

FEDERAL RESERVE BANK OF SAN FRANCISCO

SAN FRANCISCO, CALIFORNIA 94120

BOARD OF GOVERNORS
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OFFICE OF THE SECRETARY

JOHN J. BALLEs
PRESIDENT

May 12, 1976

MEMORANDUM TO THE FOMC AND OTHER FEDERAL RESERVE BANK PRESIDENTS
FROM John J. Balles *JB*
SUBJECT Filtering Monetary data to determine the basic trend.

You will recall that at the March FOMC meeting I distributed a chart showing one method of filtering the monetary data to determine the basic trend values. That suggestion was in response to the legitimate concern of the FOMC that changes in the Fed funds rate be initiated in response to basic, and not merely random, deviations in money from the long run growth range. The attached memorandum prepared by my Research staff represents a further development of that approach. This is, we believe, in the spirit of the recommendation of the Subcommittee on the Directive. I am directing it to your attention in the hope that it will clarify the issue, not to present definitive answers.

I would appreciate it if you would give this matter some thought because I would like to introduce the issue at the next FOMC meeting.

cc: Board of Governors Staff

difficulties in interpreting movements of the various measures of money balances."² The problem of choosing procedures becomes less critical as the aggregates are averaged over a longer period of time, leaving us with a series representative of the trend in money to which we can respond. Therefore, the use of this filtering technique helps us to be more certain that we are responding to systematic, long lasting, changes in the aggregates. Movements in the Federal funds rate should then be based on the difference in the level of the moving average series and the long-run target range.

Section II: Provisional guidelines for short-run aggregates targets and the Federal funds rate.

As presently constructed, the procedures for targeting money growth have some ambiguity with regard to the relationship between the short-run operating ranges for the monetary aggregates and the long-run growth rate targets. To remove some of this ambiguity we propose two "provisional guidelines":

1. There is a presumption that the basic trend in money growth should stay within the long run target range.

The long run tolerance range is reviewed every 3 months and represents the best current judgment of FOMC policy intentions. We suggest that the basic trend in money be measured by a 13-week centered moving average which incorporates the latest Board forecast for 5 weeks ahead.

2. When the basic trend of money is outside the long term range the FOMC will take actions to place it inside the range within a reasonable length of time.

Of course, the FOMC might not always wish to force the aggregates toward their intended long-run values. There may be prevailing conditions in other markets which supercede the need to return to the long-run target range, such as conditions in foreign exchange markets or sensitivity in particular financial markets.

Once it is decided to return the filtered monetary series back to the long-run growth path, the question becomes how best to do it. We suggest that the Federal funds rate be moved in a systematic fashion which would return the filtered series towards the desired long-run range. To illustrate this procedure in a non-technical manner, consider two cases:

Case A: Assume that the level of the smoothed (filtered) money series is below the long-run target range. In this case there should be two guidelines: (1) The provisional guideline for the short-run (2 months) operating ranges would be that the lower short-run bound (in terms of annual rates of growth) should not be lower than the growth rate of the lower long-run target bound in order to avoid getting further off target. (2) In addition, the upper bound of the short-run operating targets should be calculated such as to return the smoothed money series back to the lower bound of the long-run range within a reasonable period of time, for example, 2 months.

Case B: This case is symmetrical to Case A. Assume that the smoothed money series (which includes forecasts of expected money growth), is above the long term upper bound. In this case the provisional guideline would indicate that the upper bound of the short-run operating range would be no higher than the upper bound of the long-run range. The lower bound of the short-run range would be calculated as that rate of growth in money which would return the smoothed money series back to the long-run upper bound within a reasonable period of time, such as 2 months.

²Statement of Arthur F. Burns before the Committee on Banking, Currency and Housing, House of Representatives, February 3, 1976.

These provisional guidelines are intended to:

- (1) Direct the short-run operating ranges to returning the smoothed money series back to the long-run target range.
- (2) Eliminate the need to abruptly reverse movements in the Federal funds rate in response to short-run variations in monthly money series, as occurred in mid-1975.
- (3) Provide a logic for gradual and systematic movements in the Federal funds rate.

This memorandum is intentionally non-technical because of the desire to promote discussion of the desirability of using filtered money data. It is not our contention that a 13-week moving average is optimal in any sense. The use of such a filtered series provides a means of linking short-run operating ranges with the long-run target range. Although we cannot control money closely within a two month time frame, it is possible to systematically induce the trend in money to begin to return to the long-run path by reducing the uncertainty surrounding appropriate funds rate responses to incoming monetary data.

To illustrate the use of smoothed monetary data along with the long-run targets, we have appended two charts which utilize the current long-run ranges for M_1 and M_2 . These charts display the relationship between the seasonally adjusted weekly aggregate series and the 13-week moving average series in comparison to the long-run targets. The dotted lines at the end of the aggregate series indicate the effect of adding forecast data to each. The forecasts chosen were the April 29 Board staff forecast of money growth for the following six weeks. These forecasts were formed assuming the current level of the funds rate. The aggregates were at a level above the long-term tolerance range according to the 13-week moving average. The FOMC may therefore wish to increase the Fed funds range to slow money growth.

The Desk would operate essentially as it always has, except to treat the 13-week moving average as it currently treats the weekly seasonally adjusted data. For example each week the Desk would continue to collect the incoming seasonally adjusted weekly data, and also the new forecast from the Board staff. Using this new information, the 13-week moving average will be recalculated. If the moving average should be above the upper bound of the long-term tolerance range, the Desk should consider an increase in the funds rate.

Current application

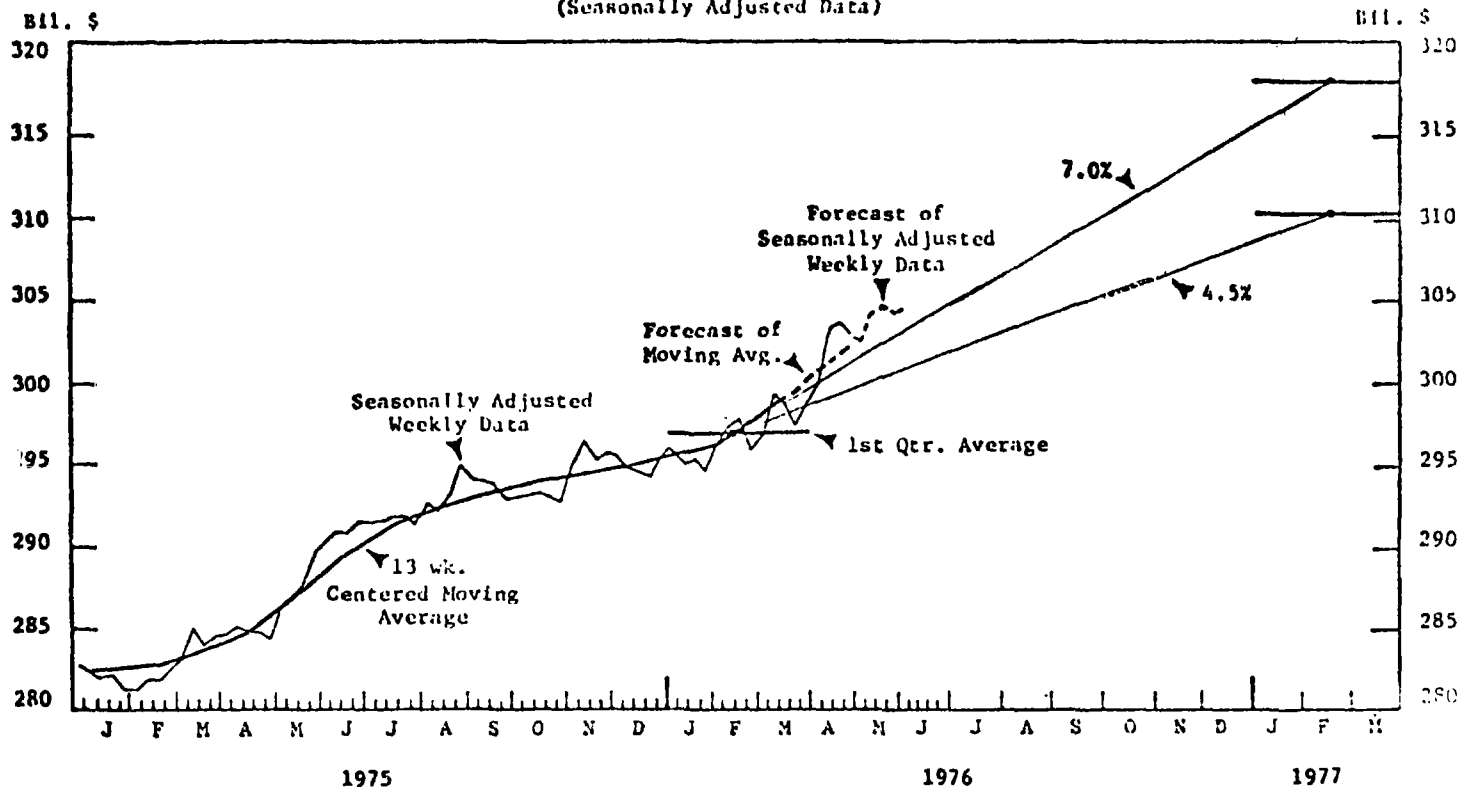
Since the 13 week moving averages for both M_1 and M_2 are currently above the long run tolerance ranges, case B gives the relevant guidelines for choosing the short term tolerance ranges. The guidelines suggest the following short term tolerance ranges for the 2 month period May/June.

M_1 : 2.5 - 7 per cent: The 7 per cent upper bound is constructed to prevent the moving average series from moving further away from the upper bound of the long run tolerance range. The 2.5 per cent lower bound is designed to return to the 13 week moving average upper bound of the long term tolerance range on average for the month of June.

M_2 : 5 to 10 per cent: Again the 10 per cent upper bound prevents us from allowing movement away from the long term tolerance range and the 5 per cent lower bound returns the moving average to the upper bound of the long term tolerance range by June.

M₁

(Seasonally Adjusted Data)

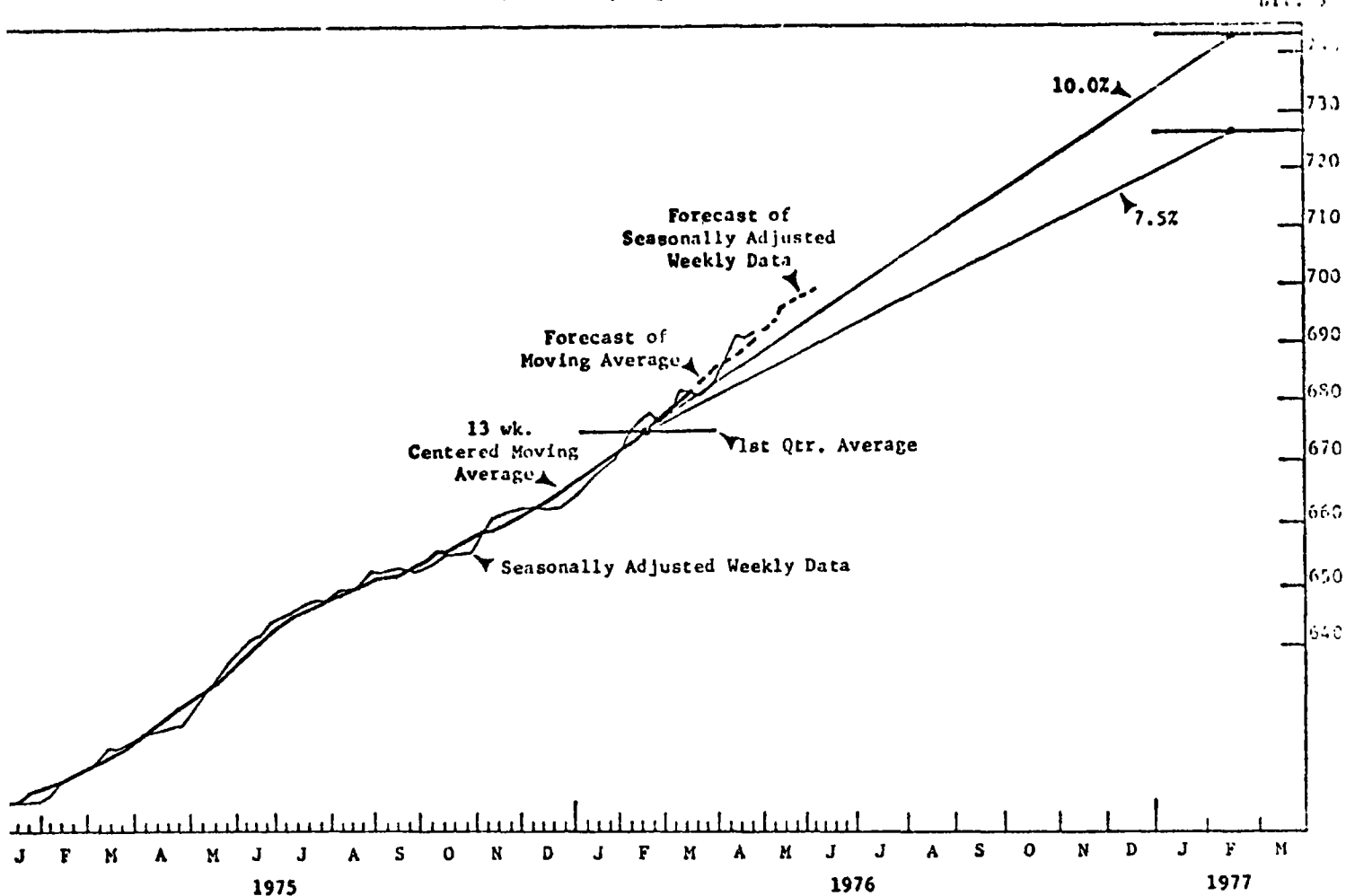


M₁ (Seasonally Adjusted Data) (Billions of dollars)

	(1) Observed Weekly Data and Forecast	(2) 13 Wks. Moving Average	(3) Long Run Upper Bound (7%)	(4) Difference (2-3)
March 3	296.8	297.8	297.7	0.1
10	299.3	298.4	298.1	0.3
17	298.7	299.1	298.5	0.6
24	297.3	299.5*	298.9	0.6*
31	298.6	300.1*	299.3	0.8*
April 7	300.0	300.6*	299.7	0.9*
14	303.3	301.2*	300.1	1.1*
21	303.6	301.8*	300.5	1.3*
28	302.8		300.9	
May 5	302.5*		301.3	
12	304.2*		301.7	
19	304.6*		302.1	
26	304.1*		302.5	
June 2	304.6*		302.9	

*Based on BOG May 6 forecast of weekly seasonally adjusted data.

(Seasonally Adjusted Data)



M₂
 (Seasonally Adjusted Data)
 (Billions of Dollars)

	(1) Observed Weekly Data and Forecast	(2) 13 Wks. Moving Average	(3) Long Run Upper Bound (10%)	(4) Difference: (2-3)
March 3	678.5	679.3	678.5	0.8
10	682.0	680.9	679.8	1.1
17	681.8	682.5	681.1	1.4
24	681.0	683.8*	682.4	1.4*
31	683.2	685.2*	683.7	1.5*
April 7	686.6	686.5*	685.0	1.5*
14	691.1	688.0*	686.3	1.7*
21	690.7	689.5*	687.6	1.9*
28	691.6		688.9	
May 5	691.6*		690.2	
12	694.2*		691.5	
19	695.6*		692.8	
26	696.1*		694.1	
June 2	697.7*		695.4	

*Based on FOC May 6 forecast of weekly seasonally adjusted data