



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

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TO: Federal Reserve Bank Presidents DATE: February 2, 1993
FROM: Normand Bernard *N.B.* SUBJECT: Memorandum on M2 and
Flows to Mutual Funds

FOR INFORMATION ONLY

You may find of interest the attached memorandum on M2 and Mutual Fund Flows that is being circulated to the Board of Governors. The memorandum was prepared by David Small of the Board's Division of Monetary Affairs.

Attachment

BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

DIVISION OF MONETARY AFFAIRS

Date: February 2, 1993
To: Board of Governors
From: David Small
Subject: M2 and Mutual Fund Flows

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I. Introduction and Summary

At the economic briefing yesterday morning, questions arose concerning the impact that bond and stock mutual fund flows may be having on M2 growth. This memorandum presents data on stock and bond fund balances both individually and combined with M2 into alternative monetary aggregates.¹ Adding these funds with M2 produces an aggregate that grew 4-3/4 percentage points faster than M2 in 1992. If bond funds only are included with M2, the aggregate grew 2-3/4 percentage points faster than M2 in 1992. We also use a staff money demand model to estimate the effect that the steep government yield curve has had on M2 by making mutual funds and other longer-term securities relatively more attractive than M2. Simply adding a spread variable to the standard staff M2 model, fit through 1989, suggests that M2

1. To make the mutual fund measures more closely comparable to M2 assets which in general do not experience capital gains or losses, the measure of mutual fund balances used here excludes any revaluation of assets due to capital gains or losses.

The bond and stock mutual fund balances used here include shares held by institutions as well as by individuals. The Investment Company Institute estimates that in 1991 about 27 percent of the assets in all mutual funds are owned by institutional investors.

These mutual fund measures also include those balances held in IRA and Keogh accounts, which are excluded from the monetary aggregates.

growth in 1992 was depressed by 1.3 percentage points due to the steep yield curve. Experimentation with a model updated through 1992 and including bond and stock fund flows explicitly yields estimates of a dampening effect on M2 of 3.8 percentage points in 1992.

II. The Data on Mutual Fund Inflows and Changes in M2

Historical data on bond and stock mutual funds inflows, along with changes in M2, are given in table 1. As shown in the bottom rows of the table, inflows to stock and bond funds have risen in each of the last four years, peaking at \$201.7 billion in 1992. These inflows would have boosted the growth of an M2 plus mutual fund aggregate to a 6.7 percent rate in 1992 and would have led to a continued decline in the velocity of such an aggregate, as shown in columns 2 and 5 of table 2 and in chart 1.

The next set of tables and charts consider only bond funds and M2, in which case the recent developments are more muted than with bond plus stock funds. As shown in the bottom row of table 3, bond fund inflows of \$114.6 billion in 1992 were at a high for recent years, and the GDP velocity of an M2 plus bond fund aggregate would have leveled off after declining in 1989 and 1990. (see table 2 and chart 2)

III. Estimates of the Impact of the Steep Yield Curve on M2

Flows into stock and bond funds are seen as one way by which savers can reach out the yield curve for higher returns. To estimate the effects of the steep yield curve on M2 demand we added a "spread" variable (the 30 year Treasury bond minus the

3-month Treasury bill rate) to the standard staff M2 model.² The model's estimate of the contribution of the steepening of the yield curve to the slowing of M2 growth over the last few years is shown in column 3 of table 4. The yield curve is estimated to have cut 1 percentage point off the growth of M2 in 1991 and 1.3 percentage points in 1992.

Obviously, in this model the inclusion of the yield curve does not provide a complete explanation of the weakness of M2 in recent years. As an experiment to see if these yield-curve and mutual fund effects could be extended to explain more of the recent slowdown in M2 growth, the model was changed in two ways. First, although the model still uses the slope of the yield curve to forecast long-run effects on M2, the observed flows to bond and stock funds were added to the model to help explain monthly variations in M2.³ The estimated contemporaneous impact is that roughly one-third of the bond and stock mutual fund inflows are at the expense of M2. Second, the end of the estimation period was extended from the end of 1989 to June of 1992.

As shown in column 5 of table 4, in this model the impact of the steepening yield curve and the inflows into bond and stock funds is to depress M2 growth in 1992 by 3.8 percentage points. The stronger dampening effect on M2, compared to the estimated effect in column 3, appears to be mainly due to the extension of the estimation period; the weakness in M2 has coincided with

2. The start of the estimation period was moved up from 1964:Q1 to 1984:Q1 because the balances in stock and bond fund were small relative to M2 up to the mid-1980s--as indicated in chart 1 where the velocities of M2 and of M2 plus stock and bond funds are very close until 1983.

3. The model was also converted from a quarterly to a monthly specification to more tightly test the strength of the link between inflows to mutual funds and outflows from M2.

rising spreads and the estimation picks this up as a much higher coefficient on the spread variable. While the model generated for the purposes of this experiment is not a fully tested and robust model, it does suggest that the dampening effect of a rising yield curve could be quite significant, although our estimates of the effects are very sensitive to the particular model used and the period over which it is estimated.

Table 1
M2 and M2 Plus Stock and Bond Mutual Funds

		2			1	
		Net Dollar Flows			Growth Rates	
Year	Month	M2	Mutual Funds	M2 Plus Mutual Funds	M2	M2 Plus Mutual Funds
1992	1	5.3	17.0	22.3	1.9	6.7
1992	2	16.5	17.3	33.9	5.7	10.1
1992	3	1.9	16.1	18.0	.6	5.3
1992	4	-1.1	16.9	15.8	-.4	4.7
1992	5	2.3	17.2	19.6	.8	5.7
1992	6	-5.3	16.4	11.1	-1.8	3.2
1992	7	1.4	20.4	21.9	.5	6.4
1992	8	8.1	14.6	22.7	2.8	6.6
1992	9	8.1	15.2	23.3	2.8	6.7
1992	10	13.4	8.9	22.3	4.6	6.4
1992	11	8.0	19.6	27.6	2.8	7.9
1992	12	-1.8	22.0	20.2	-.6	5.7
Quarter						
1989	1	16.2	-.8	15.3	2.1	1.8
1989	2	15.3	6.7	22.0	2.0	2.6
1989	3	57.0	8.8	65.8	7.4	7.6
1989	4	56.6	14.8	71.4	7.2	8.1
1990	1	46.6	11.2	57.8	5.8	6.4
1990	2	28.7	16.2	44.9	3.5	4.9
1990	3	34.0	3.7	37.7	4.1	4.1
1990	4	19.3	11.7	31.0	2.3	3.3
1991	1	27.9	20.1	47.9	3.3	5.1
1991	2	36.8	28.3	65.1	4.4	6.8
1991	3	10.5	36.9	47.4	1.2	4.9
1991	4	17.6	44.6	62.2	2.1	6.3
1992	1	27.9	50.4	78.4	3.3	7.8
1992	2	5.5	50.5	56.0	.6	5.5
1992	3	6.8	50.2	57.0	.8	5.5
1992	4	26.2	50.5	76.7	3.0	7.3
1978		101.9	-1.0	100.9	8.0	7.7
1979		111.5	-1.7	109.7	8.1	7.7
1980		133.3	.9	134.2	8.9	8.8
1981		151.3	1.0	152.2	9.3	9.2
1982		162.4	8.6	171.0	9.1	9.4
1983		237.1	24.9	262.0	12.2	13.2
1984		175.6	23.8	199.4	8.1	8.9
1985		205.3	81.4	286.7	8.7	11.7
1986		237.0	144.5	381.4	9.3	14.0
1987		120.6	49.0	169.6	4.3	5.4
1988		154.0	-5.6	148.4	5.3	4.5
1989		145.0	29.5	174.5	4.7	5.1
1990		128.7	42.7	171.5	4.0	4.8
1991		92.8	129.8	222.7	2.8	5.9
1992		66.4	201.7	268.1	1.9	6.7

1. Mutual fund data exclude capital gains and losses.
2. Billions of dollars.

Table 2

Velocities of M2 plus Bond and Stock Funds and of M2 plus Bond Funds

	Velocity Levels			Velocity Growth Rates		
	M2	M2 + Bond and Stock Funds	M2 + Bond Funds	M2	M2 + Bond and Stock Funds	M2 + Bond Funds
	(1)	(2)	(3)	(4)	(5)	(6)
<u>Quarterly</u>						
1989:Q1	1.67	1.50	1.54	6.2	6.5	6.3
:Q2	1.69	1.51	1.55	4.2	3.6	3.8
:Q3	1.67	1.49	1.54	-3.5	-3.7	-3.5
:Q4	1.66	1.48	1.53	-2.1	-3.0	-2.3
1990:Q1	1.67	1.49	1.53	1.7	1.1	1.6
:Q2	1.68	1.49	1.54	2.1	0.8	1.7
:Q3	1.67	1.48	1.53	-1.4	-1.4	-1.7
:Q4	1.66	1.47	1.52	-2.2	-3.2	-2.7
1991:Q1	1.66	1.46	1.51	-1.6	-3.3	-2.7
:Q2	1.66	1.46	1.51	0.8	-1.6	-1.0
:Q3	1.67	1.45	1.51	2.7	-0.9	0.0
:Q4	1.68	1.44	1.50	0.8	-3.4	-1.7
1992:Q1	1.69	1.43	1.50	2.8	-1.8	0.1
:Q2	1.70	1.43	1.51	3.6	-1.2	0.6
:Q3	1.72	1.43	1.51	4.4	-0.3	1.0
:Q4	1.73	1.42	1.51	2.5	-1.7	0.8
<u>Annual</u>						
1985				-1.6	-4.2	-4.0
1986				-4.1	-8.1	-7.5
1987				3.5	2.4	3.0
1988				2.3	3.1	2.6
1989				1.2	0.8	1.1
1990				0.0	-0.7	-0.3
1991				0.7	-2.3	-1.3
1992				3.4	-1.3	0.6

Table 3
M2 and M2 Plus Bond Mutual Funds

		2 Net Dollar Flows			Growth Rates	
Year	Month	M2	Bond Funds	M2 Plus Bond Funds	M2	M2 Plus Bond Funds
1992	1	5.3	10.0	15.4	1.9	4.8
1992	2	16.5	9.7	26.3	5.7	8.2
1992	3	1.9	8.9	10.8	.6	3.3
1992	4	-1.1	9.0	7.9	-.4	2.4
1992	5	2.3	10.4	12.7	.8	3.9
1992	6	-5.3	10.8	5.5	-1.8	1.7
1992	7	1.4	13.5	14.9	.5	4.6
1992	8	8.1	10.9	19.0	2.8	5.8
1992	9	8.1	10.0	18.1	2.8	5.5
1992	10	13.4	3.8	17.2	4.6	5.2
1992	11	8.0	9.5	17.5	2.8	5.3
1992	12	-1.8	8.2	6.4	-.6	1.9
		Quarter				

1989	1	16.2	.8	17.0	2.1	2.0
1989	2	15.3	4.3	19.6	2.0	2.3
1989	3	57.0	4.7	61.7	7.4	7.3
1989	4	56.6	6.5	63.1	7.2	7.3
1990	1	46.6	4.5	51.1	5.8	5.8
1990	2	28.7	6.5	35.3	3.5	4.0
1990	3	34.0	5.7	39.7	4.1	4.4
1990	4	19.3	6.2	25.5	2.3	2.8
1991	1	27.9	13.5	41.4	3.3	4.5
1991	2	36.8	19.6	56.4	4.4	6.1
1991	3	10.5	26.0	36.5	1.2	3.9
1991	4	17.6	24.8	42.4	2.1	4.5
1992	1	27.9	28.7	56.6	3.3	5.9
1992	2	5.5	30.2	35.6	.6	3.7
1992	3	6.8	34.4	41.2	.8	4.2
1992	4	26.2	21.4	47.6	3.0	4.8
1978		101.9	1.4	103.4	8.0	8.0
1979		111.5	.9	112.4	8.1	8.1
1980		133.3	1.3	134.6	8.9	8.9
1981		151.3	.9	152.2	9.3	9.3
1982		162.4	5.4	167.8	9.1	9.4
1983		237.1	12.0	249.1	12.2	12.7
1984		175.6	16.0	191.6	8.1	8.7
1985		205.3	70.4	275.7	8.7	11.5
1986		237.0	118.6	355.5	9.3	13.3
1987		120.6	24.8	145.4	4.3	4.8
1988		154.0	5.8	159.8	5.3	5.0
1989		145.0	16.4	161.4	4.7	4.8
1990		128.7	22.9	151.6	4.0	4.3
1991		92.8	84.0	176.8	2.8	4.8
1992		66.4	114.6	181.0	1.9	4.7

1. Bond fund data exclude capital gains and losses.
2. Billions of dollars.

Table 4
The Estimated Effect of the Yield Curve and Mutual Fund Flows on M2 Growth.

	Actual Growth	<u>Staff Yield-Curve Model</u>		<u>Augmented Yield-Curve Model</u>	
		Predicted Growth	Yield Curve Effect	Predicted Growth	Yield Curve and Mutual Fund Flow Effects
	----- (1)	----- (2)	----- (3)	----- (4)	----- (5)
Quarterly					
1989:1	2.1	2.6	1.3	3.2	3.7
:2	2.0	4.0	2.2	4.4	3.7
:3	7.4	6.7	1.8	6.3	2.8
:4	7.2	7.1	1.1	6.0	1.8
1990:1	5.8	6.2	1.0	4.7	1.0
:2	3.5	4.2	0.1	3.0	-0.2
:3	4.1	4.8	0.0	3.5	-0.1
:4	2.3	3.8	-0.6	2.6	-1.4
1991:1	3.3	4.7	-0.3	3.4	-2.0
:2	4.4	5.3	-1.0	3.2	-3.4
:3	1.2	4.0	-1.7	1.9	-3.6
:4	2.1	3.8	-0.7	2.4	-3.2
1992:1	3.3	6.4	-0.9	4.6	-4.2
:2	0.6	4.0	-1.5	1.2	-4.1
:3	0.8	3.6	-1.4	2.4	-3.6
:4	3.0	6.4	-1.1	4.6	-2.7
Annual					
1989	4.7	5.2	1.7	5.1	3.1
1990	4.0	5.0	0.1	3.5	-0.2
1991	2.8	4.5	-1.0	2.8	-3.1
1992	1.9	4.2	-1.3	3.2	-3.8

Chart 1

GDP Velocities of M2 and M2 plus Stock and Bond Funds

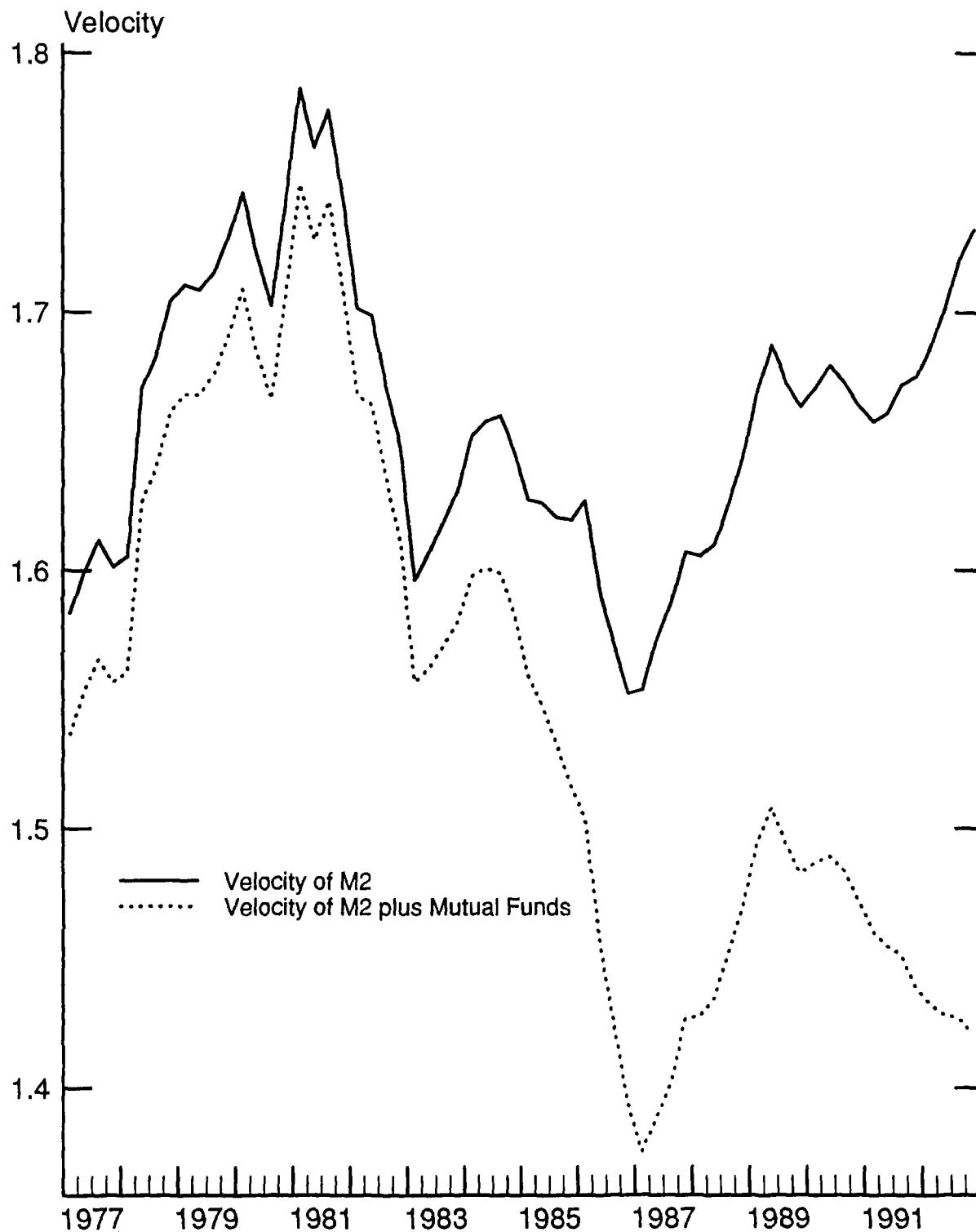


Chart 2

GDP Velocities of M2 and M2 plus Bond Funds

