

Banking insights

Behavior of the income velocity of money

... consideration of the stock of money alone is not sufficient for assessment of the adequacy of the economy's liquidity. Money has a second dimension, namely, velocity, or—in common parlance—the intensity with which it is being used.¹

Monetary policy decisions are based on the likely impact future money supply growth will have on the nation's economic activity. How much of an increase in the volume of money is needed to achieve the desired level of activity depends, however, on how intensively the stock of money is used—its velocity. If the rate of money use is expected to change from what it has been in the past, a different quantity of money will be needed to maintain the past level of economic activity. As each dollar is used more often, fewer dollars are needed to facilitate the same amount of transactions. As a first step in determining future velocity movements, it is useful to analyze the past.

Postwar behavior of velocity

Of the several measures of the velocity of money, the one most commonly used is the income velocity of M-1 (V-1) defined as the ratio of GNP to M-1². Since the end of World War II the income velocity of M-1 has been on

¹Arthur F. Burns, Chairman, Board of Governors of the Federal Reserve System, statement before the Committee on Banking, Housing and Urban Affairs, U.S. Senate, May 3, 1977.

²GNP represents the current value of annual spending on final goods and services. M-1 is defined as currency and demand deposits held by the public. While the income velocity of M-1 is most commonly used, similar income velocity measures exist for other measures of income and/or money.

a generally rising trend. Over the past 30 years V-1 has risen at a 3.5 percent average annual rate—from a ratio of 2.05 in the first quarter of 1947 to 5.82 in the second quarter of 1977.

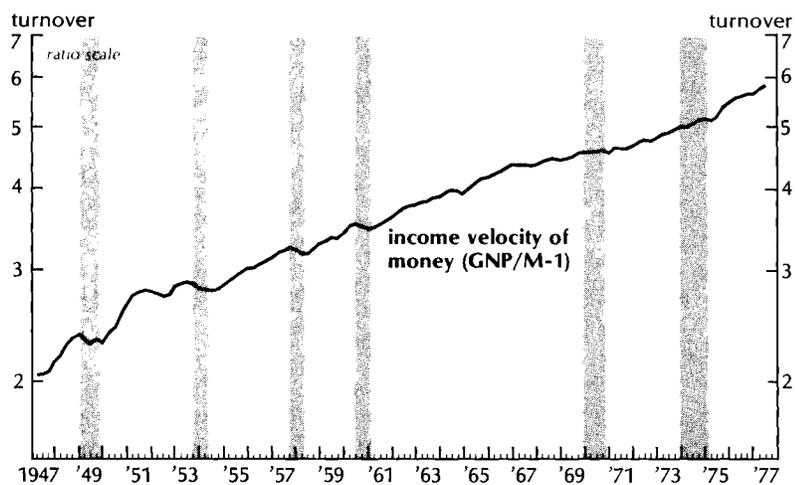
Quarter-to-quarter rates of change in V-1, however, have been quite volatile. They have ranged, in compounded annual rates, from a 5.9 percent decline in the first quarter of 1949 to a 22.4 percent gain in the third quarter of 1950. Over the past decade quarter-to-quarter rates of change in V-1 ranged between extremes of -3.7 percent in the fourth quarter of 1970 to 11.5 percent in the third quarter of 1975.

During the postwar period movements in V-1 have had a discernible cyclical pattern. From the peak to the trough in the first five of the six postwar recessions, V-1 declined. In the 1973-75 recession the average annual rate of change in V-1 slowed to 1.5 percent from the 3.4 percent average gain in the 1971-73 expansion.

During the recovery phases of the six business expansions since 1947, V-1 has generally risen at a rapid rate. From the first quarter of 1975 to the first quarter of 1976, the first year of the current expansion, V-1 rose at a rate of 8.3 percent, faster than in any other first year of recovery since the 1950-53 expansion. As the economy moves from recovery to expansion, the rate of increase in V-1 tends to slow and then to pick up again as the expansion proceeds. In the second year of the current expansion, V-1 grew at a rate of 3.5 percent, somewhat above the 3.1 percent rate observed in the second year of both the 1961-69 and 1971-73 expansions but below the 4.0 percent average second-year pace of the five previous expansions.

The seemingly erratic short-term movements in measured velocity and its pro-

Velocity has been on a rising trend over the postwar period



Note: Shaded areas represent recessionary periods as designated by the National Bureau of Economic Research.

SOURCES: M-1—Board of Governors, Federal Reserve System; GNP—U.S. Department of Commerce.

nounced cyclical pattern may suggest that the relationship between monetary growth and GNP is extremely loose and unpredictable. However, it is generally recognized that there are substantial lags between changes in money and changes in GNP. Indeed, most studies indicate that the primary impact of a monetary change on GNP is not felt for six months to a year, with the total effect being distributed over an even longer period. When this lagged relationship is taken into account, the money-GNP relationship—though far from perfect—is much tighter than the variable behavior of measured velocity would suggest. Nevertheless, the relationship is subject to gradual modification over time, as payments habits and basic economic conditions change, and these changes show up as secular, or longer-term, trends in velocity.

Factors affecting velocity

The postwar rise in V-1 indicates that the public has been reducing its holdings of M-1 balances relative to GNP. This economization of cash balances has been influenced by economic, institutional, and technical factors.

A major economic factor influencing the postwar rise in velocity is the general rise in interest rates that has occurred. Individuals, businesses, and state and local governmental units hold checking account balances and currency primarily to facilitate expenditures. As interest rates rise, the opportunity cost of holding noninterest-earning M-1 balances increases. To the extent that highly liquid interest-earning investment alternatives are available, money-holders have an incentive to shift funds in excess of transactions

needs out of M-1 balances into earning assets.

Over the postwar period investment alternatives have been greatly expanded. For example, the increased desire of corporations to reduce cash balances led to the expansion of existing market alternatives—such as commercial paper—and the development of new instruments—such as certificates of deposit. The introduction by thrift institutions of a wider variety of consumer-type time and savings accounts and the development of money market mutual funds enhanced individuals' access to interest-bearing substitutes for M-1 balances. More recently, regulatory changes permitting businesses and state and local governments to hold savings accounts at commercial banks and the development of NOW (negotiable orders of withdrawal) accounts in New England have induced smaller businesses, state and local governments, and individuals to shift additional funds out of M-1 balances.

An increase in the technical efficiency with which funds can be transferred is another factor tending to increase velocity. Thus, such developments as wider use of wire transfer of funds and, more recently,

Rates of change in velocity differ over the business cycle

| Recessions | | Expansions | | | | |
|----------------------------|---------------------------------------|----------------------------|------------------------------------|------------|-------------|------------|
| Period (Peak-to-trough) | Rate of change in V-1 (percent) | Period (Trough-to-peak) | Rate of change in V-1 (percent) | | | |
| | | | Trough-to-peak | First year | Second year | Third year |
| 48-IV to 49-IV | -2.7 | 49-IV to 53-III | 5.9 | 14.2 | 5.2 | 1.8 |
| 53-III to 54-II | -2.9 | 54-II to 57-III | 5.0 | 5.3 | 4.3 | 4.9 |
| 57-III to 58-II | -3.1 | 58-II to 60-II | 5.4 | 6.6 | 4.1 | — |
| 60-II to 61-I | -1.7 | 61-I to 69-IV | 3.1 | 5.9 | 3.1 | 3.5 |
| 69-IV to 70-IV | -0.3 | 70-IV to 73-IV | 3.4 | 2.7 | 3.1 | 4.6 |
| 73-IV to 75-I | 1.5 | 75-I to 77-II* | 5.7* | 8.3 | 3.5 | 4.6** |

Average annual rates of change in the income velocity of M-1 (V-1 = GNP/M-1).

*Current expansion continuing.

**Rate of change in V-1 in 77-II, the first quarter of the third year of expansion.

SOURCE: M-1 data—Board of Governors, Federal Reserve System; GNP data—U.S. Department of Commerce; Business cycle turning points—National Bureau of Economic Research.

telephonic transfer of funds between savings and checking accounts at commercial banks also help explain the postwar rise in velocity.

Since M-1 balances are held primarily to facilitate expenditures, the increasing availability of overdraft facilities and the more widespread use of credit cards have probably reduced the average amount of M-1 needed for transactions purposes and thus influenced the rise in velocity.

Prospects for future velocity movements

These factors in different combinations affect velocity in a complex fashion. Over the first two years of the current expansion, rates of change in the income velocity of M-1, though unaccompanied by the rise in interest rates observed in previous expansions, have

generally been consistent with past patterns. Technical and institutional factors, however, have increased the ability of individuals, businesses, and state and local governments to reduce M-1 balances without sacrificing liquidity. In addition, cash management techniques once implemented are likely to be continued even though interest rates fall.

History suggests that, as the economy proceeds through the third year of expansion, velocity will continue on an upward trend at perhaps a faster pace than observed in the second year of expansion. The expectation of continued real economic growth, together with the likelihood that interest rates may rise as credit demands strengthen later in 1977, tends to reinforce this conclusion.

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