



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

October 2, 1979

CONFIDENTIAL (FR)
CLASS II - FOMC

TO: Federal Open Market Committee

FROM: Murray Altmann *M.A.*

Attached is a memorandum from Mr. Simpson of the Board's Division of Research and Statistics, dated today and entitled "Revised Proposals for the Monetary Aggregates."

It is contemplated that this memorandum will be discussed at the afternoon session on the day of the next FOMC meeting, October 16.

BOARD OF GOVERNORS
OF THE
FEDERAL RESERVE SYSTEM

REVISED

Office Correspondence

Date October 2, 1979

To Mr. Axilrod

Subject: Revised Proposals for the

From Thomas D. Simpson*

Monetary Aggregates

I. Background

In January of this year the Board staff requested comment on four proposed monetary aggregates developed as replacements for the existing monetary aggregates M-1 through M-5.^{1/} At each level of aggregation, the proposed monetary aggregates add similar kinds of deposit liabilities at all depository institutions.^{2/} The proposed M-1 was designed to be a more comprehensive measure of transactions balances by including recently introduced transactions balances (mainly NOW and ATS accounts) at both commercial banks and thrift institutions. The proposed M-2 added highly liquid savings balances at all depository institutions to proposed M-1. And the proposed M-3 consisted of the sum of the proposed M-2 and all time deposits (both large-denomination and small-denomination) at commercial banks and thrift institutions. In addition, M-1+, consisting of proposed M-1 and savings balances at commercial banks, was offered largely as a transitional aggregate for use during the time when the public was adjusting to the introduction of ATS.

* The last two sections of this memorandum have benefited from comments received from Michael Prell, Martha Bethea, David Lindsey, Darwin Beck, Sherry Atkinson, and Donald Kohn. Research assistance was provided by David Lefever, Nancy Hill, and David Bennett.

^{1/} See "A Proposal for Redefining the Monetary Aggregates," Federal Reserve Bulletin, 65 (January 1979), pp. 13-42.

^{2/} In addition, deposits of foreign banks and official institutions were removed from the proposed monetary aggregates.

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Comments on the proposed aggregates have been received from the public, from invited consultants (mainly from the academic and financial worlds), and from Reserve Banks. For the most part, the comments received endorse the basic approach to aggregation followed in the proposals, namely that of combining similar kinds of monetary assets at each level of aggregation, regardless of issuing institution. However, many felt that the proposed aggregates are incomplete insofar as they do not include certain important financial instruments such as traveler's checks, security repurchase agreements (RPs), money market mutual fund shares, Eurodollars, plus some other liquid assets. Not all were agreed, though, on where such assets belong. For example, some felt that RPs--especially overnight RPs--and money market fund shares belong in the M-1 measure while others argued that these assets belong in the M-2 measure or perhaps in a higher order aggregate. Many also felt that because of the many uncertainties that exist regarding the individual assets that constitute money, it would be sound to publish the principal components of the monetary aggregates along with related series. In this way, users could construct and experiment with other combinations that they may feel are more appropriate than the ones proposed. A number of commentators also argued that the M-3 aggregate should exclude large time deposits since it was felt that large and small time deposits have markedly different behavior and that small time deposits are more like savings deposits, also subject to interest rate ceilings. Finally, there was very little support expressed for the M-1+ aggregate and many felt that it should be dropped as a measure of money.

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II. Revised Proposals

In view of these comments and further research by the Board staff, revised proposals have been formulated. Newly proposed aggregates are presented in Table 1. The narrowest aggregate, M-1, is the same measure of transactions balances that was proposed earlier except that it would include traveler's checks, provided such data are collected.^{1/} The revised M-2 would consist of the originally proposed M-2 (but with traveler's checks) plus money market mutual fund shares and overnight RPs at commercial banks. In essence, this aggregate would consist of funds available for spending during the current or the next business day.

As noted above, there are differences of opinion over whether RPs and money market mutual fund shares should be added at the M-1 or the M-2 level. While most money market funds have check-writing features,^{2/} like the deposit balances included in proposed M-1, existing evidence shows that activity in money market fund accounts is very similar to that of ordinary savings accounts. RPs, however, are not transactions balances like the items included in M-1 and qualitative evidence based on numerous interviews suggests that commercial bank RPs tend to be viewed as one of several very liquid assets that are used as short-term outlets for excess cash. While the econometric evidence presented in the next section--mainly that pertaining to money demand relationships--might be viewed as marginally favoring the

^{1/} Some traveler's checks, those issued by domestic commercial banks, are already included in the M-1 measure, as they are booked by banks as officers' checks.

^{2/} Most funds that offer check-writing privileges also specify a relatively large minimum per draft, typically \$500.

Table 1

Proposed Monetary Aggregates

Amount in billions of dollars
(not seasonally adjusted)
December 1978

<u>Aggregate</u>	<u>Component</u>	
M-1		<u>366.8</u>
	Currency	99.1
	Demand deposits	261.3
	Other transactions balances ^{1/}	6.4
M-2 (revised)		<u>871.6</u>
	M-1	<u>366.8</u>
	Savings at all depository institutions	473.2
	Overnight RPs of commercial banks with the nonbank public ^{2/ 3/}	21.2
	Money market mutual fund shares	10.4
M-3 (revised)		<u>1399.9</u>
	M-2 (revised)	<u>871.6</u>
	Small time deposits at all depository institutions	528.3
L		<u>1928.2</u>
	M-3 (revised)	<u>1399.9</u>
	Large time deposits at all depository institutions (incl. neg. CDs.) ^{3/}	206.8
	Other RPs of commercial banks with the nonbank public	20.8
	RPs of savings and loan associations	5.8
	Banker's acceptances ^{3/}	23.2
	Commercial paper ^{3/}	79.5
	Treasury bills and other liquid Treasury obligations ^{3/}	86.4
	Savings bonds	80.8
	Eurodollar deposits held by U.S. residents (exclusive of bank and official holdings) ^{3/}	25.0

^{1/} Includes NOW and ATS balances, and credit union share drafts. Would also include traveler's checks, for which data are not currently available. Rough estimates suggest that the outstanding volume of traveler's checks was \$2.5 billion in late 1978.

^{2/} Estimated as 51 percent of all commercial bank RPs with the nonbank public.

^{3/} Net of holdings by money market mutual funds.

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inclusion of RPs in M-1, such evidence must be interpreted carefully. In the first place, the addition to M-1 of any asset that has grown since mid-1974 is likely to lower the estimated amount of money demand shift that has occurred in recent years. Second, since RPs tend to be used as a managed liability by commercial banks, the econometric results may be capturing supply-side influences as banks react to losses of demand deposit funds by stepping up their issuance of RPs, instead of just demand-side behavior of the public that the equations are designed to capture.

In principle, the revised M-2 might also include overnight Eurodollars issued to U.S. nonbank residents which are available the next day in immediately available funds and RPs of nonbank security dealers. However, in view of some uncertainties regarding the collection of adequate data, these items are not at the present time being proposed for inclusion in the redefined M-2; instead, efforts to collect adequate data on dealer RPs and overnight Eurodollars would continue and these series would be published as related series, once they became available.

The revised M-3 would consist of the revised M-2 plus small-denomination time deposits at all depository institutions. The fourth and final revised measure being proposed is a very broad measure of liquid assets L. This is a more comprehensive measure of liquid assets than the earlier proposed M-3. In addition to large time deposits of all depository institutions, this aggregate would include all other RPs of commercial banks with the nonbank public, RPs of thrift institutions (which are believed to be dominated by term RPs), banker's acceptances held by the nonbank public, commercial paper, liquid

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Treasury obligations and savings bonds, and Eurodollars held by customers other than commercial banks and official institutions.^{1/} The aggregate L is similar to the current M-7, but by including Eurodollars it is a more comprehensive measure.

Annual growth rates of current and proposed aggregates are presented in Table 2. In recent years, growth in the proposed M-1 has been moderately higher than that of current M-1, largely because of the popularity of new transactions accounts. Growth in the revised M-2 tends to vary more than for the other proposed aggregates, in large part because of the sensitivity of savings over the interest rate cycle; a comparison of growth rates of the revised M-2 with those of the originally proposed M-2 (shown as the second memo item) indicates that the addition of overnight RPs and money market fund shares adds somewhat to the average rate of growth of this aggregate--by about three-fourths of a percentage point over this eight-year period--and moderates variability in annual growth rates only slightly. The revised M-3 has tended to grow more rapidly than the narrower aggregates. However, this aggregate tends to grow less rapidly than the originally proposed M-3 and varies more over the interest rate cycle, mainly because the time deposits included are small time deposits which are subject to regulatory ceilings. The broadest measure, L, has the highest growth rate of the revised aggregates; however, growth in this aggregate has also been the steadiest over this period.

Measures of variability of the monetary aggregates are shown in Table 3 for both quarterly and monthly rates of growth covering the period from early 1970 to mid-1979. Two measures of variability are presented, the standard deviation of annualized growth rates and the mean absolute

^{1/} In addition to constructing L and some other broader measures as simple sums of their components, experimentation will continue with Divisia indexes of monetary aggregates.

Table 2

Annual Rates of Growth of Monetary Aggregates

<u>Current Aggregate</u>	1972	1973	1974	1975	1976	1977	1978	1979 ^{4/}
M-1	8.4	6.2	5.1	4.6	5.8	7.9	7.2	5.0
M-2	11.2	8.8	7.7	8.4	10.9	9.8	8.4	7.5
M-3	13.3	9.0	7.1	11.1	12.7	11.7	9.3	7.8
M-4	12.3	12.0	10.7	6.6	7.1	10.1	10.4	5.8
<u>Proposed Aggregate</u>								
M-1	8.3	5.7	4.7	5.0	6.0	8.2	7.9	7.8
M-2 (revised)	9.3	4.5	4.4	10.4	12.4	9.6	4.1	2.2
M-3 (revised)	12.3	7.4	6.0	12.3	13.7	11.5	8.2	8.6
L ^{1/}	12.7	12.0	9.6	9.8	10.8	12.7	11.6	9.0
<u>Memo:</u>								
Proposed M-1 plus RPs	8.4	7.3	4.9	4.9	7.4	9.3	8.6	7.5
Proposed M-1 plus RPs plus MMS ^{2/}	8.4	7.3	5.5	5.4	7.2	9.2	10.1	14.2
Proposed M-2 (original)	9.2	3.8	3.9	10.2	11.9	9.2	3.0	-0.9
Proposed M-3 (original)	13.9	10.7	8.7	9.8	10.6	11.9	10.6	6.6
Proposed M-3 (original) plus RPs plus MMS ^{3/}	13.9	11.6	8.8	9.7	11.3	12.4	11.1	7.6

^{1/} Excludes Eurodollars.

^{2/} MMS is money market mutual fund shares. Net of RPs held by money market funds.

^{3/} Net of RPs and negotiable CDs held by money market funds.

^{4/} Through first three quarters of the year. Figures for September 1979 are projections.

Table 3

Variability of Growth Rates of Monetary Aggregates^{1/}
(Annual percentage rates)

	<u>Quarterly</u>		<u>Monthly</u>	
	Standard Deviation	Mean Absolute Change <u>2/</u>	Standard Deviation	Mean Absolute Change <u>2/</u>
	2.3	2.1	4.6	4.5
	2.3	2.1	3.6	2.9
	2.6	1.9	3.4	2.1
	3.1	1.8	4.2	3.2
	2.2	2.2	5.2	5.4
	4.5	2.8	5.7	3.6
	3.4	2.4	4.3	2.8
	1.8	1.3	2.6	2.1

Memo :

Proposed M-1 plus RPs	2.4	1.9	5.5	4.1
Proposed M-1 plus RPs plus MMS ^{4/}	2.7	2.0	5.7	5.6
Proposed M-2 (original)	4.9	2.9	6.0	3.4
Proposed M-3 (original)	2.7	1.7	3.6	2.3
Proposed M-3 (original) plus RPs plus MMS ^{4/5/}	2.6	1.7	3.5	2.4

1/ Variability measures calculated for the period 1970:Q1 to 1979:Q2. Underlying data are seasonally adjusted.

2/ Average (absolute) change in growth rates from one period to the next.

3/ Excludes Eurodollars.

4/ Net of RPs held by money market funds.

5/ Net of negotiable CDs held by money market funds.

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change in quarter-to-quarter (or month-to-month) growth rates. The first measure--the standard deviation--reflects departures of quarterly (or monthly) growth rates from the average rate of growth over the entire period, with large deviations receiving more weight than smaller ones. The second measure shows variability from one quarter (or month) to the next. For example, should growth in an aggregate vary markedly over the course of the interest rate cycle and should growth in this aggregate vary only slightly from one quarter to the next (or from one month to the next), the first measure would show considerable variability while the second one would show relative stability.

Table 3 shows that variability in monthly growth rates for all the aggregates tends to be much greater than variability in quarterly rates. In addition, the following points emerge from the table:

(1) On a quarterly basis, both the current and proposed M-1 are about equally variable; however, on a monthly basis, the proposed M-1 is somewhat more variable, as judged both by standard deviations and mean absolute changes.^{1/} The addition of RPs to proposed M-1 (first memo item) increases the standard deviation on both a quarterly and a monthly basis; however, the mean absolute change is lowered by the inclusion of the RP measure. The addition of money market mutual fund shares to proposed M-1 plus overnight RPs (the second memo item) further heightens variability, as measured by the standard deviation, while the mean absolute change is roughly the same as for proposed M-1.

(2) Revised M-2 tends to be somewhat less variable than the originally proposed M-2 (third memo item). Nevertheless, as measured by its standard deviation, revised M-2 is the most variable aggregate of those being proposed; the mean absolute change statistic, however, indicates that period-to-period

^{1/} Much of the difference in growth rate variability of these M-1 measures can be attributed to seasonal adjustment procedures. Proposed M-1 has been seasonally adjusted using the X-11 program while current M-1 has also undergone judgemental review.

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changes in growth rates of revised M-2 are markedly less variable than those suggested by the standard deviation.

(3) Revised M-3 is more variable than originally proposed M-3 (the fourth memo item) on both a quarterly and a monthly basis, in part because of the effects of regulatory ceilings.

(4) The broad liquidity measure, L, is the least variable aggregate, both on a monthly and a quarterly basis.

III. Econometric Properties

Summary money demand statistics for both the current and the proposed monetary aggregates are presented in Table 4. Shown in the first column are standard errors of estimate; these statistics indicate the amount of variability in growth rates that cannot be explained by the principal determinants of money demand--mainly GNP and interest rates. The standard error of estimate is given for two sample periods. The first--presented on the line designated by "a"--is for the sample period beginning in the fourth quarter of 1960 and ending in the second quarter of 1979; the second--designated by "b"--is for the period from 1960 to the second quarter of 1974, when shifts apparently emerged in the public's demand for various monetary assets. The estimates through mid-1974 are then used to make forecasts over the subsequent five-year period and summaries of these forecasts are given in the second and third columns.^{1/} Mean errors indicate the extent to which forecasts of the money stock have drifted off from actual levels over this five-year period. The root mean square error statistic indicates the degree

^{1/} Note that the periods used in calculating the statistics presented in Table 4 differ from those of Table 3.

Table 4

Money Demand Equations
Summary Statistics
(Annual percentage rates)

<u>Current Aggregate</u>		<u>Standard Error of Estimate</u>	<u>Mean Forecast Error</u>	<u>Root Mean Square Forecast Error</u>
1.	M-1 a.	1.98		
	b.	1.607	-2.9	3.97
2.	M-2 a.	1.86		
	b.	1.655	-2.1	2.80
3.	M-3 a.	1.541		
	b.	1.469	-1.5	2.21
4.	M-4 a.	2.434		
	b.	2.565	-4.0	5.34
 <u>Proposed Aggregate</u>				
5.	M-1 a.	1.944		
	b.	1.672	-2.3	3.46
6.	M-2 (revised) a.	2.184		
	b.	1.771	-0.1	3.44
7.	M-3 (revised) a.	1.784		
	b.	1.595	0.3	2.11
8.	L ^{1/} a.	1.357		
	b.	1.294	0.7	2.00
 <u>Memo:</u>				
9.	Proposed M-1 plus RPs a.	1.914		
	b.	1.622	-1.7	3.12
10.	Proposed M-1 plus RPs ^{2/} plus MMS ^{2/} a.	2.027		
	b.	1.613	-0.6	3.21
11.	Proposed M-2 (original) a.	2.244		
	b.	1.763	-0.6	3.87
12.	Proposed M-3 (original) a.	1.902		
	b.	1.911	-3.3	3.92
13.	Proposed M-3 (original) plus PRs ^{2/3/} a.	1.912		
	b.	1.888	-3.6	4.16

^{1/} Excludes Eurodollars.

^{2/} Net of RPs held by money market funds.

^{3/} Net of negotiable CDs held by money market funds.

a. = Sample Period 60 QIV-79 QII; b. = Sample Period 60 QIV-74 QII.

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to which individual quarterly forecasts of money growth depart from actual growth, with larger departures from actual growth receiving a greater weight than smaller ones.

The results from the money demand equations show the following:

(1) Over both sample periods, standard errors of estimate imply that the amount of unexplained variability for proposed M-1 is about the same as for current M-1. Moreover, the addition of RPs does not materially change standard errors of estimate, and like the current and proposed M-1 measures, the standard error of estimate for this aggregate over the longer sample period is appreciably larger than for the shorter period. In the post-sample forecasts, forecast errors for proposed M-1 are subject to less drift, as judged by the mean error, and to smaller individual quarterly forecast errors, as judged by the root mean square error, than current M-1. By adding RPs to proposed M-1, drift is lowered somewhat--by the same amount that drift is reduced in going from current to proposed M-1--and quarter-by-quarter forecast errors are dampened.

(2) Revised M-2 and the originally proposed M-2 have very similar standard errors of estimate for both sample periods. However, forecast errors for the revised M-2 have been subject to less drift and quarter-by-quarter forecast errors have been smaller.

(3) For both sample periods, the revised M-3 has somewhat smaller standard errors of estimate than the originally proposed M-3. Moreover, mean forecast errors for the revised M-3 imply less drift over time and root mean square errors indicate that individual quarterly forecast errors are only one-half those of the originally proposed M-3.

(4) The broadest aggregate being proposed, L, has the smallest standard errors of estimate. Furthermore, forecast errors for this aggregate tend to be among the smallest of those presented in Table 4.

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A second set of econometric exercises involves relating the rate of growth of GNP to the rate of monetary growth, along with a fiscal and a strike variable. Summary results for such reduced-form equations are presented in Table 5. Reduced-form equations are frequently interpreted as showing the impact of money on GNP; however, such interpretations are subject to some well-known difficulties. The format of Table 5 is the same as that of Table 4. The standard error of estimate--shown in the first column--is a measure of the extent to which variability in GNP growth can be attributed to factors other than monetary growth, the fiscal variable and strike activity. Mean forecast errors and root mean square errors are for simulations over the period from mid-1974 to mid-1979. The mean error shows the degree to which, on the average, actual GNP drifted off from forecasted GNP over this period while the root mean square forecast error indicates the degree to which individual quarterly forecasts of GNP growth deviate from actual growth.

The results for the reduced-form equations presented in Table 5 show the following:

- (1) Unexplained variability in GNP growth in those equations using proposed M-1 is slightly smaller than for the equations using current M-1; similarly, the prediction performance of the equation using proposed M-1 is slightly better than for the one using the current measure. The addition of RPs to proposed M-1 leaves the standard errors of estimate and the root mean square error about unchanged. Similarly, the addition of both RPs and money market mutual fund shares to proposed M-1 has very little impact on standard errors of estimate and the root mean square error, although drift is reduced considerably.

Table 5

Reduced-Form Equations
Summary Statistics
(Annual percentage rates)

<u>Current Aggregate</u>		<u>Standard Error of Estimate</u>	<u>Mean Forecast Error</u>	<u>Root Mean Square Forecast Error</u>
1.	M-1 a.	2.78		
	b.	2.45	1.8	4.1
2.	M-2 a.	2.87		
	b.	2.50	1.6	4.2
3.	M-3 a.	2.90		
	b.	2.61	1.5	4.0
4.	M-4 a.	3.13		
	b.	2.65	2.6	4.9
<u>Proposed Aggregate</u>				
5.	M-1 a.	2.70		
	b.	2.43	1.2	3.8
6.	M-2 (revised) a.	3.10		
	b.	2.81	1.6	4.3
7.	M-3 (revised) a.	2.96		
	b.	2.66	1.3	4.1
8.	L ^{1/} a.	2.80		
	b.	2.56	0.8	3.8
<u>Memo:</u>				
9.	Proposed M-1 plus RPs a.	2.63		
	b.	2.41	0.9	3.7
10.	Proposed M-1 plus RPs ^{2/} plus MMS ^{2/} a.	2.69		
	b.	2.41	0.2	3.8
11.	Proposed M-2 (original) a.	3.13		
	b.	2.82	1.8	4.4
12.	Proposed M-3 (original) a.	3.05		
	b.	2.70	2.1	4.4
13.	Proposed M-3 (original) plus RPs ^{2/3/} a.	3.02		
	b.	2.69	2.0	4.3

^{1/} Excludes Eurodollars.

^{2/} Net of RPs held by money market funds.

^{3/} Net of negotiable CDs held by money market funds.

a. = Sample period 60 QIV-79 QII; b. = sample period 60 QIV-74 QII.

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(2) The addition of overnight RPs and money market fund shares to the proposed M-2 improves slightly the reduced-form results.

(3) The reduced-form equations for revised M-3 are associated with moderately smaller unexplained variability in GNP than those for the originally proposed M-3; similarly, the post-sample forecast results are better for the revised M-3.

(4) The reduced-form equations for the L aggregate have relatively small standard errors of estimate; moreover, the root mean square error for the equation using this aggregate is among the smallest of those shown in the table.

The value of monetary aggregates as indicators of GNP is related statistically to their reduced-form properties. However, in the case of indicator values, there is no presumption that changes in the stock of money cause changes in GNP or vice versa. Instead, attention is focused on the informational content of changes in the monetary aggregates; since GNP and the monetary aggregates are known to vary together over time and since the monetary aggregates can be measured on a more timely basis than GNP, the monetary aggregates are capable of conveying information about movements in GNP before such movements are measured directly.

Table 6 gives indicator values for the monetary aggregates for the periods: from late 1960 to mid-1970; from late 1960 to late 1969; and from early 1970 to mid-1979. In many cases, indicator values for the sub-periods differ from those for the entire period. Several points emerge from this table:

(1) Proposed M-1 has uniformly higher indicator values than current M-1. With the addition of RPs to proposed M-1, indicator values tend to increase. By contrast, the addition of both RPs and money market mutual funds to proposed M-1 reduces its value as an indicator.

Table 6
 Monetary Aggregates as Indicators of GNP Growth
 (Percent)

	Indicator Value		
	1960 Q4 - 1979 Q2	1960 Q4 - 1969 Q4	1970 Q1 - 1979 Q2
<u>Current Aggregate</u>			
M-1	.219	.171	.142
M-2	.167	.075	.118
M-3	.162	.014	.138
M-4	.050	.060	.030
<u>Proposed Aggregate</u>			
M-1	.285	.203	.219
M-2 (revised)	.086	.005	.106
M-3 (revised)	.170	.028	.158
L ^{1/}	.295	.101	.270
<u>Memo:</u>			
Proposed M-1 plus RPs	.318	.196	.273
Proposed M-1 plus RPs plus MMS ^{2/}	.266	.195	.162
Proposed M-2 (original)	.067	.005	.088
Proposed M-3 (original)	.116	.011	.088
Proposed M-3 (original) plus RPs plus MMS ^{2/3/}	.132	.011	.107

1/ Excludes Eurodollars.

2/ Net of RPs held by money market funds.

3/ Net of negotiable CDs held by money market funds.

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(2) Revised M-2 tends to be a better indicator of GNP growth than the originally proposed M-2, although indicator levels for both are small.

(3) Indicator values for the revised M-3 are higher than for the originally proposed M-3.

(4) The broadest aggregate, L, is among the best indicators of GNP growth.

In sum, the results imply that the proposed M-1 has somewhat better empirical properties than current M-1. Also, on balance there tends to be some modest improvement in the proposed M-1 aggregate when estimated overnight RPs are added, although the inclusion of both RPs and money market mutual fund shares does not materially improve the performance of proposed M-1. The addition of both overnight RPs and money market mutual fund shares improves somewhat the performance of the originally proposed M-2 aggregate. The empirical evidence also supports replacing the proposed M-3 with revised M-3. Finally, the broadest measure, L, performs very well in comparison with both current and proposed monetary aggregates.

IV. Data Needs

As noted in the January Bulletin article, the quality of data for the monetary aggregates probably would deteriorate over time--especially for the new components--unless better data were to be collected. Without better data, the number and size of revisions likely would be significantly larger than at present. Many of the data problems mentioned in the article stemmed from the lack of timely deposit data on nonmember institutions. Since the publication of that article, some agreements have been reached with other agencies to improve the timeliness and quality of data flows and others are currently being negotiated. In preparing for the collection and processing

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of these data flows, sizable amounts of System resources have been used, not to mention those of other agencies. In addition, more resources will be needed to prepare for other new series and for the ongoing collection and processing of new data flows. Furthermore, once the new aggregates are in place, other regular responsibilities--such as the maintenance, benchmarking, seasonal adjustment, publication, and projection of these series--will require new resources; this is because many new components and unfamiliar series are involved.

Table 7 shows data availability for selected components of the proposed monetary aggregates.^{1/} In the case of those other transactions balances that would appear in the proposed M-1, current data flows or the ones that have been approved for January 1980 are believed to be adequate. The two exceptions are credit union share draft balances--if expressly permitted by the Congress--and traveler's checks. In both cases, it is proposed that new series be collected. For credit unions, this would take the form of a weekly or a monthly sample of about 500 institutions; share draft balances would be collected along with savings and time deposits. Early negotiations suggest that the NCUA is unable to collect such data and the responsibility for collecting and processing them might fall on the System. Since no traveler's check data are being collected at the present time, efforts must begin immediately if they are to be included in M-1. It is felt that only a few large respondents are needed in order to obtain an accurate traveler's check series.

^{1/} Other components of the aggregates were discussed in the appendix to the January Bulletin article.

Table 7

Data Availability for Selected Components of the Proposed Monetary Aggregates

Component (Aggregate first appearing in)	Current Availability			Proposed Availability		
	Frequency	Coverage	Lag	Frequency	Coverage	Lag
<u>Other transactions balances (M-1)</u>						
ATS & NOW						
Member banks ^{1/}	Wkly (daily avg)	universe	1 wk			
Nonmember banks ^{2/}	Wkly (daily avg)	sample	2-3 wks			
MSBs ^{2/}	Wkly (Wed)	sample	2-3 wks			
S&Ls ^{3/}	Tri-monthly	sample	1 wk			
Credit union share drafts	Qtrly (end of qtr)	all Federal credit unions	3 mos	Wkly or monthly	sample	1-2 wks
Traveler's checks		n.a.		Monthly (last Wed)	major issuers	1 wk
<u>Savings balances (M-2)</u>						
Member banks	Wkly (daily avg)	universe	1 wk			
Nonmember banks ^{2/}	Wkly (daily avg)	sample	2-3 wks			
MSBs ^{2/}	Wkly (Wed)	sample	2-3 wks			
S&Ls ^{3/}	Tri-monthly	sample	1 wk			
Credit unions ^{4/}	monthly (end of mo)	sample	6-8 wks	Wkly or monthly	sample	1-2 wks
<u>Repurchase agreements (RPs) of commercial banks (M-2)</u>						
	Wkly (daily avg)	46 money center banks	1 wk	Wkly (daily avg)	127 large member banks	1 wk
<u>Money market mutual funds (M-2)</u>						
	Wkly (Wed)	approx. universe (Donoghue Report)	1 wk	Wkly (Wed)	universe	1 wk

1/ For members outside New England this item is contingent on Congressional action approving nationwide ATS or NOWs (for members in New England these data are currently being collected).

2/ Data collection is scheduled to begin in January 1980.

3/ Data collection by the Federal Home Loan Bank System began in April 1979, although such data have not yet been transmitted to the Board.

4/ Monthly credit union data are for all deposits, the bulk of which are believed to be savings.

Table 7
(continued)

	Current Availability			Proposed Availability		
	Frequency	Coverage	Lag	Frequency	Coverage	Lag
<u>Small time deposits (M-3)</u>						
Member banks	Wkly (daily avg)	universe	1 wk			
Nonmember banks ^{2/}	Wkly (daily avg)	sample	2-3 wks			
MBS ^{2/}	Wkly (Wed)	sample	2-3 wks			
S&Ls ^{3/}	Tri-monthly	sample	1 wk			
Credit unions ^{4/}		n.a.		Wkly or monthly	sample	1-2 wks
<u>Large time deposits (L)</u>						
Member banks	Wkly (daily avg)	universe	1 wk			
Nonmember banks ^{2/}	Wkly (daily avg)	sample	2-3 wks			
MSBs ^{2/}	Wkly (Wed)	sample	2-3 wks			
S&Ls ^{5/}	Tri-monthly	sample	1 wk			
Credit unions		n.a.				
<u>RPs of S&Ls (L)</u>	Semi-annual (June & Dec)	universe	3 mos			
<u>Banker's acceptances (L)</u>	Monthly (end of mo.)	approx. universe	1 mo			
<u>Commercial paper (L)</u>	Weekly (Wed)	approx. universe	1 wk			
<u>Treasury bills, other liq. Treas. obligations & savings bonds (L)</u>	Monthly (end of mo.)	sample	6 wks			
<u>Eurodollars (L)^{6/}</u>	Quarterly (end of qtr.)	approx. universe	5 mos			

^{5/} Data collection scheduled to begin by the Federal Home Bank System in late 1979.

^{6/} Some components--mainly Eurodollar liabilities of foreign branches of U.S. banks--are available on a monthly basis with a lag of about 6 weeks.

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In the case of the M-2 aggregate, the forthcoming weekly samples of the deposits of nonmember banks and mutual savings banks are expected to produce more timely and accurate savings data for those institutions, although initially they will be difficult to interpret. For savings and loan associations, a recently inaugurated tri-monthly sample of savings balances--available for the first 10 days, the second 10 days, and the remainder of the month--would create problems for a weekly publication schedule, since interpolation procedures must be utilized in order to produce weekly estimates. Current data flows on credit union deposit balances are felt to be too slow, especially in view of their rapid growth in recent years, and it is proposed that efforts begin now to collect more timely savings data from a sample of credit unions on either a weekly or a monthly basis. As noted earlier, there is a strong likelihood that such data would have to be collected and processed by the System.

The revised M-2 also contains two nondeposit liabilities, money market mutual fund shares, and overnight RPs of commercial banks. Currently, data for RPs of all maturities are collected on a timely basis by the Reserve Banks for 46 large money center banks. However, definitions of RPs tend to vary somewhat across Districts and call report relationships suggest that in recent years these 46 banks have tended to account for a declining share of RP borrowing of commercial banks. A proposal to standardize definitions, to separate overnight (and continuing contract) from term RPs, and to enlarge the panel size (to 127 respondents)--the Report of Selected Borrowings--has been approved by System-wide committees and a modified version of the proposal

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has recently been recommended for approval by members of the appropriate Board committee.^{1/} Money market mutual fund share data along with considerable asset information are being collected privately on a weekly basis and are published in a weekly report, Donoghue's Money Fund Report. While such data are believed to be adequate--except that during a few weeks each year they are not collected--informal talks with representatives of the Investment Company Institute--the mutual fund trade association--indicate that necessary weekly data might be obtained from that source. Among close substitutes for commercial bank RPs are RPs of nonbank dealers and overnight Eurodollars. While it is not being proposed at the current time that these items be included in M-2, it is felt that such data should be collected for analytical purposes relating to the monetary aggregates and for possible inclusion at some future date. Dealers for some time have been reporting certain RP borrowings to the New York Federal Reserve Bank, but such data are incomplete for use with the monetary aggregates. Needed data could be obtained by expanding the number of items collected on this dealer report. In addition, data on overnight Eurodollars held by nonbank customers are not being collected on a regular basis. It is being proposed that data on overnight Eurodollar holdings with branches of U.S. banks be collected from member banks and that information on corporate holdings with offshore branches of foreign banks might be obtained from corporations on a Treasury report form that is handled by the Federal Reserve Bank of New York.

The situation regarding the small time deposit component of the revised M-3 is very similar to that of savings balances appearing in M-2. Weekly estimates of time deposits at S&Ls must be interpolated from tri-monthly sample data. While time accounts (share certificates) of credit

^{1/} Proposed modifications stem from field test results.

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unions are estimated to be relatively small at present, their recent growth has been considerable and it is felt the addition of this item to the proposed credit union sample can be done with minimal inconvenience.

In the case of the broadest measure, L, data on its components are available, for the most part, on a weekly or a monthly basis. However, most of these series are available only after a lengthy lag. The most troublesome of these is the Eurodollar series which is constructed using data collected by the Federal Reserve for foreign branches of U.S. banks and from the Bank for International Settlements for other banking offices.

Table 8 presents System cost estimates for the new series that are being proposed. In addition, it contains cost estimates for two series that have been approved and are scheduled to begin in January 1980, the non-member bank sample and the MSB sample. The most costly series would be the report of selected borrowings followed by the credit union sample. The combined costs of all six newly proposed series could be higher than the two that have already been approved. It should be noted that each of these cost estimates has largely been obtained independently of the others. Given that all of them would be implemented around the same time--at a time when the System is preparing for the imposition of reserve requirements under the International Banking Act and for related reports--it could well be that these figures are too small. Moreover, there are reasons to doubt whether additional personnel can be hired and trained in the time frame hitherto discussed. It should also be noted that these cost estimates are basically for data collection and editing and exclude Board staff time involved in developing these series and later for monitoring and analyzing them.

Table 8

System Data Cost Estimates for New Monetary Aggregates-Related Series

Series	One-time Costs	Continuing Annual Costs
Report of selected borrowings (RPs) ^{1/}	\$183,000	\$ 50,000
Traveler's checks	0	250
Credit union sample ^{2/}	155,000 (149,000)	147,000 (62,000)
Money market funds	20,000	8,000
Eurodollars	n.a.	n.a.
Nonbank dealer RPs	25,000	10,000
Memo:		
Nonmember bank sample ^{3/}	312,000	171,000
MSB sample ^{4/}	53,000	26,000

^{1/} The continuing annual cost figure is a net figure which equals an annual cost of \$148,000 for this report less a cost savings of \$97,000 for the current RP 716 series. The new series would replace the FR 716 series.

^{2/} Numbers above reflect cost estimates for a weekly sample and those in parentheses reflect costs of a monthly sample. \$43,000 of the total one-time costs and \$76,000 of the continuing annual costs represent the acquisition of new resources associated with a weekly report. In the case of a monthly report, new continuing annual resource costs are estimated to be \$31,000. The differences between these figures and those shown in the table represent a reallocation of existing resources from other activities to this series.

^{3/} \$82,000 of the total of one-time costs and \$97,000 of the continuing annual costs represent the acquisition of new resources and the remainders represent a reallocation of existing resources from other activities to this report.

^{4/} \$4,000 of the total of continuing annual costs represents the acquisition of new resources and the remainder represents a reallocation of existing resources from other activities to this report.

NOTE: Cost estimates do not include Board costs for development, monitoring, and analytical use of these series.

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V. Options for Introducing the Proposed Aggregates

In the previous section it was noted that in order to avoid a deterioration in the quality of monetary aggregates data, several new series on the components of the monetary aggregates are in the process of being collected and that several additional series are being proposed. Most of these data flows are expected to start around the beginning of 1980. Given the usual difficulties that are encountered with new series, it is likely that it will take several months before users can feel confident that the data are reliable. A good example of such difficulties is the bank credit series following the change in the weekly report of condition of large banks in January 1980; several months elapsed before bank credit data were judged to be sufficiently accurate for purposes of being published on a preliminary basis. In addition, it will take several months for Reserve Banks and Board staff to prepare for the collection, transmission, and editing of these data and for personnel to be hired to monitor, seasonally adjust and analyze the new series; in the meantime, attention to these new series might come at the expense of other series and other projects. Special difficulties are likely to be faced with new weekly series, particularly weekly time and savings deposits at thrift institutions. Existing data are of limited usefulness in assessing intra-monthly deposit patterns.

In view of these considerations, there are three basic options for introducing the revised monetary aggregates.

(1) All of the proposed aggregates could be adopted in February 1980, at the time the System announces its targets for that year. The advantage of selecting this option is that all monetary growth targets could be specified in terms of the new aggregates, when they are first

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announced. A disadvantage of this option is that a great deal of estimation would be needed for new components, since it is not very likely that the series scheduled to start around the first of next year will be reliable enough to be included. As a consequence, unusually large revisions could be expected for several months.^{1/}

(2) The adoption of the proposed aggregates could be postponed until July 1980. The advantage of selecting this option is that by July newly introduced data series are likely to be reliable enough for inclusion in the aggregates, meaning that revisions can be expected to be much smaller, more on the order of current revisions. The disadvantage of this option is that confusion would likely arise if targets were first announced early in the year in terms of the current monetary aggregates and then converted in mid-year to the new aggregates.

(3) Proposed M-1 could be adopted early in 1980 and the other proposed aggregates at a later time. It is the staff's view that proposed M-1 could be published in early 1980 without any serious deterioration in the quality of data, since the major data problems arise with components of the broader proposed aggregates.^{2/} The advantage of this option is that a new aggregate could be announced early in the year without any material

^{1/} Instead of operating on these broader aggregates during the first several months, the System could use the commercial bank component of proposed M-3 for which reliable weekly data are available.

^{2/} It should be noted that the proposed M-1 under all of the above options would not incorporate the alternative method of construction recommended by the Bach Committee. This is because the due to - due from discrepancy has not been resolved and staff resources have not been available for investigating this matter further.

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change in data quality. The disadvantage of this approach is that new aggregates would be adopted in a piecemeal fashion.^{1/}

Consideration should also be given to the frequency of publication. One possibility would be to publish the M-1 through M-3 aggregates on a weekly basis, as is now done for M-1 and M-2.^{2/} For the proposed M-1, very few additional difficulties are envisioned. However, for the broader aggregates a number of new problems are likely to be encountered with a weekly publication schedule. Very little is known about the intra-monthly patterns of savings deposits and time deposits of thrifts; thus, it would be difficult to reliably seasonally adjust these data for publication purposes. In addition, publication of the M-2 and M-3 aggregates on a weekly basis requires a conversion of tri-monthly data for savings and loans associations to weekly observations, a procedure that adds to estimation error. Furthermore, the publication of these data on a weekly basis would likely add significantly to Board staff resource needs, as a weekly publication schedule requires a great deal of staff time and depends critically on the coordination of several groups that heretofore have not jointly met such a schedule. In view of these considerations, a second possibility would be to publish M-1 weekly and the broader aggregates monthly. While publication of the broader aggregates would be monthly under this alternative, staff projections of growth of these aggregates would be updated weekly as new information became available.

^{1/} In addition, if the current M-2 is to be continued, it would have to be altered somewhat--by removing deposits of foreign banks and official institutions and by adding transactions balances at thrifts--in order to be consistent with the proposed M-1. This might cause some confusion.

^{2/} Given data availability, the L measure would likely be published monthly, as is now done for M-3.