

JARGON ALERT

Velocity of Money

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In the past few years, the Federal Reserve has greatly expanded the monetary base to fight the recession of 2007-09 and bolster the recovery. But this monetary accommodation has produced neither strong output growth nor significantly higher prices. The money supply has increased significantly, but spending growth has been tepid. So where did all that money go?

The answer lies partly in a concept called the velocity of money. Velocity is simply the number of times that a dollar is spent during a certain time frame, usually one year. Suppose, for example, that Chuck and Wilson become stranded on an island. They each have \$50, bringing the island's total money supply to \$100. During their first year as castaways, Wilson paid Chuck \$50 for crabs, and Chuck paid Wilson \$50 for fire-starting lessons. Wilson paid Chuck \$50 for coconuts, and Chuck paid Wilson \$50 for dental work. Even though their total money supply was only \$100, they were able to spend \$200 because they spent each of their dollars twice on average. So the velocity of money on the island that year was two.

On the island, the money supply consists only of cash, but in the U.S. economy, the composition of the money supply is more complex. The strictest definition of money, M1, consists of cash, traveler's checks, and bank deposits that can be accessed by writing checks. A broader classification of money, M2, includes all of M1 plus money held in savings accounts, certificates of deposit under \$100,000, and money market funds held by individuals. A third definition of money — money with zero maturity, or MZM — includes all of M2 minus the certificates of deposit plus money market funds held by institutions.

The Federal Reserve Bank of St. Louis tracks velocities associated with each of these classifications of money. The velocity of M2 remained fairly constant from the mid-1950s until the late 1970s. During this era, monetarists, led by Milton Friedman, believed that velocity was stable in the short run and that it changed only slowly in the long run. If velocity remained constant, an increase in the money supply would equal the growth rate of prices plus the growth rate of output. If money growth did not influence output, then it would cause prices to rise in lock step with the money supply.

Beginning in the late 1970s, however, financial and technological innovations began to lessen the perceived need for people to hold large precautionary balances of money. M2 velocity increased dramatically as new types of invest-

ments — particularly mutual funds of stocks and bonds — became increasingly popular and accessible. People could hold wealth in these more lucrative investments that they could easily convert to money when they needed to purchase goods and services. This trend limited the growth of the M2 money supply and promoted the growth of M2 velocity.

M2 velocity peaked above 2.1 in the late 1990s before falling dramatically during the recession of 2001 and again during the recession of 2007-09. It now stands at about 1.6. Meanwhile, M1 velocity increased from seven in the early 1980s to more than 10 in 2007 before falling back to about seven during the recession and recovery. MZM velocity rose to nearly 3.5 in the early 1980s and has trended downward to 1.5.

These wide variations in velocity indicate that people have made significant and long-lasting adjustments to their spending habits in response to financial innovations, economic conditions, and expectations regarding employment, income, inflation, and relative interest rates. Perhaps the most significant determinant of velocity is the opportunity cost of holding money instead of investing in assets that have higher potential returns and higher potential risks.

So it is not surprising that velocity plummeted during the recession of 2007-09 and has continued to fall during the recovery. Consumers once again feel the need to hold larger precautionary balances, and the opportunity cost of doing so seems small because bond yields are exceptionally low and stock prices are highly volatile. Much of the money that flowed out of stock mutual funds during the past five years remains in relatively stagnant pools of liquid investments.

This dramatic decline in velocity throughout the recession and recovery has largely offset the effects of accommodative monetary policy. MZM velocity and M2 velocity have reverted to levels not seen since the 1960s, but velocity seems to have become more of an economic wild card than the predictable factor that Friedman expected. One of Friedman's contemporaries, economist Paul Samuelson, summed it up this way in his classic 1948 textbook: "You can force money on the system in exchange for government bonds ... but you can't make the money circulate against new goods and new jobs." Nevertheless, the insights from Friedman's work have been important to understanding the dynamics of inflation and the role that velocity plays in determining prices. **RF**

