

Federal Reserve Bank of Cleveland

Accelerating Money Growth: Is M2 Telling Us Something?

by John B. Carlson

As has been the case for several years, the 1997 ranges for M2 and M3 were set against a backdrop of uncertainty about the stability and predictability of their velocities. ... Movements in [M2] velocity have become more predictable over the past couple of years. This recent evidence of stability, however, covers only a relatively brief period, and its durability remains uncertain. In these circumstances, the Committee has opted to continue treating the ranges as benchmarks for the trends of money growth consistent with price stability rather than as short-run targets for policy. Meanwhile, the actual behavior of the monetary measures will be monitored for as much information as it may convey about underlying economic developments.

— Federal Reserve Board
February 26, 1997¹

When things appear to be working well, there's a natural reluctance to tinker. For several years now, the policymaking arm of the Federal Reserve System, the Federal Open Market Committee (FOMC), has conducted monetary policy in a framework in which money growth plays no formal operational role. Since the summer of 1993, when Federal Reserve Chairman Alan Greenspan reported that M2 had been de-emphasized, economic outcomes have been quite favorable. Output growth has accelerated to an average rate of about 3 percent over the period, and inflation has fallen to nearly 2 percent thus far in 1997. Moreover, the "core" rate of inflation—the Consumer Price Index (CPI) less food and energy—rose 2.2 percent over the 12-month period ending last September, the smallest

annual increase since 1966. Such results do not inspire a significant change in the way policy is implemented.

Although the FOMC specifies annual objectives for the monetary aggregates M2 and M3, they are not accorded the status of targets.² Over the past three years, these ranges have been set at 1 to 5 percent for M2 and 2 to 6 percent for M3. Markets thus far have little reason to believe that growth outside these boundaries would, by itself, motivate the FOMC to change the intended fed funds rate. Indeed, M2 has been at or above the upper end of its provisional range over much of the past two years, but the Committee has raised the federal funds rate only once (in March of this year; see figure 1).

Nevertheless, evidence continues to accumulate that M2 is again behaving consistently with historical experience. One manifestation is that the velocity of M2—the ratio of nominal GDP to M2—appears to have stabilized around a new trend. A key implication of a stable velocity is that an acceleration in M2 to some higher-than-warranted growth rate risks an acceleration in inflation somewhere down the road. This raises two important questions for policymakers: Should the FOMC place more emphasis on money growth? And, if targeting M2 is not feasible in the near term, what alternative role might the aggregate serve in the formulation of monetary policy? To address these questions, this *Economic Commentary* examines evidence that a stable relationship is

In the late 1970s and early 1980s, the FOMC built its fight against inflation around monetary targeting. The monetary aggregates' role in the policy-making process was downgraded in the early 1990s, when M2's velocity began to rise much more quickly than past experience would have predicted. Although evidence is accumulating that M2 has now stabilized into a pattern more consistent with its historical performance, the data are too limited to recommend a resumption of monetary targeting. But ignoring the sharp acceleration in M2 over the last year and a half would be equally unwise.

reemerging, analyzes the usefulness of money in policy deliberations, and highlights some of the pitfalls of ignoring money growth.

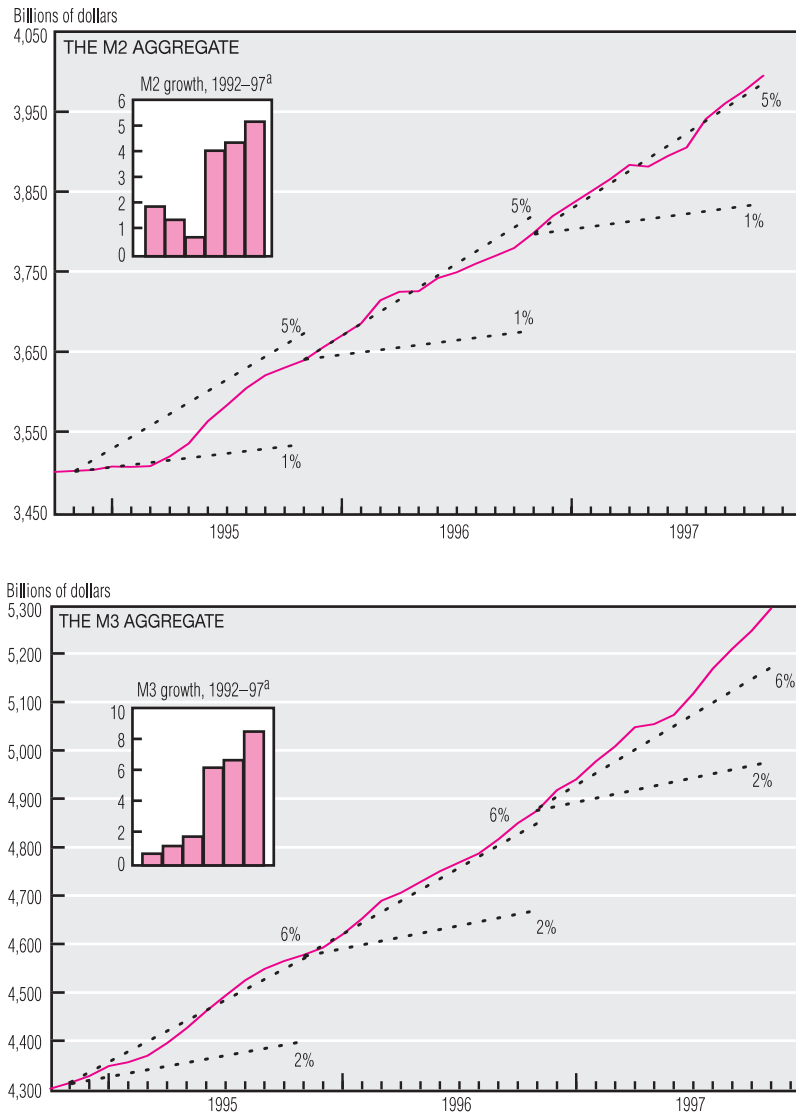
■ The Demise and Reemergence of M2

Although the FOMC announced in 1993 that it had reduced its reliance on M2, the aggregate's role had been slowly diminishing for several years as evidence accumulated that its velocity was increasing much more rapidly than past experience would have predicted (see figure 2). Historically, M2's velocity has varied directly with its opportunity cost, although velocity has drifted upward over time.³ This comovement largely reflects the public's demand for liquid balances, which is determined primarily by the level of spending and the forgone yield of holding fewer liquid assets—that is, the opportunity cost of money. As the opportunity cost of M2 rises, individuals tend to hold fewer M2 assets relative to a given level of spending. Consequently, M2 velocity increases.

The stable velocity pattern broke down in the early 1990s largely because of a confluence of factors that depressed the public's desired holdings of depository instruments, which make up the biggest share of M2. These factors included the contraction of the thrift industry, a large spread between short- and long-term interest rates, and innovations that reduced the transaction costs associated with bond and stock mutual funds, thereby increasing the accessibility of capital market instruments to the ordinary household.⁴

The thrift industry's contraction was driven mainly by its need to rebuild capital positions that had been diminished by a large number of nonperforming loans. Troubled depositories were forced to tighten lending standards, which limited their loan expansion. In turn, they found little need for funds and hence did not price deposits attractively. At the same time, long-term securities such as bonds were yielding significantly higher rates than were short-term instruments. The wide divergence between long- and short-term yields acted as a catalyst for the development of bond mutual funds. More precisely, the mutual fund industry

FIGURE 1 M2 AND M3 GROWTH



a. Growth rate for 1997 is calculated on a November over 1996:IVQ basis.

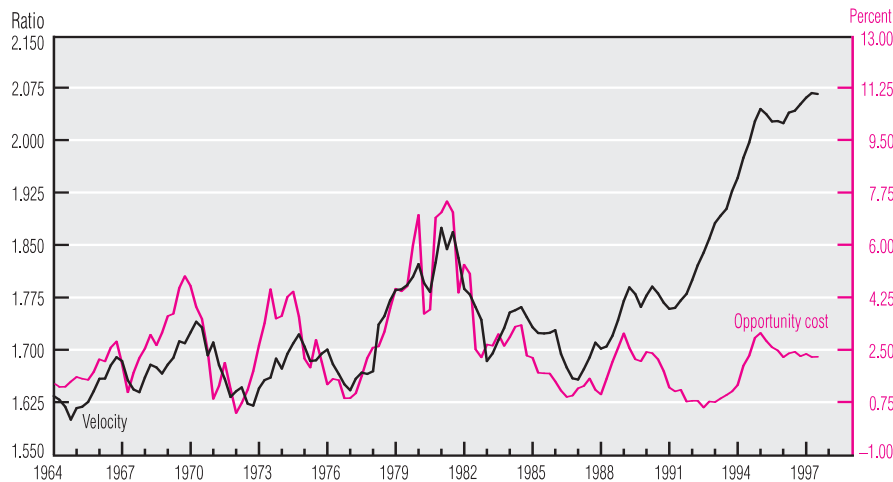
NOTE: Data are seasonally adjusted. Dotted lines are FOMC-determined provisional ranges.

SOURCE: Board of Governors of the Federal Reserve System.

employed marketing strategies that enabled ordinary households to learn about bond funds and their relatively attractive yields. As a result, many Americans chose, for the first time, to move some of their wealth from M2 deposits into bond funds. It now appears that for many of these people, bond funds have become a permanent part of their portfolios, supplanting bank CDs (previously the only major form of financial wealth for most households). This shift permanently reduced the level of deposits relative to economic activity such that the trend of M2 velocity ratcheted upward rather abruptly.

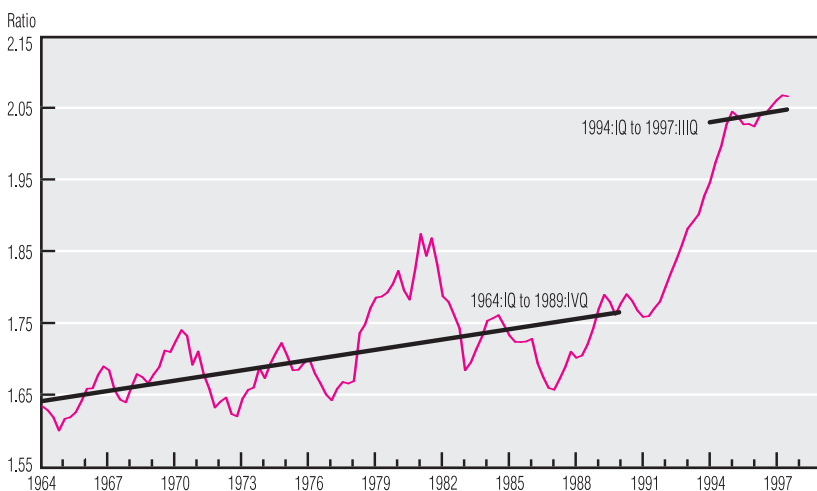
With the improved health of the thrift industry and the return of the yield structure to a more typical state, evidence began to accumulate that movements in M2 velocity were becoming more predictable. The reemergence of the old relationship is evident in figure 3. Prior to the breakdown, velocity exhibited a trend increase of less than 0.3 percent. After shifting upward for a number of quarters, the trend resumed a rate more consistent with its historical relationship to opportunity cost. This transition is estimated to have begun in the second quarter of 1990 and to have ended in the fourth quarter of 1993.⁵

FIGURE 2 M2 VELOCITY AND OPPORTUNITY COST



SOURCES: U.S. Department of Commerce, Bureau of Economic Analysis; and Board of Governors of the Federal Reserve System.

FIGURE 3 M2 VELOCITY AND ESTIMATED TRENDS



SOURCES: U.S. Department of Commerce, Bureau of Economic Analysis; Board of Governors of the Federal Reserve System; and author's calculations.

■ A Role for M2?

Between the mid-1980s and early 1990s, M2 served largely as an intermediate target. Intermediate targets are useful because the effects of policy actions on ultimate policy objectives are uncertain and often occur with a lag. Intermediate target variables serve as surrogates for these ultimate objectives because they are observable relatively quickly and may be more directly controlled. If the achievement of an intermediate target objective is to be consistent with achieving an ultimate goal, then the intermediate target variable must be reliably related to the ultimate goal variable.

The experience of the early 1990s made analysts question the reliability of the long-run pattern of reasonably stable M2 velocity. Reestablishing confidence in that relationship will undoubtedly require a substantial period during which a consistent pattern continues to hold.

Choosing not to target M2 growth is one thing; choosing to ignore it is yet another. In their deliberations, policymakers consider an array of indicators of underlying economic activity, none of which is immune to unanticipated shifts. For example, it is clear from the experience of recent years that estimates of the nonac-

celerating inflation rate of unemployment (NAIRU) have not proved to be a reliable guide for a price stability goal. Nevertheless, many analysts continue to consider the unemployment rate (adjusted for a downward shift, of course) when assessing inflationary pressures.

Similarly, if evidence accumulates that M2 velocity has indeed stabilized, policymakers will gain a useful and *more timely* indicator of underlying economic developments. Witness the experience over the course of this year: At the outset, the FOMC expected the economy to slow considerably (see table 1). Early in the year, M2 growth accelerated sharply, suggesting more strength than had been anticipated given FOMC projections and a relatively unchanged opportunity cost. M2 growth remained near or above its provisional range over most of the year, despite a moderate increase in the federal funds rate. At its midyear report to Congress, the FOMC substantially raised its forecasts for both nominal and real GDP. The preliminary estimate of real output growth in the third quarter reveals an increase of almost 4 percent, consistent with higher-than-anticipated money growth evident earlier in the year.

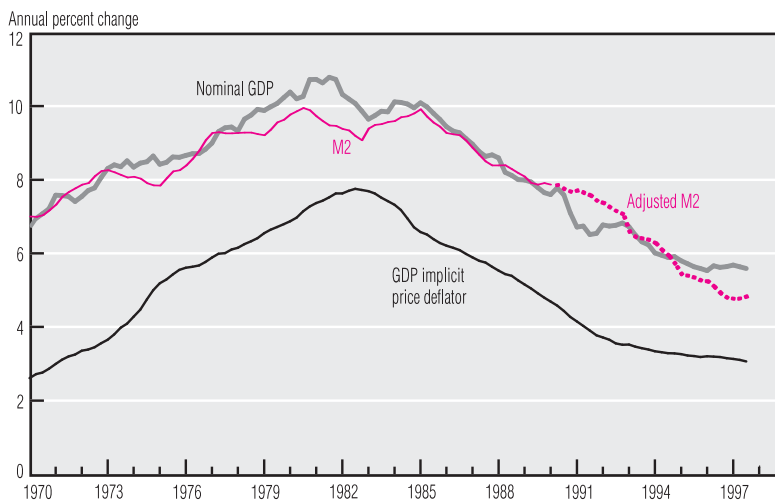
When using M2 growth to monitor underlying economic activity, it is important to account for changes in its opportunity cost. For instance, when interest rates drop because of declining inflation expectations, the opportunity cost of holding M2 initially falls, inducing an increase in M2 demand relative to a given level of economic activity. In such situations, a temporary acceleration in M2 is not likely to be associated with an acceleration in economic activity or increased inflationary pressures. Conversely, when an increase in the rate of return on new business investment leads to a rise in opportunity cost, M2 growth might slow despite strengthening in the underlying economy.

**TABLE 1 ECONOMIC PROJECTIONS FOR 1997
(Percent)**

Indicator	FOMC		
	Range	Central Tendency	Administration
February Humphrey–Hawkins Report			
Change, fourth quarter to fourth quarter			
Nominal GDP	4¼ to 5¼	4½ to 4¾	4.6
Real GDP	2 to 2½	2 to 2¼	2.0
CPI	2¾ to 3½	2¾ to 3	2.6
Average level, fourth quarter			
Civilian unemployment rate	5¼ to 5½	5 to 5½	5.4
July Humphrey–Hawkins Report			
Change, fourth quarter to fourth quarter			
Nominal GDP	5 to 6	5 to 5½	n.a.
Real GDP	3 to 3½	3 to 3¼	n.a.
CPI	2 to 2¾	2¼ to 2½	n.a.
Average level, fourth quarter			
Civilian unemployment rate	4½ to 5¼	4¾ to 5	n.a.

SOURCE: 1997 Monetary Policy Objectives (footnote 1), February 26 and July 22, 1997.

FIGURE 4 MONEY, NOMINAL OUTPUT, AND INFLATION



SOURCES: U.S. Department of Commerce, Bureau of Economic Analysis; Board of Governors of the Federal Reserve System; and author's calculations.

■ Trend M2 Growth

The M2 growth range can also provide a benchmark for the trend growth rate consistent with price stability. Figure 4 compares growth rates of M2, nominal GDP, and the GDP implicit price deflator over the most recent inflation cycle.

Each variable is based on a 10-year average in order to focus on the long term. Because the recent shift in M2 velocity implies that a given level of money will be associated with a higher level of nominal income, the estimated velocity increase is added to M2 growth

over the period following the shift to account for its effect on its relationship with nominal income.⁶ The adjustment hence provides an estimate of what M2 growth would have been in the absence of the velocity shift.

The long-term association between M2 and inflation is not just a characteristic of the last inflation cycle. One recent study showed that since the late 1880s, every major acceleration in M2 has been associated with a corresponding rise in inflation, and every major deceleration in M2 has been connected with a corresponding drop in inflation.⁷ The author suggests that it would be wrong for decisionmakers to conclude that money doesn't matter anymore based on noisy short-term movements in M2. He further argues that since the long run consists of an accumulation of "short runs," sustained M2 growth should be accorded some weight in formulating monetary policy.

Critics of such a role for M2 believe that although the aggregate may be behaving more normally, episodes like that of the early 1990s could recur. Indeed, many would argue that advances in technology are likely to spawn innovations that will induce future upward—and unpredictable—shifts in M2 velocity. Clearly, such possibilities force us to question an excessive reliance on M2.

On the other hand, one might argue that the nature of these shifts should *accentuate* a potential concern about persistent accelerations in M2. If surprise shifts in velocity are likely to be positive, then it is all the more important for the FOMC to contain M2 accelerations in order to avoid trend growth above that of nominal GDP deemed consistent with price stability. Moreover, some analysts have argued that given recent advances in technology, we might expect a *permanent* increase in the velocity trend, perhaps in excess of 1 percent. If so, trend M2 growth of 5 percent would support trend nominal income growth of 6 percent or more—a pace that may be inconsistent with maintaining our current low inflation rates.

■ Concluding Remarks

The role of money in the formulation of monetary policy has waxed and waned over the years. The high-water mark was reached in the late 1970s and early 1980s, when monetary targeting served as a means to engineer a substantial disinflation. Throughout the balance of the 1980s, monetary targeting continued to provide a reliable framework within which the FOMC could implement its objective of achieving further progress toward price stability. Despite the diminished role of money in the 1990s, the FOMC has continued to advance that cause. Up to this point in the decade, however, the Committee has not faced a sustained period of rapid M2 growth.

Evidence on the stability of M2 velocity is too limited to provide a reliable basis for setting monetary targets anytime soon. Nevertheless, it would seem unwise to ignore M2 growth if it continues at its recent pace. Although one can find sustained periods during which M2 growth exceeded trend levels consistent with low inflation, these episodes followed marked declines in inflation that led to substantial reductions in inflation expectations and hence sharply falling interest rates. Lower interest rates initially reduce the opportunity cost of M2 and raise the level of M2 demanded relative to spending. The sharp acceleration in M2 over the past year and a half has not been associated with falling interest rates. It would be unfortunate and ironic if money serves a role for policymakers only after inflation has become a problem.

■ Footnotes

1. 1997 *Monetary Policy Objectives: Federal Reserve Board Summary Report*, February 26, 1997, p. 18.
2. In February and July of each year, the FOMC sets annual growth ranges for the monetary and credit aggregates. The Federal Reserve Board Chairman presents these ranges, along with projections for output, inflation, and the unemployment rate, in testimony before Congress pursuant to the Humphrey–Hawkins Act of 1978.
3. M2 was redefined in 1996. The new measure excludes overnight repurchase agreements and Eurodollars, for which data are no longer available. The velocity of the old measure was virtually trendless.
4. For a more thorough discussion of these events, see John B. Carlson and Benjamin D. Keen, “M2 Growth in 1995: A Return to Normalcy?” Federal Reserve Bank of Cleveland, *Economic Commentary*, December 1995; and Robert Darin and Robert L. Hetzel, “The Shift-Adjusted M2 Indicator for Monetary Policy,” Federal Reserve Bank of Richmond, *Economic Quarterly*, vol. 80, no. 3 (Summer 1994), pp. 25–48.
5. This interval is based on the pattern of the forecast error of a conventional M2 demand specification. See John B. Carlson and Benjamin D. Keen, *ibid.*, p. 2. Other studies also present evidence that a stable M2 relationship has reemerged. Yash Mehra broadens opportunity cost to include yields on bond funds after 1990. This has the same effect as inducing a shift in mean velocity at that time. Athanasios Orphanides and Richard Porter use a regression-tree approach to estimate real time shifts in equilibrium velocity. They find evidence of a shift beginning in 1990 and ending in early 1995. For details, see Yash P. Mehra, “A Review of the Recent Behavior of M2 Demand,” Federal Reserve Bank of Richmond, *Economic Quarterly*, vol. 83, no. 3 (Summer 1997), pp. 27–43; and Athanasios Orphanides and Richard Porter, “P* Revisited: Money-based Inflation Forecasts with a Changing Equilibrium Velocity*,” Board of Governors of the Federal Reserve System, unpublished manuscript, December 1996.
6. During the period of the shift, M2 velocity is assumed to increase smoothly at an annual rate of 3.77 percent.
7. See William G. Dewald, “Money Still Matters,” *Barron's*, May 19, 1997. He compares 10-year averages of M2, nominal GNP, and the GNP implicit price deflator.

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