

BOARD BRIEFING - ACCELERATING MONEY GROWTH

Analysis of changes in  
money demand and  
regulatory structure.

John D. Paulus  
January 13, 1978

After surging to near record levels in the first year of the current recovery, M1 velocity has grown at a comparatively modest pace in the last two years. This return to growth rates more in line with historical experience raises two questions: first, why did M1-velocity grow very rapidly early in the recovery and then slow down; and, second, is the slower growth of velocity permanent, or is it likely that velocity growth will accelerate unexpectedly in the next few quarters.

In order to assess recent growth patterns and prospective growth in velocity it is necessary to examine the behavior of the narrowly defined money stock in relation to its principal determining factors. The average stock of money desired during a given period generally is thought to be positively related to the volume of transactions to be undertaken and negatively related to some measure of the opportunity cost of holding money. GNP is often used to approximate the level of transactions, and a short-term interest rate, usually the Treasury bill or commercial paper rate, is used to capture the opportunity cost of money.

Before 1975, this relationship among money, GNP, and interest rates had proved remarkably stable. Studies by Board staff and academic economists generally indicated that future money growth could be predicted quite accurately if GNP and interest rate changes were known. But in late 1974 the narrowly defined money stock began to grow more slowly than historical experience would have suggested.

Shown in Table 1 are annual growth rates of M1 and GNP and percentage changes in the 3-month Treasury bill rate since the beginning of the current recovery. The right-hand memo item presents the growth of M1-velocity over this period. (All figures are based on quarterly average levels.) Despite the very rapid growth of GNP and the decline in short-term interest rates, M1 expanded modestly in the first year of the recovery (1975-I - 1976-I). M1-velocity in turn surged upwards at a near record rate. But in the second and third years of the recovery GNP expanded at a more moderate pace on average and interest rates, after declining slightly on balance in 1976, began to move upward last year. M1 growth accelerated over this period, and as a consequence, M1-velocity began to advance at moderate rates consistent with similar stages of previous cyclical recoveries.

The pattern and the magnitude of the shift in the relationship among money, economic activity and interest rates is illustrated in Figure 1. The estimated errors shown are based on the money demand relationship used in the Board's quarterly econometric model. The top panel displays the total short-fall in M1 growth since late 1974. The short-fall first grew rapidly before slowing sharply in recent quarters. The cumulative short-fall for any period represents the increase in the level of M1 since late-1974 that would have been required to achieve the GNP and interest rate patterns actually observed had the historical relationship among money, economic activity and interest rates continued to hold over the period. For the last 3 years the short fall in M1

has cumulated to about \$40 billion. Equivalently, M1 growth has been depressed by all factors about 4 percentage points per year on average since late 1974.

The incremental quarterly errors are shown in the bottom panel of Figure 1. The points shown represent the estimated percentage point short-fall in the M1 growth rate for each quarter since 1974-IV. The dashed lines represent average percentage short falls over the indicated periods. The largest errors occurred in the six quarter period from 1974-IV to 1976-I. Over this period M1 grew on average about 6 percentage points slower than historical experience would have suggested. In the following year (1976-I to 1977-I), the average short-fall was about 3-1/2 percentage points, or just over one-half as great as that of the previous year and one-half. In the last three quarters, the short-fall in money growth has disappeared as M1 has expanded about in line with expectations based on its earlier relationship with economic activity and interest rates. This pattern of steadily declining short-falls in money growth would seem to imply that the demand for money on the margin has been gradually but steadily returning to the association with GNP and interest rates that had been well established before 1975.

Support for the hypothesis that the relationship among changes in money, GNP, and interest rates has been returning to the alignment prevailing earlier can be found in an analysis of the various factors that appear to have constrained M1 growth in the last three years. Both

over time?

regulatory actions and innovations designed to economize on cash balances have contributed to the short-fall in M1 growth during the current recovery. For the most part, the additional constraining effects of these factors on the growth rate of M1 seem to have diminished in the last year or two.

(1)

Federal regulators have played an important role in constraining M1 growth, especially by broadening the class of economic agents that are permitted to hold savings accounts and by facilitating the use of such accounts for third party payments. Last year the Board staff estimated that NOW accounts, business and State and local government savings accounts, telephone transfers from savings to demand deposits and pre-authorized payments from savings accounts depressed M1 growth by about 1-1/2 percentage points from late-1975 to late-1976. Principally reflecting slower NOW account growth and the completion for many firms of the stock adjustment from demand to business savings accounts, these factors probably depressed M1 growth by about 1 percentage point or less in the last year. In general, the constraining effects of these regulatory factors, which account for perhaps one-third of the short-fall in M1 growth in the last two years, appear gradually to be disappearing as the public has adjusted its stock of financial assets to the new regulatory environment.

(2)

While regulatory changes help to explain a part of the short-fall in money growth, the unusually high interest rates in 1973 and 1974 produced a more general impetus to the shift in money demand by

providing businesses and individuals with an incentive for updating and improving cash management techniques and for adopting more efficient payment practices. Though the cost of implementing more efficient cash management practices is largely unaffected by interest rates, the potential savings from reducing demand balances increases when interest rates rise. The trade-off between the cost of implementing new cash management devices and the savings from reduced demand balances thus improves with higher interest rates. Moreover, as interest rates exceed past peak levels, this tradeoff should become favorable for increasing numbers of firms and individuals, and the rate of adoption of financial innovations should accelerate.

Short-term interest rates rose steadily throughout 1973 and reached record levels in the summer of 1974. Financial officials of many major U.S. corporations have indicated to Board staff that the extraordinary levels that short-term interest rates reached in 1974 greatly stimulated efforts to trim demand balances. Indeed, officials of many large firms indicated that demand deposit balances of their firms have been about unchanged over the last three years even though sales have advanced substantially. Increased use of remote disbursing techniques, balance reporting and cash concentration accounts, wire transfers, depository transfer checks, zero balance accounts, lock boxes and other devices have enabled these corporations to effect a significant reduction in demand balances. Staff research on business demand deposits based on the Board's Demand Deposit Ownership Survey

③  
test  
change

tends to support the hypothesis that nonfinancial businesses have significantly lowered their demand balances relative to business sales and interest rates in the last three years.

Implementation of more efficient cash management practices, whether by businesses or individuals, would, of course, tend to lower the desired stock of demand balances associated with a given level of economic activity and interest rates, and would help to explain the short-fall in M1 growth in 1975 and 1976. However, after the lower desired stock of money balances has been reached, the effects of previous financial innovations on rates of growth of money should tend to disappear. Thus, if a series of innovations designed to economize on demand balances is introduced, rates of growth in M1 during and immediately after the period of introduction should slow. However, unless further innovations follow, the rate of growth of M1 should return to a range more consistent with historical experience.

Businesses and individuals, having learned of the cost saving potential of economizing on cash balances, no doubt continue to implement techniques designed to maintain lower demand balances. However, with interest rates significantly lower over the last three years than their 1974 peak values, the incentives for introducing further cash management practices have diminished. Diminished rates of innovation, coupled with an absence of further regulatory actions, would imply that the money stock should continue to expand more in line with historical experience,

given GNP and interest rate changes. These developments further imply that M1 velocity, although likely to advance rapidly with interest rates this year, will on balance grow significantly slower in the future than earlier in the recovery.

Table 1

MONEY GROWTH AND DETERMINING FACTORS  
(Per cent change)

---

Period	M1 Growth <u>1/</u>	GNP Growth <u>1/</u>	Pct Change 3-Month Bills	Memo: Velocity Growth <u>1/</u>
1975-I to 1976-I	4.9	13.6	-14.5	8.7
1976-I to 1977-I	6.0	9.7	- 5.9	3.7
1977-I to 1977-IV	8.3	11.9	31.8	3.6

---

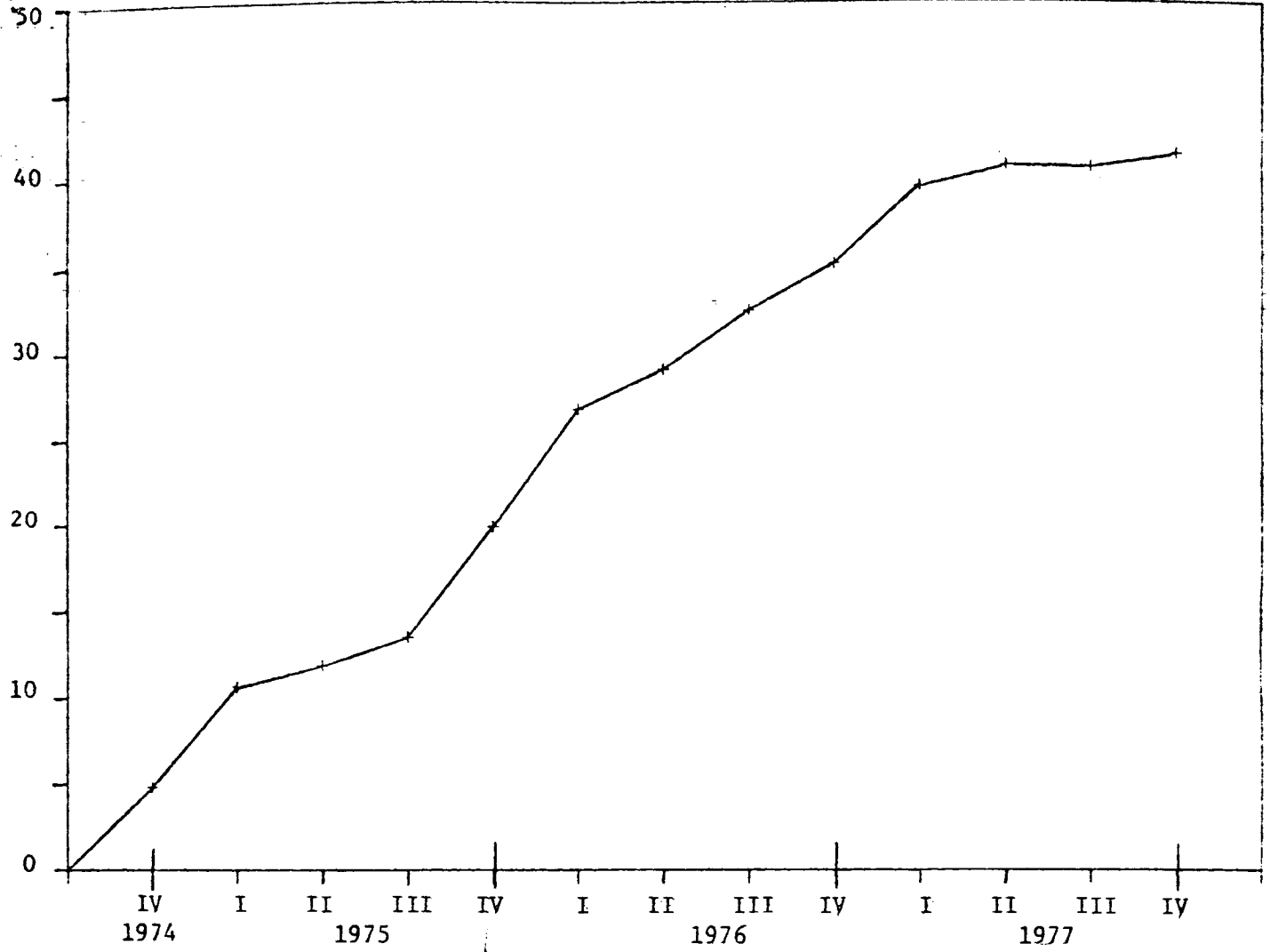
1/ Growth rates are SAAR (based on quarterly average levels for M1).



Figure 1

CUMULATIVE SHORTFALL OF  $M_1$

(\$ billions)



Percentage points (SAAR)

QUARTERLY PERCENTAGE SHORTFALL

