Monetary Policy

Percent, weekly averages

RESERVE MARKET RATES

Effective federal funds rate

Intended federal funds rate

Discount rate

1996 1997 1998 1999

Percent

IMPLIED YIELDS ON FEDERAL FUNDS FUTURES

November 16, 1999

November 29, 1999

November 15, 1999

November 1999 January March 2000 May

Percent, weekly averages

SHORT-TERM INTEREST RATES

1-year T-bill[a]

3-month T-bill[a]

1996 1997 1998 1999

Percent, weekly averages

LONG-TERM INTEREST RATES

Conventional mortgage

30-year Treasury[a]

10-year Treasury[a]

1996 1997 1998 1999
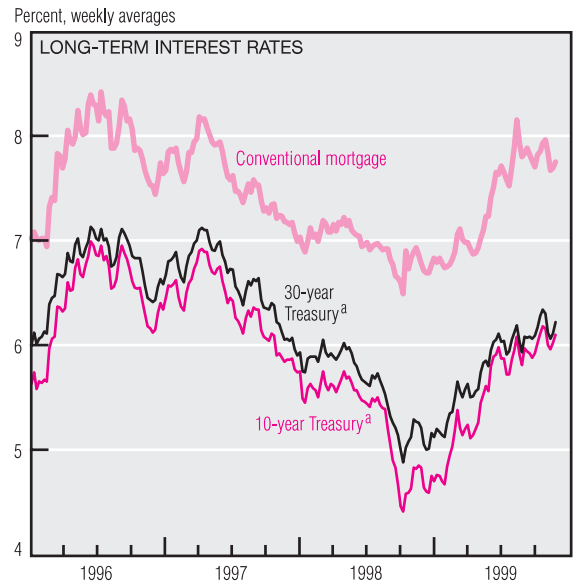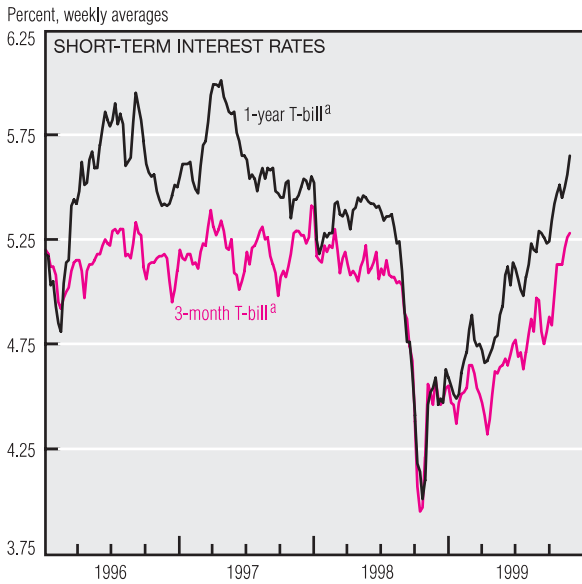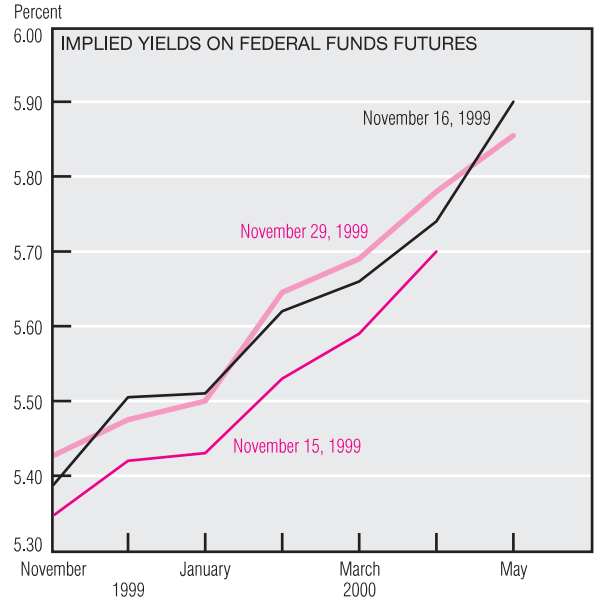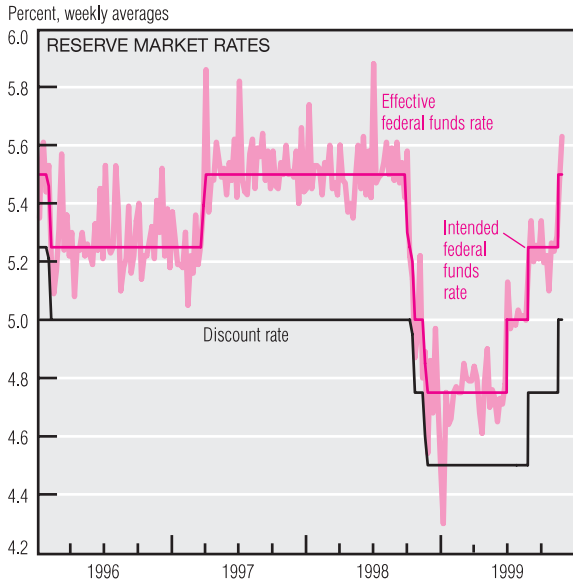
a. Constant maturity.
SOURCES: Board of Governors of the Federal Reserve System; and Chicago Board of Trade.

On November 16, the Federal Reserve System raised both the discount rate and the federal funds rate by a quarter point. The discount rate stands at 5%, while the federal funds rate target is 5.5%.

Implied yields on federal funds futures suggest that the November 16 moves were not entirely unforeseen. Just prior to the meeting, yields were roughly halfway between the previous target and the new target. Looking to next year,

market participants anticipate further increases in the target. An additional quarter-point increase is expected by April 2000, with yet another increase foreseen later in the year.
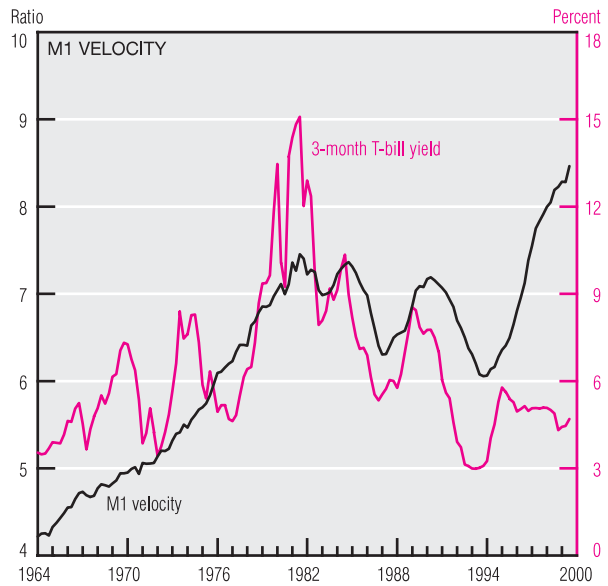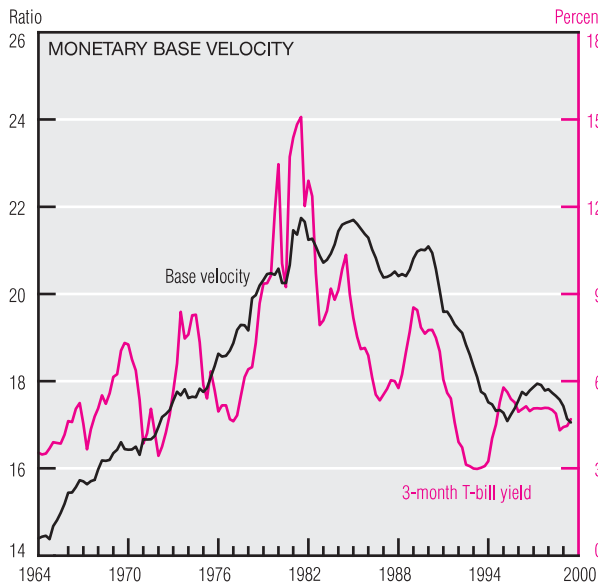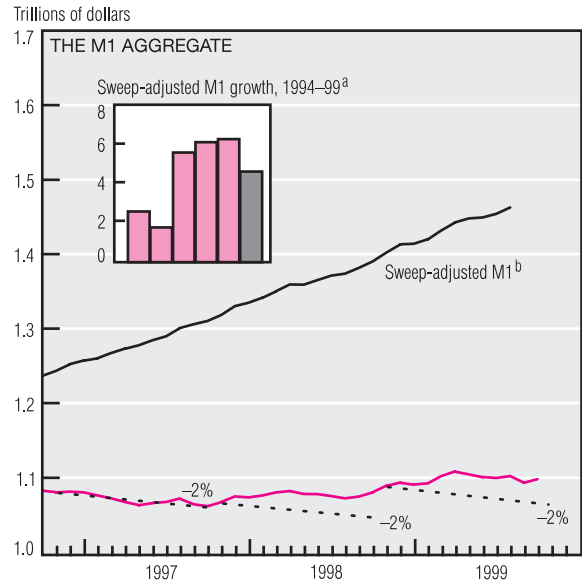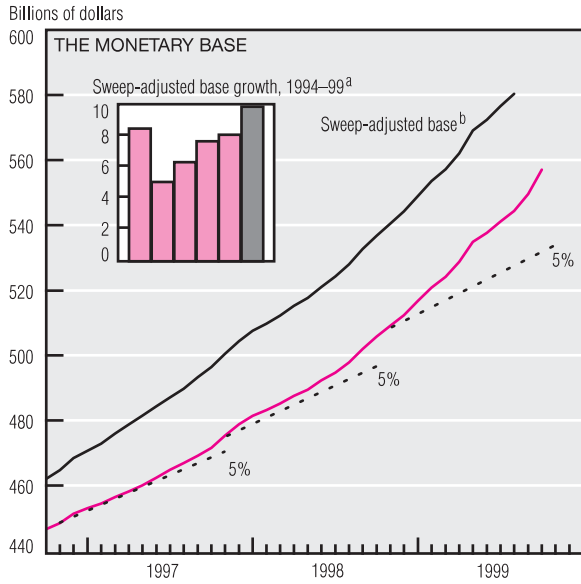
This November, short-term interest rates continued the increase they have exhibited throughout 1999. Between the last week of October and the week ending November 26, the 1-year Treasury-bill rate had increased 14 basis points (bp) to

5.65, while the 3-month T-bill rate stood at 5.28, an increase of 15 bp for November.

Although long-term interest rates have generally risen through 1999, they fell slightly in November. The 10-year Treasury yield slipped 6 bp to 6.10, and the 30-year Treasury yield fell 8 bp to 6.22. While mortgage rates have also risen in 1999, they peaked in mid-August and have since fallen 40 bp.

Monetary Policy *(cont.)*

Billions of dollars

THE MONETARY BASE

Sweep-adjusted base growth, 1994–99[a]

Sweep-adjusted base[b]

Trillions of dollars

THE M1 AGGREGATE

Sweep-adjusted M1 growth, 1994–99[a]

Sweep-adjusted M1[b]

Ratio / Percent

MONETARY BASE VELOCITY

Base velocity

3-month T-bill yield

Ratio / Percent

M1 VELOCITY

3-month T-bill yield

M1 velocity

a. Growth rates are percentage rates calculated on a fourth-quarter over fourth-quarter basis. The 1999 growth rates for the monetary base and M1 are calculated on an estimated November over 1998:IVQ basis. The 1999 growth rates for the sweep-adjusted base and M1 are calculated on a September over 1998:IVQ basis.
b. The sweep-adjusted base and sweep-adjusted M1 contain an estimate of balances temporarily moved from M1 to non-M1 accounts.
NOTE: Data are seasonally adjusted. Last plots for the monetary base and M1 are estimated for November 1999. Last plots for the sweep-adjusted base and M1 are for September 1999. Dotted lines represent growth rates and are for reference only.
SOURCES: U.S. Department of Commerce, Bureau of Economic Analysis; and Board of Governors of the Federal Reserve System.

The monetary aggregates continue to exhibit strong growth. The sweep-adjusted monetary base has grown at an annualized rate of 10% through 1999, while sweep-adjusted M1 growth has been a somewhat more moderate 4.6%. Of the broader monetary aggregates, M2 growth through 1999 has been more moderate than that of M3 (5.6% versus 7.4%).

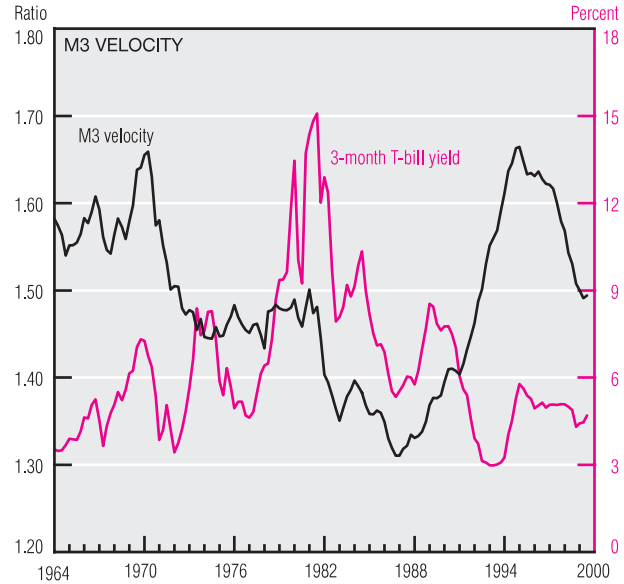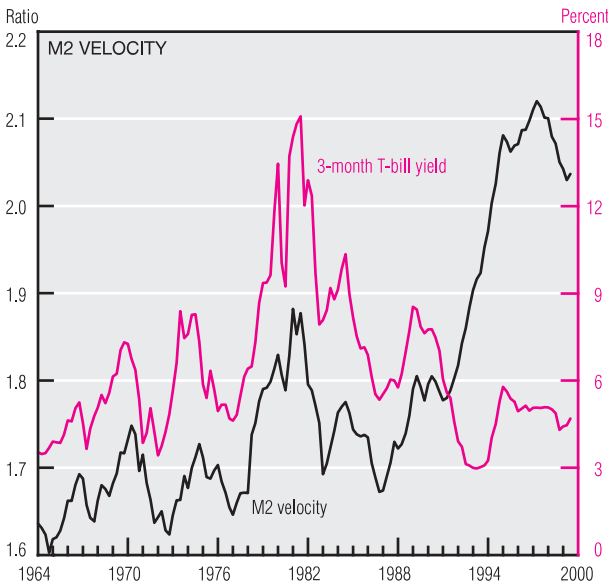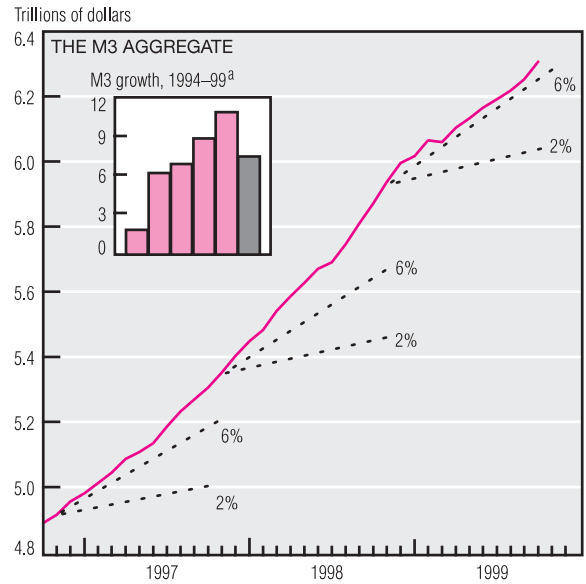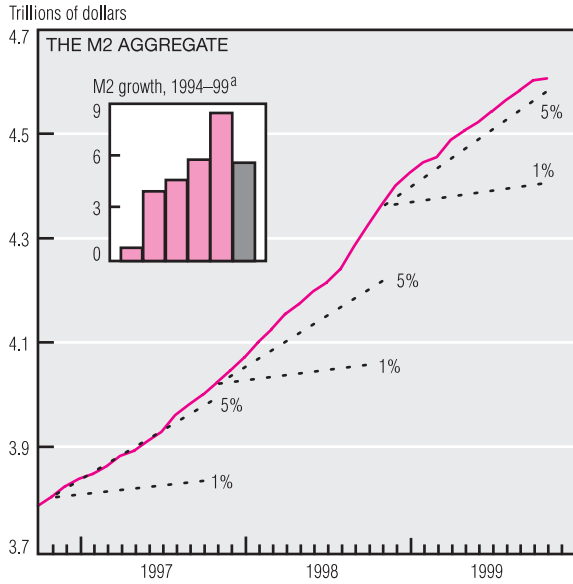The typical reason some economists worry about a high money growth rate is that it is often a harbinger of higher inflation. This concern becomes particularly acute when money growth outstrips that of nominal output. Through 1999:IIIQ, nominal output has risen 6.7%, well below the growth rates of sweep-adjusted base and M3.

While some of the more recent growth in the monetary base may be attributed to people stockpiling currency in anticipation of the cen-

tury date change, this is a less likely explanation of strong M3 growth. To start, currency is a smaller component of the broader aggregates than of the monetary base. Furthermore, survey evidence suggests that any currency hoarding is occurring at the expense of other bank deposits, leaving aggregates like M2 and M3 unaffected.

(continued on next page)

Trillions of dollars

THE M2 AGGREGATE

M2 growth, 1994–99[a]

Trillions of dollars

THE M3 AGGREGATE

M3 growth, 1994–99[a]

Ratio

M2 VELOCITY

Percent

3-month T-bill yield

M2 velocity

Ratio

M3 VELOCITY

Percent

M3 velocity

3-month T-bill yield

a. Growth rates are percentage rates calculated on a fourth-quarter over fourth-quarter basis. The 1999 growth rates for M2 and M3 are calculated on an estimated November over 1998:IVQ basis.
NOTE: Data are seasonally adjusted. Last plots for M2 and M3 are estimated for November 1999. Dotted lines are FOMC-determined provisional ranges.
SOURCES: U.S. Department of Commerce, Bureau of Economic Analysis; and Board of Governors of the Federal Reserve System.

One measure of the changing link between money growth and nominal output growth is velocity, which is calculated as the ratio of nominal output to the money stock. Velocity may be thought of as a measure of how hard a unit of money must work to generate one dollar of output.

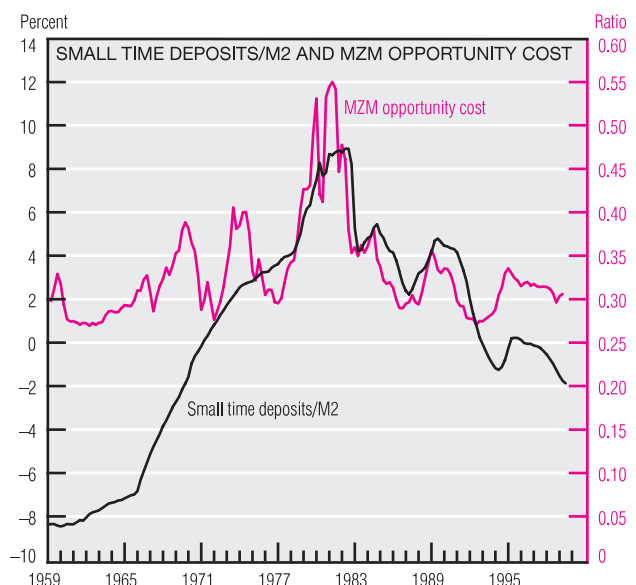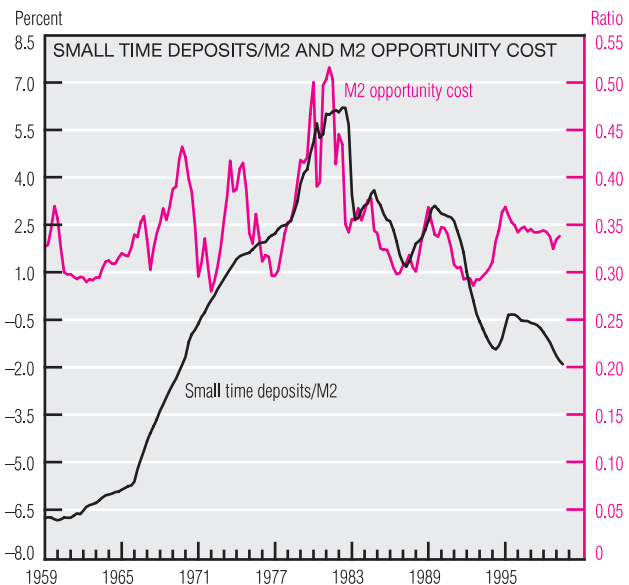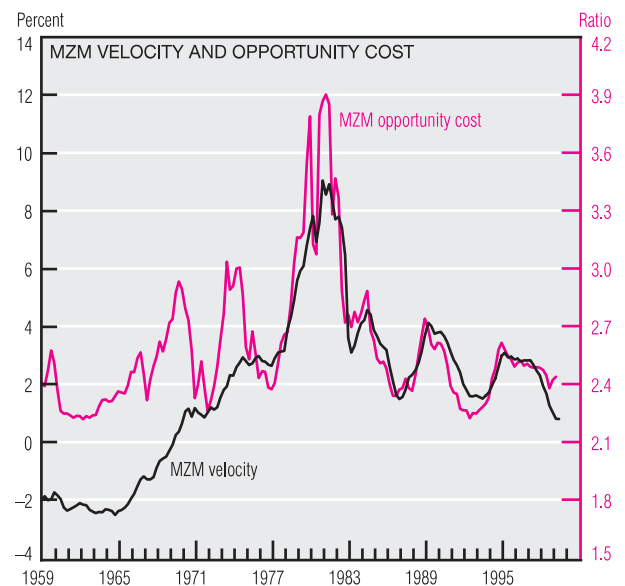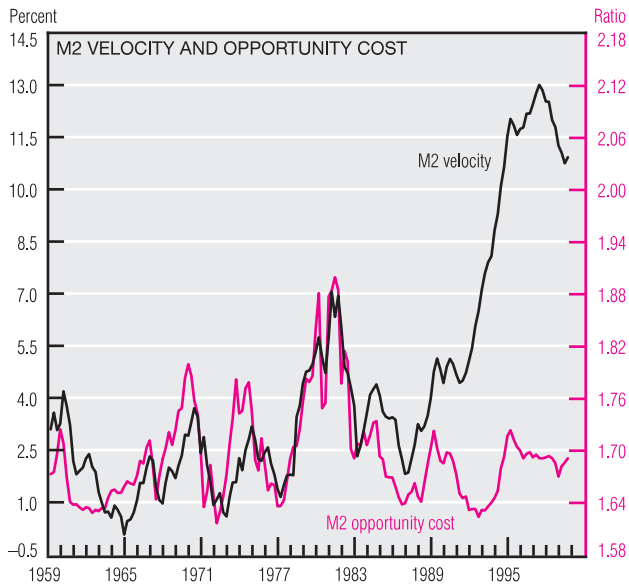The opportunity cost of holding a unit of money is the interest that could be earned by holding some other asset, compared with the re-turn earned by holding money. We would expect velocity to rise with the opportunity cost of money, since people will want to reduce their money holdings, preferring to hold higher-return assets instead.

Suppose that we measure the op-portunity cost of money by the three-month Treasury-bill yield. As the charts above show, the tightest relationship between this interest rate and velocity is obtained by M2 velocity. This association is fairly good through the early 1990s, at which time M2 velocity rose sharply in the face of a falling T-bill yield. Secular movements in base velocity seem to follow those of the T-bill yield. However, it is difficult to dis-cern much coherence between this interest rate and movements in ei-ther M1 or M3 velocity.

An alternative measure of oppor-tunity cost is that constructed by the Board of Governors of the Federal

Monetary Policy (cont.)

M2 VELOCITY AND OPPORTUNITY COST

MZM VELOCITY AND OPPORTUNITY COST

SMALL TIME DEPOSITS/M2 AND M2 OPPORTUNITY COST

SMALL TIME DEPOSITS/M2 AND MZM OPPORTUNITY COST

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

Reserve System. From the mid-1960s through the early 1990s, a very tight relationship existed between M2 velocity and the Board's measure of M2 opportunity cost. The break-down in this association, which occurred in the early 1990s, was concentrated primarily in small time deposits. As a share of total M2, small deposits fell sharply in the early 1990s, a phenomenon sometimes attributed to a shift in balances to stock and bond mutual funds.

However, the behavior of small time deposits is not the whole story of the changing relationship between M2 velocity and its opportunity cost. Since 1997, M2 velocity has fallen sharply. At the same time, its opportunity cost has been fairly stable, while the share of small time deposits has continued to fall. In light of what happened in the early 1990s, one would have expected M2 velocity to increase further.

Since 1975, the fit between MZM

(money of zero maturity) velocity and its opportunity cost has been quite tight. Because MZM excludes time deposits, it is unaffected by their behavior. The rise in MZM velocity leading up to 1975 can be attributed to a shift of funds from savings deposits to small time deposits, a phenomenon captured by small deposits' rising share in M2. MZM velocity has stabilized since then and now displays a tight connection with its opportunity cost.