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STRICTLY CONFIDENTIAL (FR)
CLASS II - FOMC

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TO: Federal Open Market Committee

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Attached is a memo discussing the factors affecting growth of the monetary aggregates in the first half of this year.

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THE BEHAVIOR OF THE MONETARY AGGREGATES IN THE FIRST HALF OF 1990¹

SUMMARY

In the first half of 1990, each of the three major monetary aggregates ran well below staff expectations; the weakness was most pronounced in the second quarter, when M2 and M3 were essentially flat from March to June, producing, on a quarterly average basis, annual growth rates of 2-1/2 and 1/2 percent, respectively. While several identifiable factors contributed to the second-quarter slowdown, a substantial portion cannot be explained readily, even with the benefit of hindsight. The shifting of intermediation flows, associated with the contraction of the thrift industry, clouded the picture. At the same time that tighter supervision and more stringent capital requirements slashed thrifts' lending and funding needs, stepped-up RTC resolution activity directly diverted retail funds into the commercial banking system. Commercial banks, meanwhile, slowed the pace of their own credit expansion. These developments damped the monetary aggregates directly, by encouraging runoffs of managed liabilities in M3, and indirectly, by lessening commercial banks' and thrifts' need to bid aggressively for retail deposit funds included in M2.

The less aggressive bidding for retail funds opened up wider opportunity costs on M2 balances, contributing to a reduction in the quantity of M2 demanded by the money-holding public. The failure of deposit rates to budge, despite the rise in market interest rates in the first quarter, drove investors out of money assets in pursuit of higher

1. Prepared by Vincent Reinhart, Division of Monetary Affairs.

returns. M2 demand probably also was damped by increases in expected returns on longer-term market assets as note and bond yields rose relative to short-term market rates and to rates on liquid deposits and returns on money fund shares, while the stock market moved higher as well. In addition, somewhat slower growth in income and consumer spending over the first half of the year relative to expectations contributed to the shortfall in the aggregate. However, at least from the perspective of the demand for M2 assets, some part of the deceleration in money growth remains unexplained.

It is too early to tell whether this residual, together with the anomalous behavior of deposit rates, signals the beginning of a permanent shift in the demand for money and its velocity relative to short-term market interest rates or simply random variation in an intrinsically noisy series. Deposits dislodged from thrift institutions may be more interest sensitive than the historical relationship embodied in the staff model, perhaps because they are skewed to brokered and other high-yield instruments or because some portion of them are lost to M2 in the portfolio reallocation that follows the severing of thrift customer relationships. This suggests that the ongoing shifts in intermediation flows may also be associated with a string of demand-side forecast errors. Additionally, the proximate determinants of money demand may be different than current estimates, perhaps with consumption and nominal income weaker or the effective opportunity cost of M2 deposits higher. Moreover, the effective opportunity cost of retail deposits may continue to lag market rates if banks, flush with funds from the acquisition of deposits from resolved thrifts, reduce offering

rates and promotional activity. It is clear, following the arithmetic of quarterly averages, that this weakness will carry over to the third quarter, even if, as expected, the monthly data on the monetary aggregates strengthen a little from the June pace.

M2 IN THE FIRST HALF OF THE YEAR

After growing near the 7 percent upper bound of its target cone in the first months of the year, M2 began to slow markedly in April; the latest estimates for June place this aggregate at about a 3-3/4 percent annual rate above its fourth-quarter base. This slowing is large relative to the historical record and larger still relative to expectations formed earlier this year. At the time of the March FOMC, the staff estimated that M2 would grow 6 percent over the months of the second quarter, or 6-1/2 percent on a quarterly average basis, leaving this aggregate in June 6-1/2 percent at an annual rate above its fourth quarter base (table).

Monetary Aggregates in 1990: Projected and Actual
(percent growth at an annual rate)

	--March to June--		-1990:1 to 1990:2-		--1989:4 to June--	
	<u>March</u> <u>FOMC</u>	<u>Latest</u> <u>Estimate</u>	<u>March</u> <u>FOMC</u>	<u>Latest</u> <u>Estimate</u>	<u>March</u> <u>FOMC</u>	<u>Latest</u> <u>Estimate</u>
M2	6	1/2	6-1/2	2-1/2	6-1/2	3-3/4
M3	4	0	3-1/2	1/2	3-1/2	1-1/2
M1	4-1/2	2	5	3-1/2	4-3/4	4

The staff's quarterly econometric money demand model predicted even more robust growth, forecasting that M2 would expand at about a 7-1/2 percent rate in the second quarter. The following table gives

some rough estimates of the factors accounting for the shortfall from the demand side, using current estimates of key variables and variations on the model specification.

Estimated Effects on M2 not Anticipated in March

(percent growth at an annual rate)

	<u>Q2</u>
a. Interest rate structure	-1-1/4
b. Income and consumption	-1/2
c. Other factors:	
• Housing and lending activity	-
• Foreign demand for currency	+1/4
• Seasonals	-1/2
Total	-2
Actual M2 growth	2-1/2
Memo:	
March bluebook path	6-1/2
Residual ¹	-2

1. Actual M2 growth less the March staff forecast and identifiable factors not incorporated in that forecast.

a. Interest rates

By far the largest identifiable portion of the shortfall of M2 reflected movements in the interest-sensitive part of this aggregate owing to the behavior of two different margins affecting the decision to hold those assets: the steepening of the yield curve over the early part of the period, which diminished the attractiveness of money market mutual funds and other liquid components of M2, and the widening

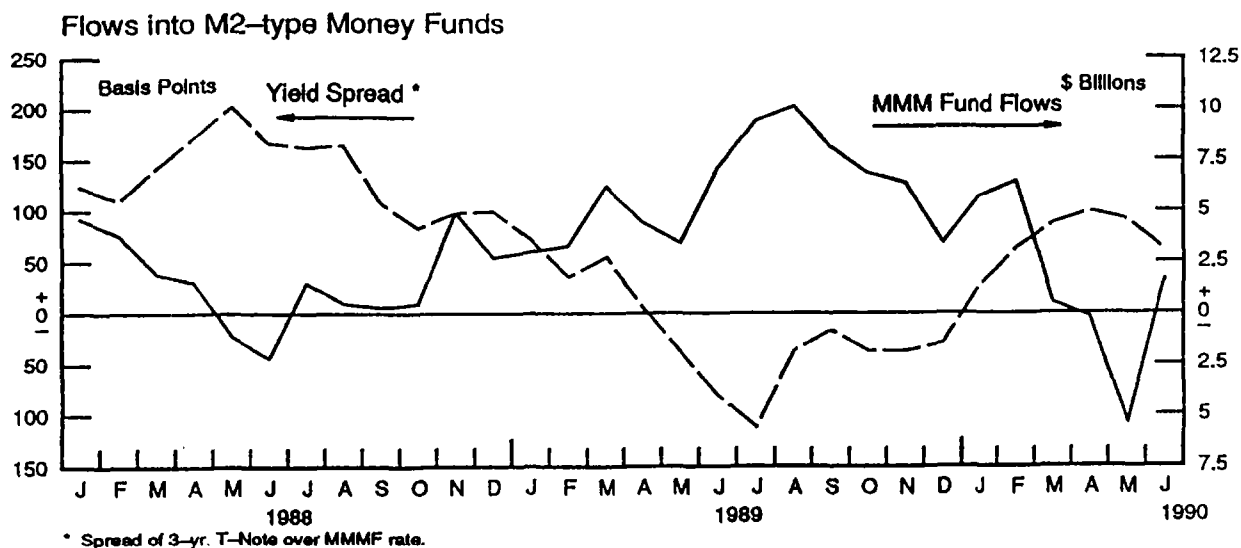
Projected and Actual M2 and its Components

(\$ billion change in quarterly averages, seasonally adjusted annual rate)

	-----1990 Q2-----		
	March <u>FOMC</u>	Latest <u>Estimate</u> ¹	1990 Q1 <u>level</u>
<u>M2</u>	207	77	3249
<u>M1</u>	40	28	800
Currency	15	20	227
Demand deposits	8	-14	279
Other checkable deposits	19	21	287
<u>M2 less M1</u>	167	50	2449
MMDAs	49	42	490
Savings deposits	25	11	413
Small time deposits			
Commercial banks	44	67	534
Thrifts	4	-56	608
Overnight RPs and Eurodollars (n.s.a.)	7	-12	81
Money market mutual funds	39	-3	323

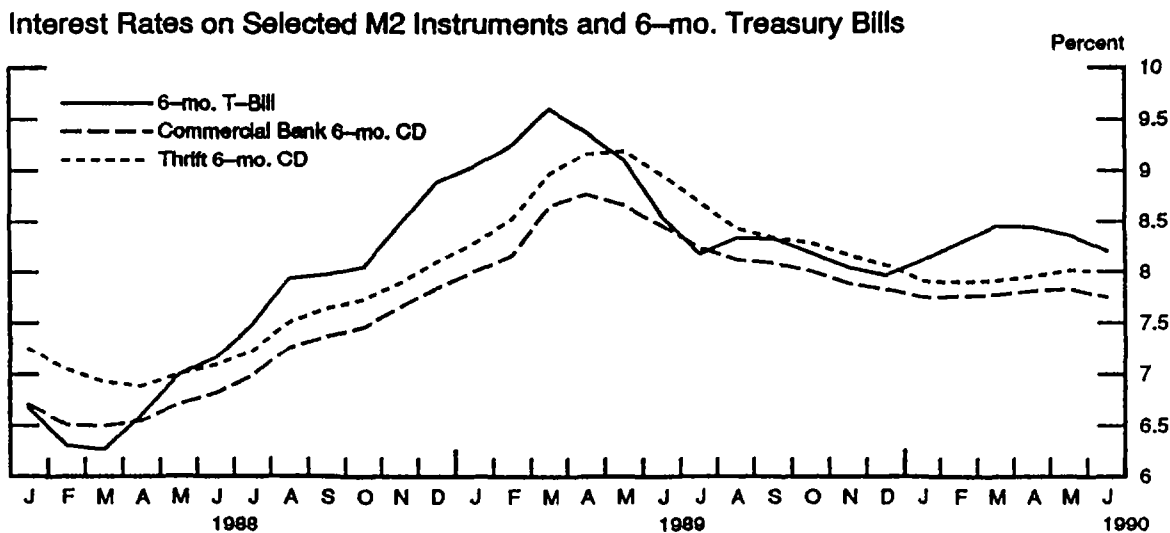
1. June data are partly estimated.

opportunity costs of small time deposits relative to market instruments across the maturity spectrum. Money funds, with an average maturity between thirty and forty days, were particularly attractive in the second half of last year, when the yield curve was inverted and short-term rates were above other market yields (chart). The shifts in the yield curve were quite pronounced after December and produced, with a lag, a sharp dropoff in money funds. Most mutual fund families offer a range of products, allowing individuals to shift readily among stock,



bond, and money market investments. In the second quarter, such features likely hastened the departure from money funds of investors attracted by the prospects in the stock and bond markets.

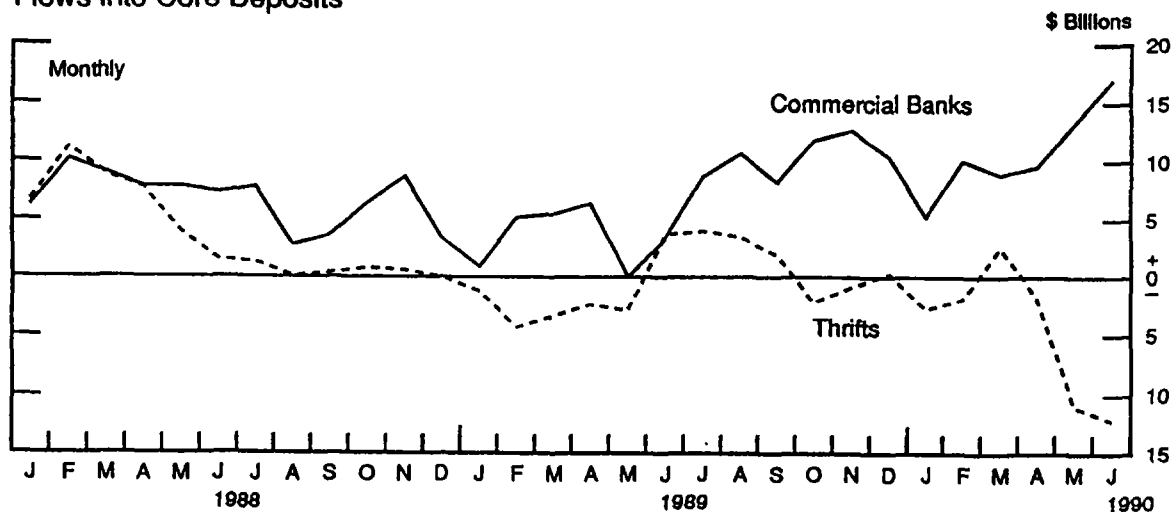
The sluggishness of small time deposits also likely mirrored relative interest rate movements. While the the yield on six-month Treasury bills in June was only 20 basis points above its year-end level, it had been as much as 50 basis points higher in March and April. Neither the rates offered by commercial banks nor by thrifts had moved to match this increase (chart). Indeed, the spread of market rates over



offering rates widened by even more at longer maturities. Partly in response to increased opportunity costs, small time deposits slowed. Some of the investors abandoning M2-type assets turned to purchases of Treasury bills and notes. Net noncompetitive tenders at Treasury auctions, an attractive alternative for rate-sensitive retail investors, totaled over \$7 billion in the second quarter of 1990. A staff model of noncompetitive tenders, incorporating rate spreads and seasonal factors, can account for only half this amount, suggesting that, in addition, there was a shift in investor preferences.

The unwillingness of depository institutions to maintain a more customary yield spread during 1990 may be one effect of the changed pattern of intermediation associated with the contraction of the thrift industry. In the second quarter, commercial banks gained an average of \$13 billion of core deposits each month, while thrifts shed about \$8 billion of core deposits (chart). Most significantly, these movements seldom reflected depositor's decisions. So far in the second quarter, the RTC has shut 138 thrifts controlling about \$30 billion of

Flows into Core Deposits*



*The sum of OCDs, savings deposits, MMDAs, and small time deposits.

total deposits, with almost 70 percent of those deposit liabilities immediately assumed by commercial banks.

While deposit transfers do not directly depress M2, they may have contributed to the weakness of this aggregate by encouraging banks to price their deposits somewhat less attractively. A June survey of bank senior financial officers found that a large majority of banks that purchased thrift deposits had lowered interest rates on some deposits and had abrogated brokered CD contracts.² This inertia in deposit pricing was reinforced by developments on the asset side of bank balance sheets. Preliminary evidence on bank credit suggests that total loans and securities increased at an average annual rate of 6-1/2 percent on a quarterly average basis in the second quarter of 1990, about at 1989's pace, but a percentage point below the staff's March forecast.

Experiments with the staff aggregate M2 model can help quantify the impact of gyrations in the yield curve and the relative immobility of deposit rates. A variant on the basic model, estimated over the shortened period in which money funds have been important, suggests that the movements in the yield curve and opportunity costs may have accounted for about 1-1/4 percentage points of the slowdown in M2 growth in the second quarter.

b. Income and Consumption Expenditures

Part of the realized shortfall followed from the unexpectedly sharp softening in consumption expenditures in the second quarter. The staff model of M2 indicates that the concurrent scale sensitivity is

² Banks appear to be reducing costs in other ways that would bring M2 inflows more into line with their need for funds. A staff survey of several major metropolitan newspapers reveals a tendency toward lower expenditures on marketing aimed at attracting deposits.

modest, with money demand responding to consumption expenditures within the quarter and only reacting to a change in nominal income in subsequent quarters. With first- and second-quarter nominal income expansion about 1/2 percentage point weaker and second-quarter consumption growth down 2-1/2 percentage points from the March forecast, model simulations suggest that these revisions would tend to trim M2 growth by about 1/2 percentage point in the second quarter. Prospectively these revisions will have a larger impact on M2 as the year unfolds.

c. Other factors

The monetary aggregates were buffeted by factors other than interest rates and income in the first half of 1990, confounding the signal they provide about the economy. Relative to the fourth quarter of 1989, M1 grew at a 4 percent rate through June, coming closest to the March forecast of the three aggregates, despite a 3-1/2 percent rate of shrinkage of demand deposits. No doubt, much of this retrenchment in demand deposits continued the secular downtrend witnessed over the past several years, reflecting the uneven phase-out of compensating balance requirements in favor of explicit fees for bank services and, perhaps, relatively high opportunity costs for businesses of holding such accounts. Conversations with cash managers, however, revealed no special reason for the precipitous drop in the second quarter.

Demand deposits may have been affected to a minor extent by the slowing of the real estate market, since those balances play an important role in prepayments of mortgages underlying mortgage-backed securities, escrow accounts, and home settlement procedures. And

weakness in C&I loans and commitments may have reduced compensating balance requirements. But at most, the softening of the housing sector and C&I lending might account for a percentage point of the deceleration in demand deposits in the second quarter, which translates to 1/4 percentage point on M1 growth, or less than 1/8 percentage point on M2 growth.

The remaining narrow transactions media, currency and other checkable deposits, showed no signs of weakness. Empirical work suggests that currency responds to changes in its opportunity cost with a long lag, but interest rates and domestic income growth can explain only about one-half of the growth over the first two quarters of 1990. This marked acceleration coincides with various data indicating increased shipments of currency abroad, both to Latin America and Eastern Europe. If such considerations account for the excess currency growth, then foreign dollarization added about one-quarter percentage point to the growth of M2 in the first half of 1990.

In addition, evolving seasonal factors may be implicated in some of the unexplained shortfall in the monetary aggregates. The weakness in transactions deposits at the end of April and into May was eerily reminiscent of last year's swings, which were correlated at that time with Treasury records of outsized tax payments. The case for tax effects this year is more tenuous, as the weekly pattern of transactions deposits bears only a weak relationship with Treasury tax flows. But gradually evolving patterns of tax payments may be having a more subtle effect; relative to a few years ago, April tax payments have risen as a share of total revenue. With seasonal factors computed on a concurrent

basis using data for the first six months of 1990, M2 growth would have been about 1/2 percentage point higher in the second quarter than under the published seasonal factors.

M3 IN THE FIRST HALF OF THE YEAR

By June M3 had risen at just a 1-1/2 percent rate from its fourth-quarter base and stood well below the lower bound of its target cone. Most of this growth occurred in the first quarter, as M3 growth slowed to only a 1/2 percent rate in the second quarter. However, the broad aggregate undershot earlier predictions by a smaller amount than did M2 in the second quarter.

Projected and Actual M3 and its Components

(\$ billions change in quarterly averages, seasonally adjusted annual rate)

	-----1990 Q2-----		
	March <u>FOMC</u>	Latest <u>Estimate</u> ¹	1990 Q1 <u>level</u>
<u>M3</u>	145	25	4055
<u>M2</u>	207	77	3249
<u>M3 less M2</u>	-61	-52	806
Large time			
Commercial banks	-1	-9	399
Thrifts	-40	-46	150
Term RPs and	-20	-7	163
Term Eurodollars			
Money market mutual fund	6	12	104
Memo: Credit flows	138	-10	4354
Commercial banks ¹	194	169	2604
Thrifts ²	-56	-179	1750

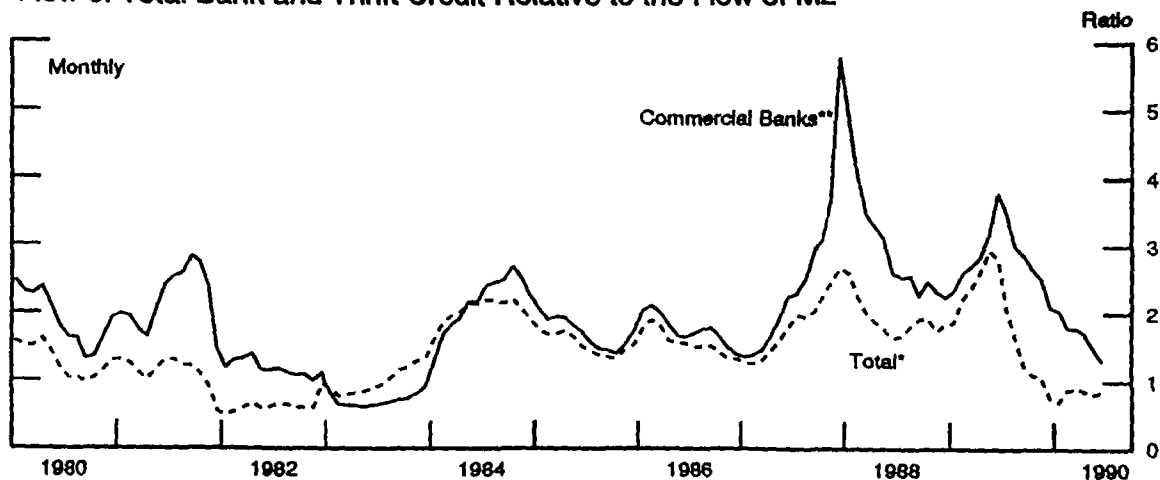
1. June data are partly estimated.

2. Thrift credit flows are proxied by the change in the sum of M3 deposits at thrifts, thrift RPs, and advances from the RTC and FHLB; level of thrift credit is as of January 1990.

As expected in March, the government refinancing of the thrift industry significantly depressed the rate of expansion of depository credit and, accordingly, the need to fund with M3 liabilities. In the event, the extent to which thrifts limited new lending and divested existing assets was substantially larger than expected in the second quarter, with thrifts running off assets at about three times the anticipated pace. For their part, commercial banks did not pick up the slack left by the shrinking thrift industry and, indeed, even slowed the expansion of their own balance sheets. With weaker credit growth, M2 inflows into commercial banks were nearly sufficient to fund bank credit flows over the last twelve months (chart). As the estimated decline in thrift credit over this period was greater than the runoff of M2 liabilities at thrifts, overall M2 deposit flows more than covered the expansion of depository institution credit.

Indeed, total depository credit is estimated to have contracted in the second quarter, owing to a large decline at thrifts. Consistent with this asset shrinkage and inflows of M2 liabilities, the non-M2 part

Flow of Total Bank and Thrift Credit Relative to the Flow of M2



* Ratio of 12-mo. change in bank and thrift credit to 12-mo. change in M2.

** Ratio of 12-mo. change in bank credit to 12-mo. change in bank M2.

Indeed, total depository credit is estimated to have contracted in the second quarter, owing to a large decline at thrifts. Consistent with this asset shrinkage and inflows of M2 liabilities, the non-M2 part of M3 shrank by over \$50 billion at an annual rate in the second quarter, only a bit smaller than the decline anticipated in March. While large time deposits at thrifts continued to run off rapidly, at banks those deposits fell only slightly, despite a ready pool of retail deposits acquired from thrifts.

In fact, despite the rising opportunity costs of retail deposits for money holders, to banks the relative costs of retail and wholesale deposits did not change very much. This anomaly arises from the upward movement of Treasury bill rates relative to private rates. The government increased the size of its weekly bill auctions at a time of year when it normally decreases them, owing to the RTC's need for working capital. This unusual supply narrowed the margin of large time deposit rates over Treasury bill rates by almost one-half in 1990 (table).

Opportunity Costs and Funding Margins for Six-Month Deposits

(basis points)

	Treasury less retail <u>CD rate</u> (1)	Large time less retail <u>CD rate</u> (2)	Large time less Treasury <u>bill rate</u> (2) - (1)
1989:H2	-4	42	45
1990:Q1	44	63	19
Q2 ^{pe}	46	75	29

While bank retail customers saw a substantial increase in their opportunity costs, bank funding managers saw less of a shift favoring retail deposits as cheaper sources of funds than large time deposits. As a result, banks restrained the runoff of large time deposits. Overall, the shortfall in the M3 forecast followed from an underestimate of the extent to which depository institutions would choose to use M2 deposits in order to accommodate reduced lending and the miss on M2-type money funds, while the broad aggregate's managed liability portion nearly matched expectations.