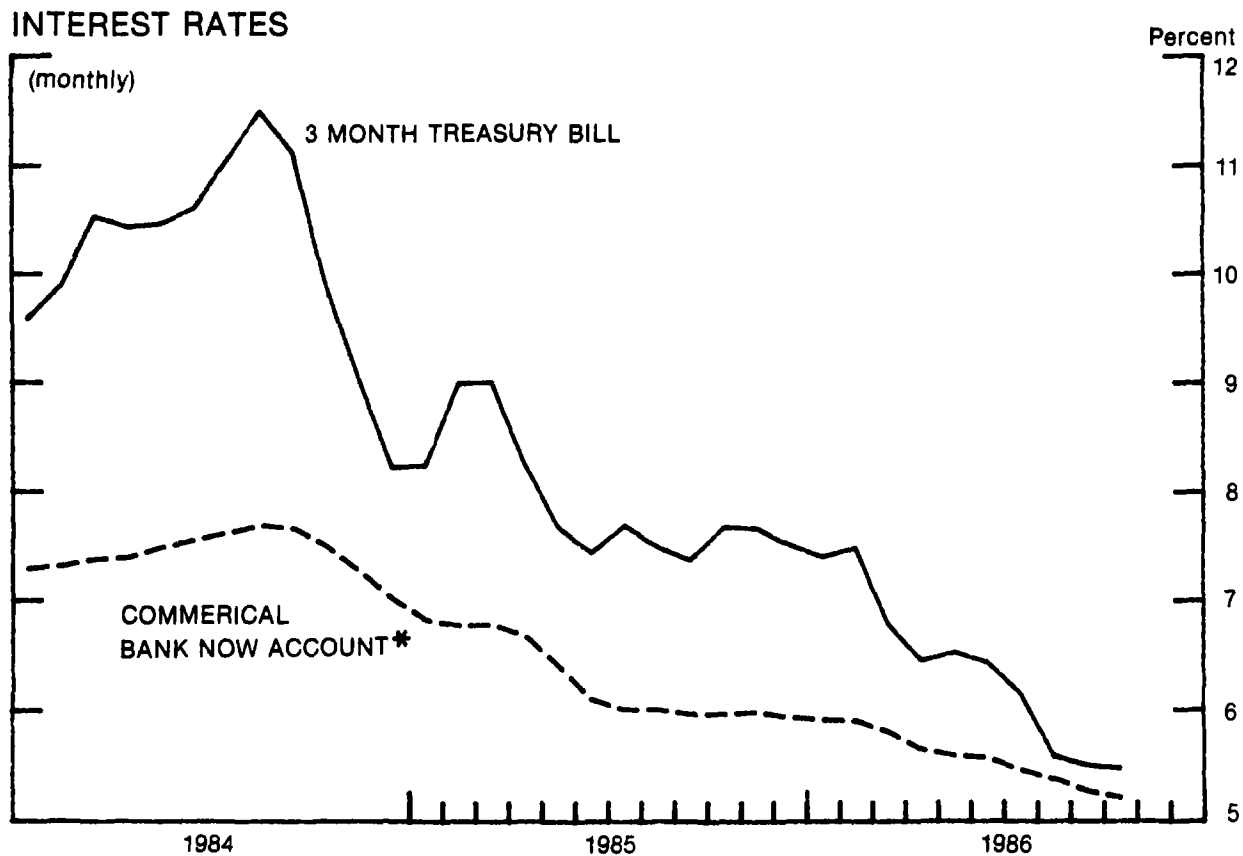
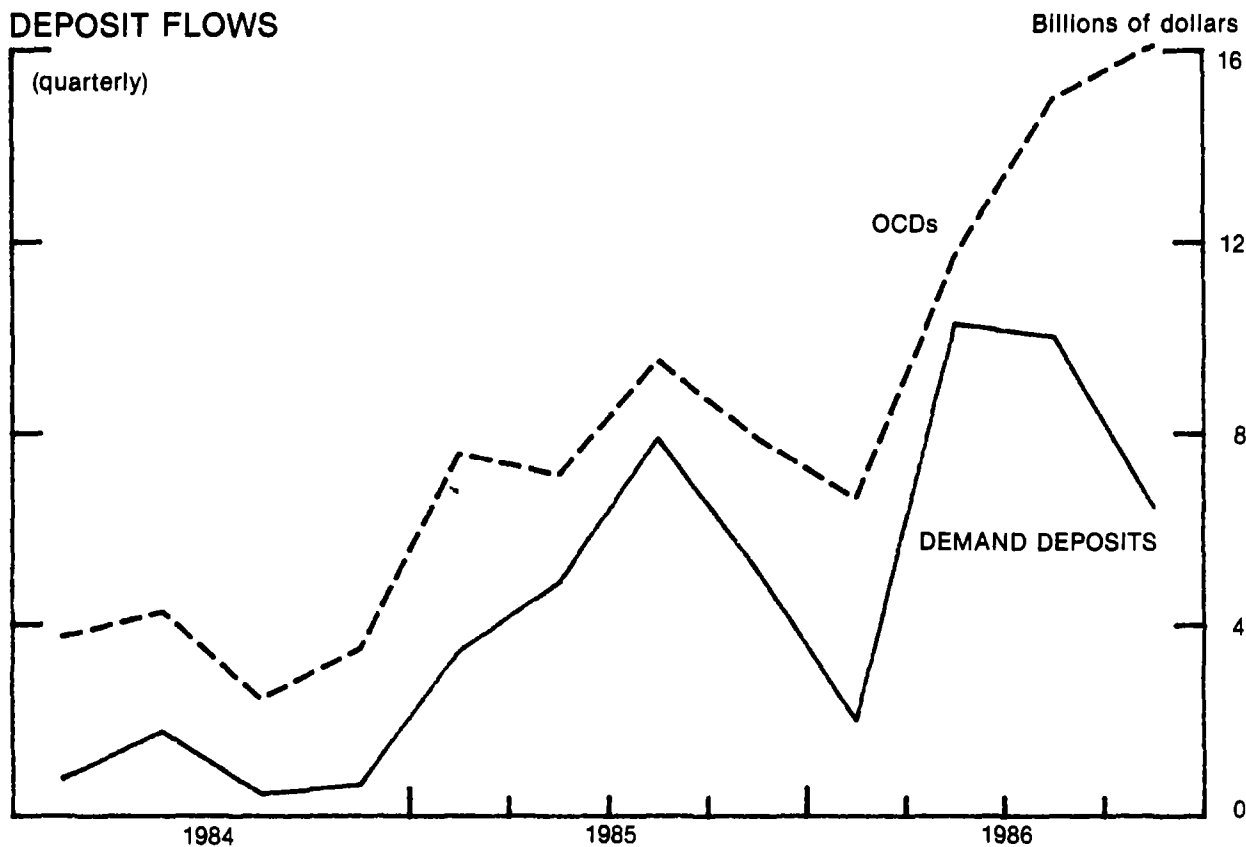
#### Growth in 1986

Rapid monetary growth appears to reflect, perhaps to a large degree, the response of both the public and depository institutions to substantial declines in money market rates this year. Opportunity costs of holding money have dropped markedly as depository institutions have been slow to realign offering rates—especially on more liquid accounts—to the reduced market rates. In addition, the public has appeared to be highly sensitive to movements in rate relationships. Nevertheless, there continues to be a great deal of uncertainty about the public's portfolio behavior—as well as the behavior of depository institutions—in an environment of pervasive financial change.

M1. Growth of M1 in 1986 continued to be paced by inflows to its OCD component, as illustrated in the upper panel of chart 2. Indeed, inflows to OCDs have exceeded the very large volume of 1985. This unusual strength in OCDs can, it would seem, be largely attributed to the low and declining opportunity cost of holding these accounts this year and the strong response of households to this development. The lower panel plots the three-month Treasury bill rate and the offering rate on NOW accounts at commercial banks (Super NOW accounts prior to 1986 and NOW accounts more broadly this year); the spread of the bill rate over the NOW rate is one measure of the opportunity cost of

Chart 2

### M1 Deposits Flows and Interest Rates



\* Super NOW account rates prior to January 1986, taken from the System's monthly survey of deposit offering rates.

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holding NOW accounts. Another measure is the spread of the rate on retail time deposits over the NOW account rate (not shown), which also has narrowed markedly over this period. The opportunity cost of holding NOW accounts has fallen sharply this year—to negligible levels—as offering rates on these accounts have adjusted only very sluggishly to the large decline in market rates. Indeed, the rate on NOW accounts at commercial banks has fallen only about 65 basis points while money market rates have declined about 200 basis points in association with discount rate cuts. Experience with Super NOW accounts prior to this year clearly indicates that offering rates on these accounts tend to adjust only gradually, and there appears to have been a reluctance to offer less than the previous regulatory ceiling of 5-1/4 percent on ordinary NOWs—despite cost considerations—for fear of losing good customers and market share. In recent months, offering rates have continued to edge downward, with the average rate at commercial banks dropping below 5-1/4 percent by late October (the most recent reading from the System's monthly survey), even as market rates were essentially unchanged.<sup>1</sup>

Also of significance in the M1 picture this year have been large inflows to demand deposits, shown in the top panel. Demand deposit growth strengthened further in 1986 from the rapid pace of 1985. The decline in market interest rates—in particular working through their effects on compensating balance requirements—likely has been a significant factor boosting demand deposit growth this year; indeed, informal staff investigations suggest that compensating balance effects have contributed importantly to demand deposit growth in recent years. With the possible exception of mortgage activity, the increase in financial transactions probably has not been a

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<sup>1</sup>. Other survey information indicates that offering rates were reduced further over November.

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significant factor boosting demand deposits this year. The extraordinary pace of mortgage prepayments and refinancings--especially since the spring--is believed to have raised demand deposit levels somewhat; prepayments of mortgages in pools frequently are held as demand deposit balances prior to being disbursed to pool investors, while regulations relating to the right of rescission on residential refinancings typically lead to delays in the transfer of mortgage funds that temporarily raise the level of demand deposits. Currency growth, in contrast, has been roughly in line with expansion in the past two years and only a little faster than that predicted by models of currency demand.

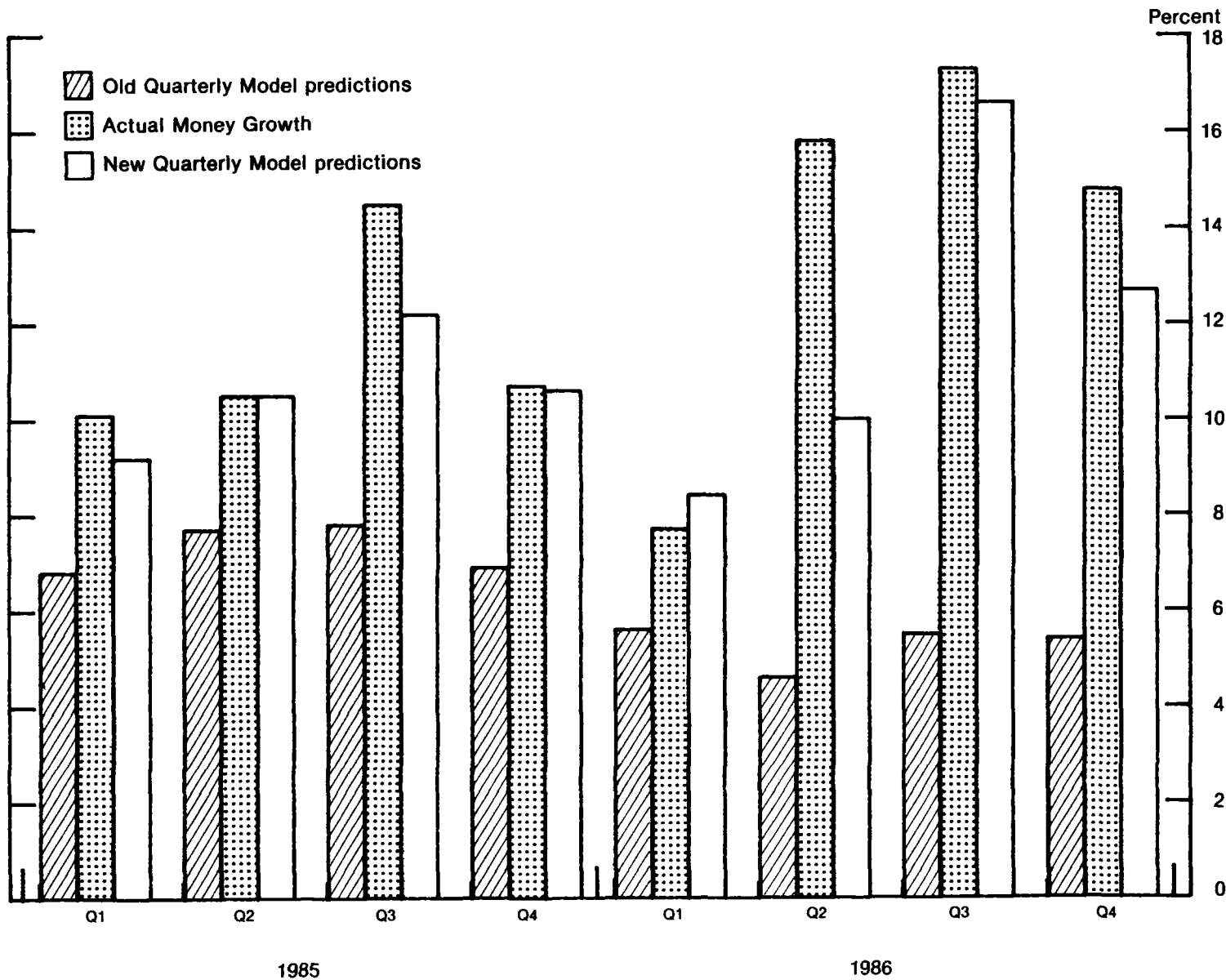
Models of money demand underpredict M1 growth and the extent of the M1 velocity decline in 1986, some by substantial margins. This can be seen in chart 3, which shows actual M1 growth (shaded bars) in relation to that forecast by the old and newly revised quarterly models developed by the Board staff (hatched and hollow bars, respectively). The more recently developed model--which embodies a much larger response in OCDs to changes in open market rates of interest when offering rates on OCDs are close to market returns--is able to explain a much greater portion of M1 growth than the old model; the new model predicts M1 growth of 12 percent in 1986, given actual output, prices, market rates, and offering rates on OCDs. Two-thirds of this growth (8 percent) is attributed to the impact of interest rates--the combination of the decline in money market interest rates and the slow downward adjustment of offering rates on OCDs that was mentioned above--with a portion of this effect reflecting rate changes prior to this year.<sup>1</sup> Other models, incorporating

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1. Under conditions of very small spreads of market rates over offering rates, a small change in either market rates or offering rates leads to a very large percentage change in opportunity costs.

### Actual and Predicted M1 Growth

(Quarterly Growth At Annual Rates)





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more traditional interest rate relationships and represented by the old quarterly model, typically predict much slower growth of M1 in 1986--on the order of 5 to 8 percent--with interest rates contributing only about half of this growth; underpredictions of the old quarterly model have been especially large in recent quarters, at a time when the opportunity cost on OCDs has become very small.

Given the very limited experience with NOW accounts that have important savings features, especially under conditions of offering rates so close to those available in the open market and on other retail deposits, there continues to be a great deal of uncertainty about the behavior of M1. While the evidence increasingly points to interest rate relationships as a major cause of rapid OCD and M1 growth in 1985 and 1986, one cannot be very confident at this time about how money demand will respond to movements in interest rate relationships over time, and there could well be other effects on the demand for M1 and its relationship to income that are developing in an environment of major financial change.

M2. A portion of the heavy inflows to OCDs and M1 undoubtedly has come from other retail deposits in M2, especially small time deposits. Sluggish adjustment of offering rates on the more liquid components of nontransactions M2 also has affected the pattern of other deposit flows within M2. The passbook savings rate has been particularly slow to adjust to market rates, declining by only 10 basis points at commercial banks and by less at thrifts since they were deregulated in April of this year. Depository institutions--especially thrifts--have shown even more reluctance to breach the old regulatory ceiling on these accounts, 5-1/2 percent, than the old ceiling on NOWs, likely reflecting

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concerns about a loss of customers and market share.<sup>1</sup> As shown in the upper panel of chart 4, the spread of the rate on small time deposits over that on passbook accounts has declined sharply this year owing to relatively prompt adjustment of time deposit rates and the slow adjustment of savings deposit rates. These changes have been associated with a surge in savings deposits and a net runoff in small time deposits, shown in the middle panel. Inflows to MMDAs also have strengthened at the expense of small time deposits in response to a narrower yield spread, as shown in the bottom panel of the chart.

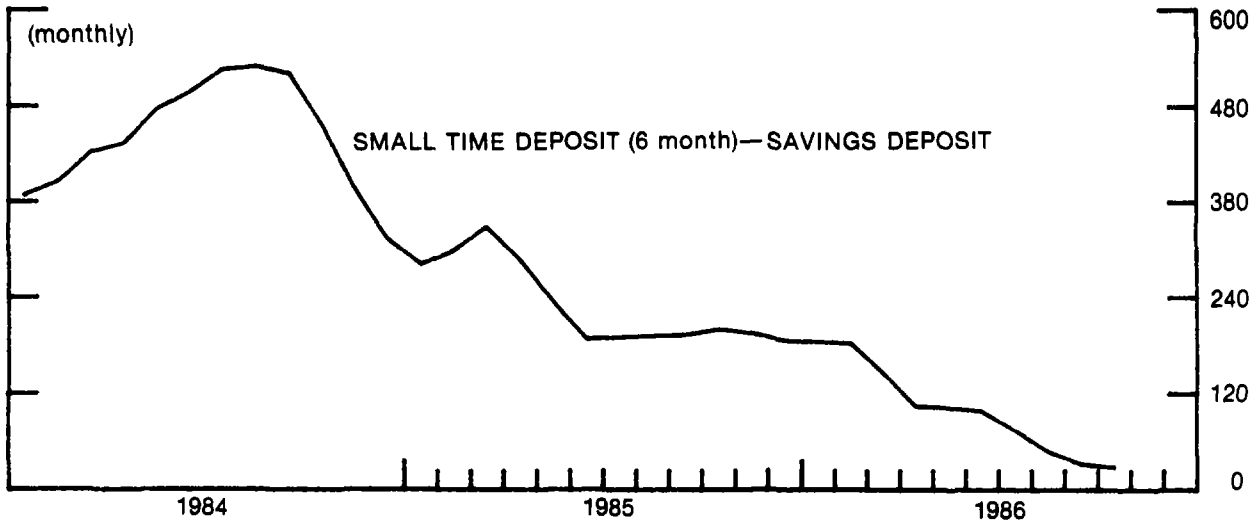
The decline in M2 velocity this year, however, suggests that lags in offering rates have acted to boost overall growth in M2 as well as contributed to shifts in its composition. Narrower spreads of market rates over those on the more liquid nontransactions M2 components that have persisted over the year have been associated with increased inflows to these accounts, suggesting some shifting from market instruments. For example, as the yields on Treasury securities have dropped more than those on deposits, household acquisitions of Treasury securities have diminished, as evidenced in part by weakness, especially since the spring, in noncompetitive tenders for Treasury coupons and bills. Acquisitions of tax-exempt securities by households also have been weak in 1986. However, bond and stock mutual funds, which likely are substitutes for small time deposits for a number of households, have continued to experience large inflows in 1986.

Models of M2 demand generally have produced smaller errors in 1986 than those for M1. As was the case for M1, differences in model predictions generally center on interest rate effects, with models embodying larger interest rate effects explaining a greater amount of M2 growth. The Board's revised

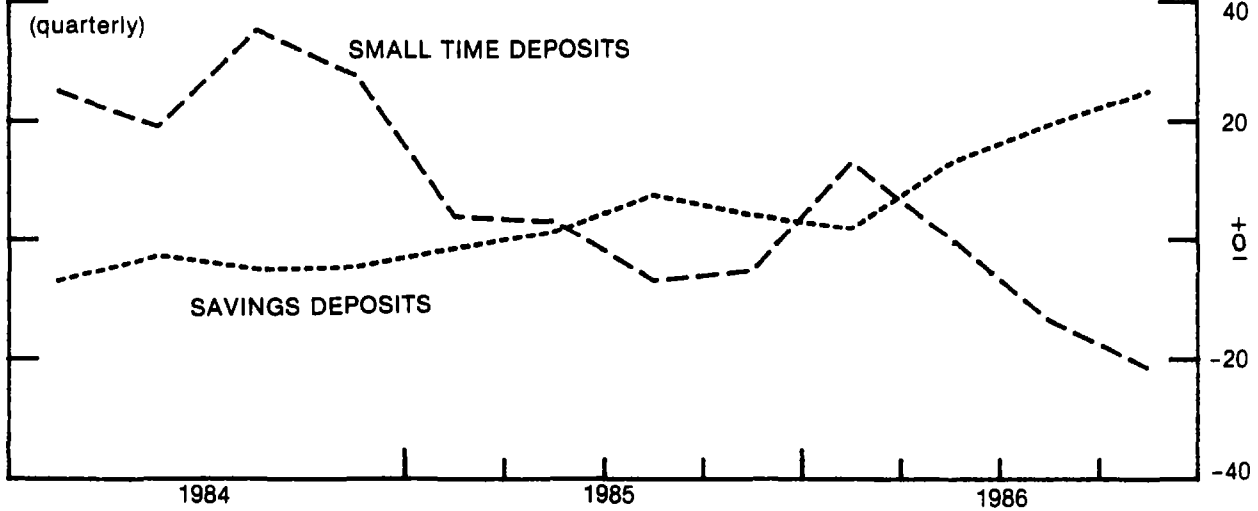
<sup>1</sup> Some of this reluctance and the reluctance to lower NOW account rates may have come from the belief that short-term rates could rise, making 5-1/4 or 5-1/2 percent deposits once again profitable accounts. Given this possibility, institutions could have been reluctant to damage customer relations or sensitize long-time customers to the possibility of savings deposit rates varying with market rates.

### Deposit Rate Spreads and Inflows to Retail Deposits in M2<sup>1</sup>

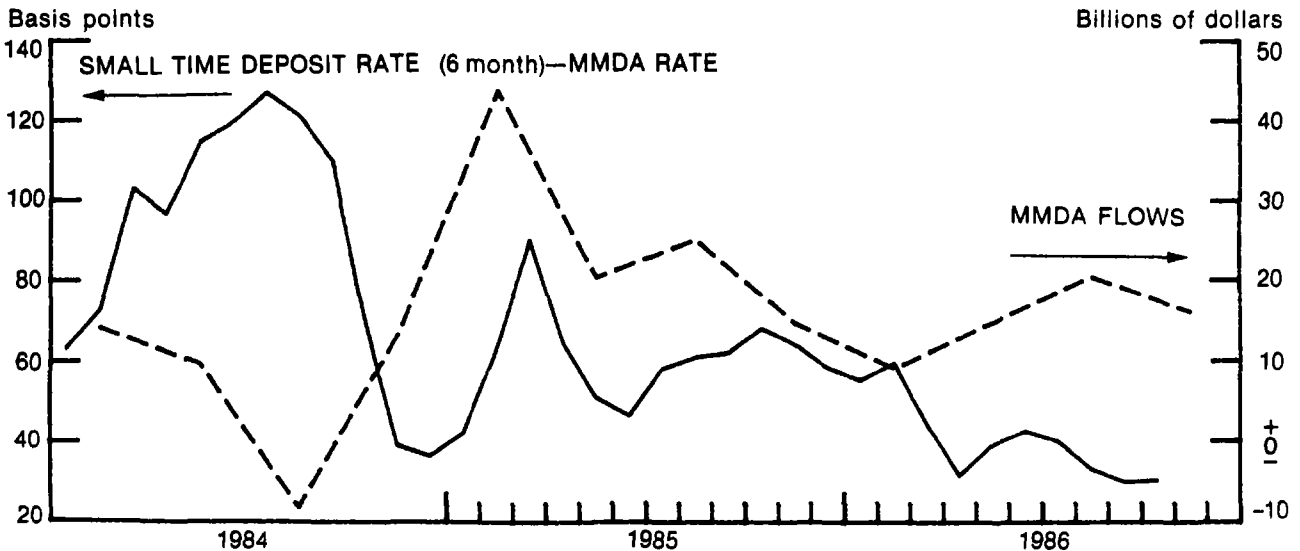
#### INTEREST RATE SPREAD



#### DEPOSIT FLOWS



#### MMDA RATE SPREAD AND DEPOSIT FLOW



<sup>1/</sup> Deposit Rates are for commercial banks and are taken from the System's monthly survey of deposit offering rates, flows are for all

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quarterly model of M2--built from its M1 component and a model for its "household" nontransactions component--forecasts M2 growth of about 9-1/2 percent in 1986, roughly in line with actual growth. Narrowing opportunity costs account for more than 3-1/2 percent of this growth, with a portion of this effect reflecting rate spread declines prior to this year. M2 models that contain less response to interest rates underpredict M2 growth in 1986, typically on the order of 3 percentage points. Thus, while equations explaining M2 have recently performed better than those for M1, there is still a lot of uncertainty about the M2 relationship, owing largely to interest rate effects.

M3. M3 strengthened somewhat in 1986 from the moderate pace of the previous year. Table 1 shows that more rapid growth in M3 in 1986 (line 1) has been associated with faster expansion of depository credit (line 2), as thrift credit growth advanced from the reduced pace of 1985. At banks, lending moderated in 1986, while net acquisitions of securities--especially U.S. government securities--strengthened; at thrifts, acquisitions of both mortgage and nonmortgage assets picked up. Banks and thrifts financed their credit expansion with more M3 funds (line 5) and more funds from other sources (line 6). Within M3, stronger inflows to retail deposits in M2 and increased RPs evidently enabled banks and thrifts to reduce further their issuance of large time deposits. Depositories continued to tap other sources of funds in volume to support credit expansion, including IRA/Keogh accounts, Federal Home Loan Bank advances and miscellaneous other funds. Among other components of M3 (line 7), money market mutual funds (MMMFs) and dollar deposits held by U.S. residents outside the United States (Eurodollar deposits) also strengthened in 1986. Inflows to MMMFs likely were lifted by declines in short-term interest rates that temporarily favored yields on these investments relative to those in the open market;

Table 1  
M3 and Credit

	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
Rates of Growth of M3 and Credit (in percent)					
1. M3	10.0	9.9	10.5	7.7	8.7
2. Depository credit	6.2	13.0	12.6	9.5	10.3
a. Bank credit	8.2	10.6	11.2	9.9	9.2
b. Thrift credit	3.3	16.9	14.8	8.9	11.9
3. Dom. nonfin. debt <sup>1</sup>	8.9 (9.0)	11.2 (11.7)	14.2 (14.5)	13.3 (14.4)	12.6 (11.1)
a. Federal	17.6	21.3	16.0	15.2	14.4
b. Nonfederal	6.8	8.6	13.7	12.7	12.1
Sources and Uses of Funds at Banks and Thrifts (Net change, billions of dollars)					
4. <u>Bank and thrift credit</u>	132.8	294.5	323.1	273.5	324.6
5. <u>M3 Sources</u>	136.3	273.7	239.2	193.8	210.6
a. Retail deposits in M2	100.0	258.5	134.9	165.4	177.0
b. RPs	5.8	22.2	19.7	5.1	23.3
c. Large time deposits	30.5	-7.0	84.6	23.3	10.3
6. <u>Other Sources</u>	-3.5	20.8	83.9	79.7	114.0
a. IRA/Keogh	18.4	25.4	31.4	36.9	28.7
b. Eurodollar borrowings	-19.5	-1.7	17.7	5.1	3.1
c. FHLB advances	1.8	-7.8	15.9	13.8	15.1
d. Other	-4.2	4.9	18.9	23.9	67.1
7. <u>Memo: Other Components of M3</u>					
a. MMFs	61.0	-58.1	39.1	21.5	50.1
b. Eurodollar deposits	14.5	11.1	-7.1	-0.5	5.7

Data are presented on a Q4-to-Q4 basis except for those for 1986 which are presented on a Q4 1985 to November 1986 basis.

1. Figures in parentheses are on an end-of-period, not quarterly average, basis.

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institution-only funds, though, have been about flat since September as offering rates moved into alignment with market yields.

Domestic nonfinancial debt. The table also presents data on growth of domestic nonfinancial debt. Debt growth (line 3) has slowed a little this year when measured from its fourth quarter 1985 base, reflecting moderation in both its federal and nonfederal components.<sup>1</sup> Nevertheless, expansion in debt still has outpaced that of GNP by a considerable margin, and the debt aggregate has run above the FOMC's 8 to 11 percent monitoring range for this year. In the nonfederal component, both household and business borrowing slowed. In the household sector, the slowing occurred in consumer credit, principally in revolving credit, which had grown very rapidly in the previous two years. Nonfinancial businesses continued to retire massive amounts of equity, tapping the bond markets in volume while curtailing short-term borrowing; the amount of gross share retirements is expected to exceed \$115 billion in 1986, an even larger volume than in 1984 and 1985. The amount of borrowing by state and local governments over the year was down considerably from the tax-reform induced surge in 1985 but remained substantial owing in part to advance refunding.

Alternative Measures of the Money Stock. The velocities of alternative money stock measures also have declined this year and generally by more than might have been expected on the basis of historical relationships. Among those examined here are M1-A and the MQ and MS indexes. Because M1-A is the noninterest-earning component of M1, it may be more closely related to economic

<sup>1</sup>. The deceleration in debt growth is more substantial on an end-of-period basis (shown in parentheses), because on this basis the surge in tax-exempt bond issuance at the end of 1985 does not affect measured growth in 1986; in contrast, the fourth quarter average basis only partly incorporates this factor in the 1985 fourth quarter level, with the remainder affecting measured growth in 1986.

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activity, in part because its opportunity cost is wider and not affected by lagging adjustments of offering rates. MQ is a turnover-weighted index that weights each type of transactions balance (including money market mutual funds and MMDAs) by its estimated use in payment for current output. A rapidly growing but low turnover component, such as NOW accounts, would get less weight in this index than it gets in M1. The monetary services index (MS) is, in concept, a measure of liquidity; the weight given each component is based on the spread of a benchmark rate of interest—on an illiquid asset—over that component's return. In contrast to MQ, the MS measure presented here is constructed using the full range of assets in M3.

Growth in these alternative measures is shown in table 2, along with growth in M1. Growth in M1-A strengthened this year—to nearly 9-1/2 percent—but by less than M1. Divergence between M1-A and M1 this year has been especially evident in the second half, at a time when OCDs have been bolstered by reduced opportunity costs. Growth in MS in 1986 has been around that of M1-A while MQ has been faster; expansion in MQ has been intermediate between M1 and M1-A. Even though all three alternative measures have expanded less rapidly than M1, they have outpaced GNP throughout the year, at times by large margins. And, like M1, their velocities in 1986 have deviated substantially from historical trend. This can be seen in chart 5, which shows velocity indexes for M1-A, MQ and MS, along with one for M1.

Velocity of M1-A earlier in this decade had continued to expand roughly in line with previous trend and had not been subject to the same downward movement as that of M1.<sup>1</sup> In large measure, this seemed to reflect

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1. The sharp rise in M1-A velocity in 1981 owes to the introduction of nationwide NOW accounts and the corresponding shifts from household demand accounts to newly opened NOWs.

Table 2

Growth in Alternative Measures of Money

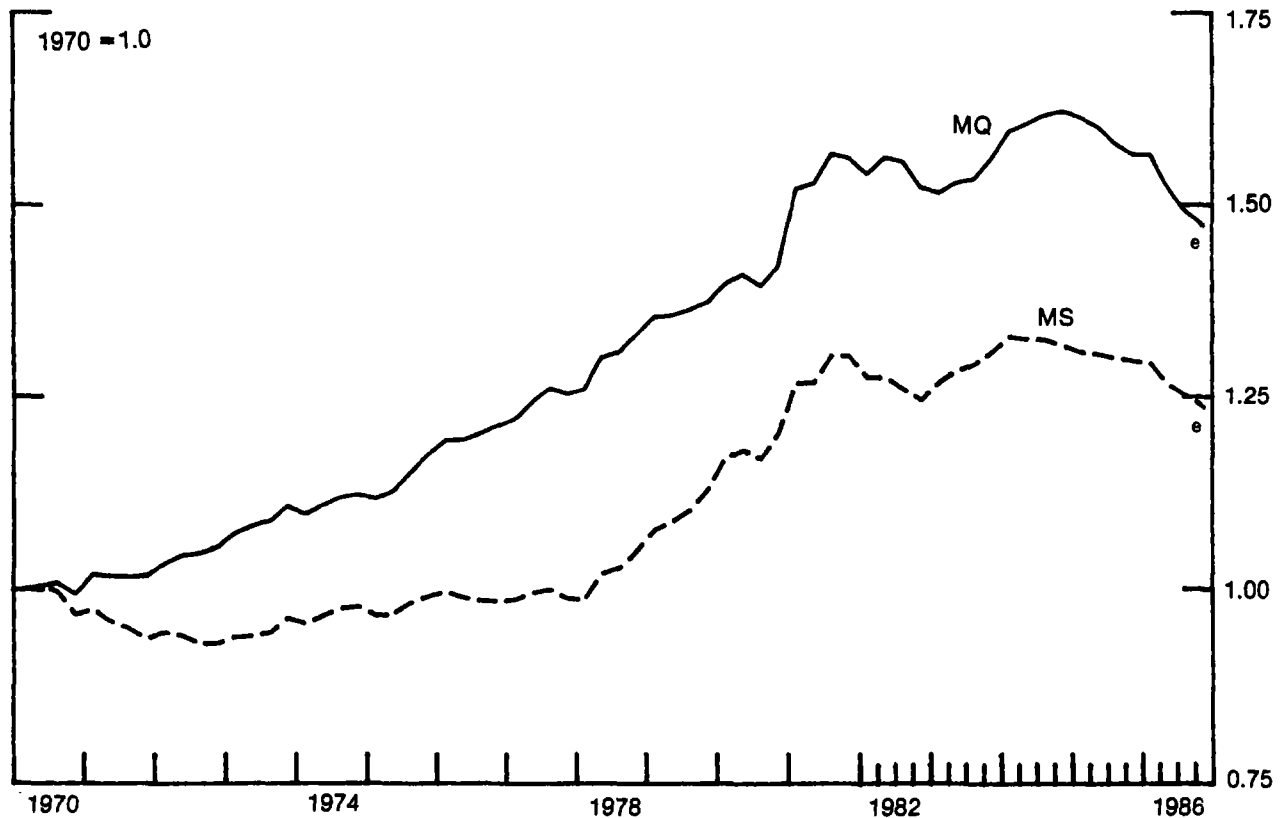
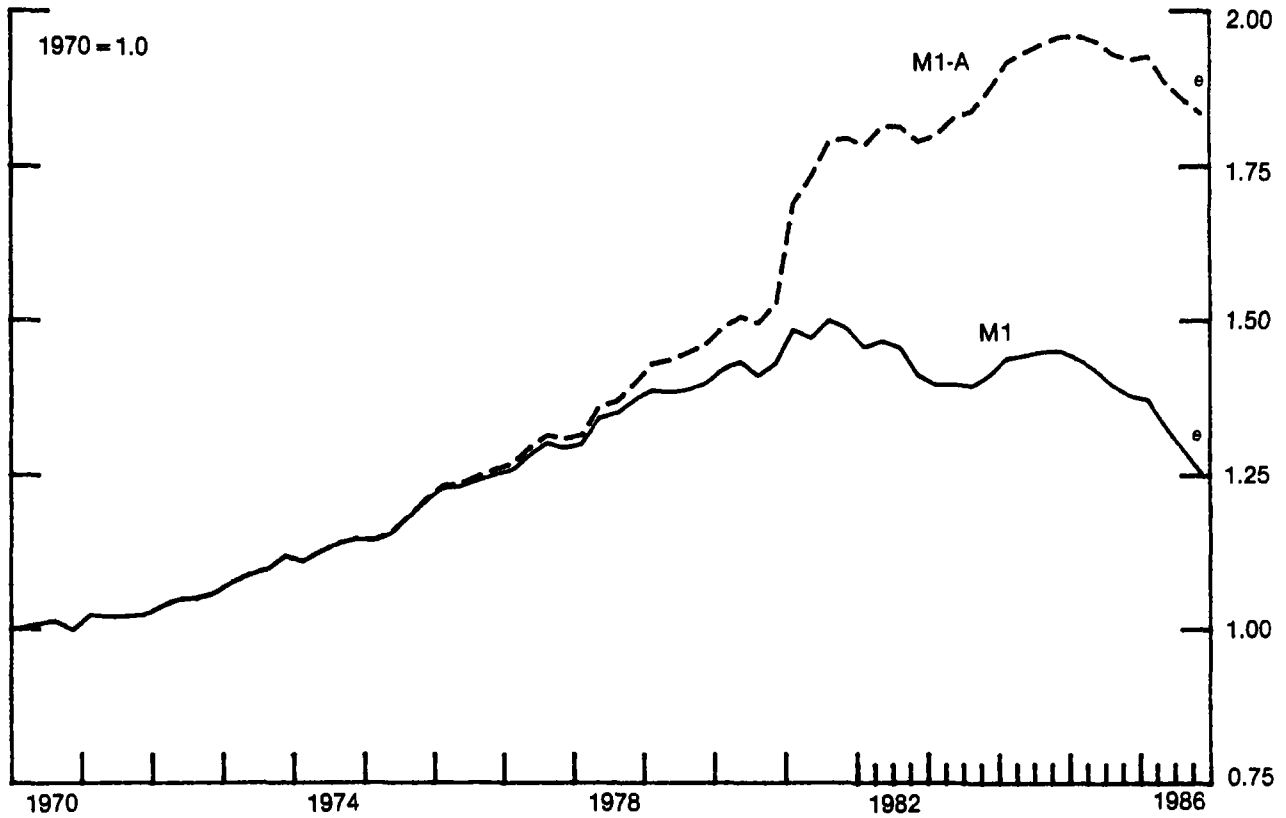
		<u>M1</u>	<u>M1-A</u>	<u>MQ</u>	<u>MS</u>
<u>Annual</u>					
1982		8.7	3.5	5.7	7.9
1983		10.4	5.5	7.7	5.1
1984		5.4	3.7	4.3	7.7
1985		11.9	8.3	10.1	7.9
1986 <sup>e</sup>		14.7	9.4	11.2	9.7
<u>Quarterly</u>					
1985	Q1	10.1	6.3	8.5	9.3
	Q2	10.5	7.4	8.7	6.4
	Q3	14.5	11.0	12.7	8.2
	Q4	10.7	7.5	9.2	7.0
1986	Q1	7.7	4.8	6.2	7.1
	Q2	15.8	11.8	13.9	10.9
	Q3	17.3	11.6	14.5	11.1
	Q4 <sup>e</sup>	14.8	7.2	8.3	8.3

e—preliminary estimates



### Velocity of M1 and Alternative Measures of the Money Stock

(Quarterly)



e-Preliminary estimate for fourth quarter of 1986

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offsetting influences; continuing shifts of household balances from demand deposits to NOW accounts evidently offset the depressing effects on M1-A velocity of declining interest rates.

However, over the past two years, with household adjustment to NOW accounts nearly completed, the velocity of M1-A, too, has registered rather steady declines. Demand deposits have grown very rapidly in the past two years, rising 8-3/4 percent in 1985 and about 10-1/2 percent this year. As noted above, demand deposit expansion this year in particular has been faster than that implied by money demand models. Nevertheless, the decline in interest rates probably has acted to boost demand deposit growth by much less than OGDs; models suggest that rate declines, mostly those occurring this year, have raised demand deposit growth in 1986 by about 2-1/2 percentage points or so, in contrast to smaller opportunity costs that have raised OGD growth by more than 20 percent this year (contributing nearly 7 percentage points of M1 growth), following about a 13 percent boost last year.

The velocity of M2 has registered larger declines over the past two years than that of M1-A and also more than would have been expected on the basis of historical relationships. Growth in M2 has been boosted by soaring OGDs; because of their less active nature, OGDs receive a smaller weight in this index than in M1 but are not excluded as they are in M1-A. While the M2 or liquidity-weighted measure incorporates all of the assets making up M3, expansion in M2 has actually outpaced GNP by more than M3 and thus its velocity has fallen more sharply. Contributing to the relative weakness in M2 velocity has been very strong growth in transactions and savings deposits, which are deemed to have a very high degree of liquidity in this index and thus receive

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larger weights than in M2 and M3. Thus, both the MS and MQ measures do not seem to have represented much, if any, improvement over the conventional money stock measures and M1-A in tracking the economy in recent years.

#### Factors Affecting Monetary Behavior in 1987

As in 1986, the outlook for monetary behavior in 1987 depends importantly on movements in interest rate relationships. Further adjustments in offering rates, especially on more liquid accounts, can be expected to alter the attractiveness of monetary assets as can changes in market interest rates. However, there continues to be a great deal of uncertainty about the offering rate behavior of depository institutions and the degree of sensitivity of asset portfolios to changes in rate relationships. In addition, the outlook for the broader aggregates is clouded by some of the provisions of tax reform as well as by the possible effects of more stringent capital standards for depository institutions.

Offering rate adjustments and velocity behavior. The outlook for the money-GNP relationship in 1987 is obscured for M1, and to a lesser degree for M2, by uncertainties about adjustments in offering rates on liquid deposits, even if open market rates do not move significantly from current levels. Given that relatively small changes in offering rates on OCDs or in open market rates can give rise to very large percentage changes in opportunity costs under prevailing spreads, the outlook for OCD and M1 growth depends importantly on this relationship. As noted above, depository institutions have been slow to lower offering rates on OCDs--and on passbook savings accounts--evidently in part because of a reluctance to breach the earlier regulatory ceiling. Recently, though, offering rates on such accounts have edged lower, at a time when money market yields have been rather stable, and opportunity costs have widened a bit.

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The short experience with deregulated accounts provides only limited guidance as to what level the offering rate on OCDs will gravitate towards under current market conditions and the pace at which this level will be approached. Some estimates, based in part on the experience with Super NOW accounts, suggest an "equilibrium" rate on OCDs of around 4-1/4 percent at recent interest rate levels, 100 basis points below the current offering rate, given the cost of transactions account reserve requirements and estimates of operating costs.<sup>1</sup> If this estimate were representative and institutions were to lower offering rates to that level, opportunity costs of OCDs would widen markedly, especially in percentage terms, acting to restrain M1 growth over the course of next year. On the other hand, if the equilibrium offering rate were to be only modestly below current levels or depositories were to lower offering rates very slowly, very thin opportunity costs would persist, providing a continuing substantial boost to OCDs and M1.

Many of these same considerations also apply to savings deposits and, to a lesser degree, to MMDAs and other retail accounts. As noted above, depository institutions have shown even more resistance to lowering the passbook rate below the old regulatory ceiling, as cost considerations would seem to dictate, although in some markets fairly widespread reductions below this level have occurred and in some others there are indications that new customers are not earning the old ceiling rate (in a few cases because savings accounts will no longer be offered to new customers). Continued sluggish adjustment of passbook offering rates—which now on average exceed the rates available on MMDAs and money market mutual funds as well as on NOWs—will act

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1. The assessment of the equilibrium offering rate is complicated by difficulties of estimating the operating costs of these accounts and how they are likely to be recovered, through lower yields or service fees. Also, competitive conditions in local markets could affect the equilibrium offering rate as well as the speed of adjustment to that rate.

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to buoy inflows to these accounts. Such rate relationships will tend to strengthen M2 growth a little but may act to damp growth in M1.

Econometric models of money demand suggest that, absent much change in short-term interest rates, velocities of the monetary aggregates would be about flat or decline a little further next year. In these models, the effects of previous declines in opportunity costs continue to depress velocities next year relative to trend, but by considerably less than in the past two years, as offering rates move into better alignment with market rates and the public completes its portfolio adjustments.<sup>1</sup> However, given the limited experience with very narrow opportunity costs on liquid accounts such as OCDs, savings deposits, and MMDAs, velocities could well prove to be weaker than what the models forecast, as they generally have been in recent years.

Interest elasticities and behavior of the velocities of M1, M1-A, and M2.

The experience of the past two years underscores the importance of movements in market interest rates to velocity behavior. Rate movements would be expected to have a larger impact on growth in M1 than M1-A or M2, since at current very narrow rate spreads even small changes in open market rates can have large relative effects on the opportunity cost of holding NOW accounts. Considering rate changes, though, adds greatly to the degree of uncertainty about velocity behavior next year, since there is doubt about the public's responsiveness to movements in rate spreads as well as about how depository institutions would respond to such changes; as noted above, historical experience with deposit rate deregulation—especially in the case of savings and NOW accounts—is very limited and may not be a reliable guide to future behavior.

<sup>1</sup>. M1 velocity is estimated to have a trend growth of one percent per year (and M1-A a trend growth of about 1-1/2 percent per year). Trend velocity in M2 is believed to be about flat.

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Also, because it is believed that offering rates on certain key accounts have adjusted only incompletely to market rate declines this year, the change in offering rates next year could be larger if market rates moved lower than if they rose. Furthermore, it is possible that the promptness of the response of depository institutions next year to market rate increases or decreases would differ. In the case of Super NOWs and MMDAs, evidence suggests that depository institutions have been slower to raise offering rates on these accounts when market rates increased than to lower offering rates when market rates fell. In the case of ordinary NOW accounts and passbook accounts, a further decline in open market rates would heighten the cost implications of holding offering rates around the old regulatory ceilings and may encourage some institutions that had been especially reluctant to lower offering rates to take that step and perhaps to react more aggressively in the future.

Table 3 presents estimates of elasticities of M1, M1-A, and M2 with respect to open market interest rates, which give an indication of how these aggregates might respond to any movements in interest rates next year. The elasticity figures shown are based on alternative assumptions of offering rate behavior, and represent both the short-run (one-quarter) response and the response over one year. These elasticity estimates are based on the newly revised Board staff quarterly econometric model and are evaluated as movements from current levels of both market interest rates and offering rates on retail accounts. As noted above, other models typically embody less sensitivity of M1 in particular to changes in market rates and thus imply lower elasticities. For M1 and M2, two alternative assumptions are made regarding the responsiveness of offering rates on liquid accounts. In one

Table 3

Estimated Open Market Interest Elasticities of M1, M1-A, and M2

Based on Revised Quarterly Econometric Model

<u>Time Horizon</u>	<u>Offering rate assumptions</u>				<u>M1-A (both cases)</u>
	<u>Slow adjustment</u>		<u>Prompt adjustment</u>		
	<u>M1</u>	<u>M2</u>	<u>M1</u>	<u>M2</u>	
One quarter	-.033	-.014	-.030	-.013	-.005
One year	-.230	-.085	-.180	-.065	-.060

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Note: Based on the level of market interest rates in late 1986 and estimates of offering rates (which had not adjusted fully to earlier market rate declines).

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case it is assumed that alignment of offering rates to new market rate levels is slow and in the other it is assumed to be prompt; the former is broadly consistent with the sluggish offering rate behavior over recent months, while the latter might be more representative of behavior if recent thresholds were breached and depositories were to be more aggressive in adjusting rates on liquid retail accounts. Since M1-A is noninterest earning and its opportunity cost can be viewed as the market rate itself, its interest elasticity is the same in both cases. It can be seen from this table that the elasticities for M1 and M2 are higher in the case of slow adjustment because opportunity costs are affected for a longer period.

In the case of M1, the elasticities shown in the table imply a broadly similar response over a quarter in both the slow and prompt adjustment cases, but a larger difference over a year. For example, these elasticities suggest that if market rates were to change by about 50 basis points from current levels, M1 growth would be altered by about one percentage point at an annual rate over a quarter with relatively prompt adjustment and one-and-a-quarter percentage points with slow adjustment; over a year, the impact on growth in M1 and its velocity would be about 1-1/2 percent with prompt adjustment and 2 percent with slow adjustment.

The M1-A component would be affected to a much lesser degree by market interest rate changes. A 50 basis point change in market interest rates would alter M1-A growth and its velocity by less than a quarter of a percentage point at an annual rate in the short run and by about half a percentage point over a year.

For M2, the impact of a change in interest rates would be much smaller than for M1 because the nontransactions component of M2 would be affected to



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a lesser degree than the M1 component. Moreover, the difference between slow and prompt adjustment of offering rates is smaller than for M1. These elasticity estimates suggest that a change in market rates of 50 basis points would alter M2 growth—and growth in its velocity—by a little less than half a percentage point at an annual rate in the short run, a quarter, in the case of both slow and prompt adjustment. Over a year, such a movement in market rates would alter M2 by about half a percent with prompt adjustment and nearly three-fourths of a percent with slow adjustment.

Other factors affecting M2 growth in 1987

Tax law changes may affect M2 growth next year in ways not incorporated in the model forecasts.<sup>1</sup> In particular, provisions relating to IRAs and real estate mortgage investment conduits (REMICs) could exert some impact on M2 growth in 1987. The loss of the IRA deduction will reduce the attractiveness of IRAs to many individuals and tend to reduce inflows to such accounts, both at depository institutions and elsewhere. The effect on aggregate saving (out of income) is likely to be minor, and a significant portion of the funds that otherwise would have gone into IRAs is likely to be placed in M2 accounts.<sup>2</sup> In contrast, the REMIC provision—which facilitates further securitization of mortgage assets—could well lead to more packaging of mortgages into mortgage-backed securities and greater efforts to place such securities with retail investors. Given that such securities can be offered in multi-class form—with features similar to retail time deposits—they could prove to be an attractive

1. With respect to M1, tighter restrictions on daylight overdrafts, along the lines proposed by the Board, could boost demand deposits if banks were to encourage their larger customers to hold a bigger demand deposit cushion to cover overdrafts during the day. However, any such impact is expected to be very small, as in 1986.

2. Actually, a substantial portion of IRA flows for a given tax year occur in the January to April period of the following calendar year and thus the impact on M2 of tighter restrictions on IRA contributions might be greater after 1987.

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alternative to retail time deposits in M2 as well as to fixed-income mutual funds. At this time, it is difficult to know how aggressively REMICs will be marketed to retail customers or how well they would be accepted by those customers and thus whether tax reform effects on balance will act to restrain or add to M2 growth.

M3 and debt. M3 is expected to decelerate in relation to GNP next year, implying a slower decline in its velocity. Total domestic nonfinancial debt growth is expected to moderate as growth in its government, business, and consumer credit components slackens. Bank and thrift credit is similarly expected to slow, reflecting reduced borrowing demands on these institutions and the restraining effects of capital standards, which for thrifts will become tighter in 1987.<sup>1</sup> The process of securitizing bank and thrift loans—thereby limiting bank and thrift needs for funds and thus managed liabilities in M3—may be enhanced by the opportunity to use REMICs to liquidate mortgage holdings. This picture presumes no significant shift in the term structure of interest rates, which would affect the attractiveness of long-term debt versus bank loans to businesses and fixed-rate versus variable mortgages—which tend to be held in portfolio by thrifts—to households.

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1. In the absence of firmer regulatory measures, capital standards would not appear to be an important factor reducing growth in bank credit next year. However, if the Federal Reserve and the other bank supervisory agencies were to impose risk-based capital standards, capital constraints might become more significant; in particular, many larger institutions with substantial amounts of standby letters of credit could be faced with the need to build their capital position further or curtail asset expansion as well as standby letters of credit.