Importance Of Money And Credit

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ABSTRACT

The thesis of this paper is that the Federal Reserve could better achieve their goals if they paid more attention to quantity targets of both money and credit. The rapid growth in credit that ended in the credit crisis of 2007 and 2008 might have been avoided had the Federal Reserve attempted to incorporate quantitative credit measures in assessing policy. But their focus on short-term interest rates in conducting monetary policy to the exclusion of credit measures led to inaction on their part. The stability of the demand for money and credit determined by this analysis suggests the Federal Reserve could have taken policy steps early in this cycle – jawboning, quantitative and regulatory – to temper the credit bubble and potentially avoid the credit crisis.

Keywords: Federal Reserve, monetary policy, credit crisis, credit measures, credit stability

INTRODUCTION

The goals of the Federal Reserve (2006) state "that the Board of Governors and the Federal Open Market Committee should seek to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates." The Federal Reserve attempts to achieve those goals through the use of interest rates. In particular, Greenspan (2005) says, "Policy (monetary) is implemented through nominal and, implicitly, real short-term interest rates." He goes on: "Our appreciation of the importance of expectations has also shaped our increasing transparency about policy actions and their rationale. We have moved toward greater transparency at a "measured pace" in part because we were concerned about potential feedback on the policy process and about being misinterpreted – as indeed we were from time to time."

Growth in the quantity of money, in comparison, doesn't appear to be given much importance. Gavin (2004) states: "Since 1982, however, measures of the quantity of money have provided little useful information about the near-term outlook for spending or inflation. Money growth has remained highly variable even as inflation has become less variable." Gavin in discussing the quantity of money refers to M1 and M2. In addition on March 23, 2006, the Federal Reserve System ceased publication of its M3 monetary aggregate. The Federal Reserve Statistical Release states, "M3 does not appear to convey any additional information about economic activity that is not already embodied in M2 and has not played a role in the monetary policy process for many years." Clearly the Federal Reserve believes that quantity measures have at best limited usefulness.

Our analysis suggests that the Federal Reserve could better achieve their goals if they paid more attention to quantity targets of money and credit. The rapid growth in credit that ended in the credit crisis of 2007 and 2008 might have been avoided had the Federal Reserve made some attempt to rein in the expansion of credit. It appears the Federal Reserve had adequate monetary policy and regulatory authority to halt the rapid credit expansion, in particular mortgage credit. But their focus on short-term interest rates in conducting monetary policy allowed for excessive growth of credit.

Ben Bernanke has been Chairman of the Federal Reserve since February 1, 2006 and he was a member of the Board of Governors from 2002-2005. In his paper on the Great Depression, Bernanke (1983) discusses the importance of credit measures in the "protracted depression." Had the Federal Reserve acted to constrain credit growth during the time when Mr. Greenspan was chairmen it is possible that many of the adverse effects of the credit bust could have been avoided. The quantity theory is reviewed next, as the Federal Reserve apparently thinks that income velocity is too unstable to give any weight to the use of monetary or credit aggregates in the formulation of monetary policy. We provide evidence that this is not the case.

THEORY

We start with Irving Fisher's (1922) equation of exchange. Fisher originally used transactions velocity but we will use income velocity, so that:

1) $$MV=PQ,$$

where M is the nominal money stock, V is the income velocity of money, P is the average level of prices, and Q is aggregate real output. Differentiating with respect to time, we obtain as a first approximation

2) $$dM/dt + dV/dt = dP/dt + dQ/dt$$

Fisher believed velocity to be constant so that the rate of price inflation, dP/dt, is a function of excess money growth. It is well known that the velocity of money is not permanently fixed, although its movement over time may be predictable. If so, the implication would be that monetary authorities could use growth in the monetary aggregates as a useful predictor of inflation. Since the Federal Reserve does not explicitly incorporate the use of monetary aggregates in its deliberations, the Fed apparently believes that velocity is unstable.

However, making the standard Fisherian assumption that velocity is stable in the long run, or dV/dt = 0, we obtain

3) $$dM/dt = dP/dt + dQ/dt$$

In other words, changes in the money stock M, cause proportionate changes in the price level P and/or changes in real output Q. Output growth depends on growth in productive factors and technological advancement. With a given resource pool and technology, the percentage change in output is predictable. Hence, strictly speaking, according to the differentiated quantity equation, the rate of growth in the current money supply determines the current inflation rate.

The microfoundation rationale for assuming velocity is stable can be seen by reforming equation 1) into the Marshallian demand for money function. Define k=I/V and define PQ=Y= nominal income. Then equation 1) becomes

4) $$Md=kY$$

Marshall's assertion that nominal money demand is strictly proportional to nominal income implies k is constant, or equivalently, that V is constant. As indicated, our premise is that it is not fixed but that it may be predictable over time. So money demand depends on more than income since it isn't fixed. Milton Friedman (1956) allows for other factors such as the returns on other assets relative to money to influence money demand. It is within that framework that we review the stability of income velocity for both money and credit.

ASSESSMENT

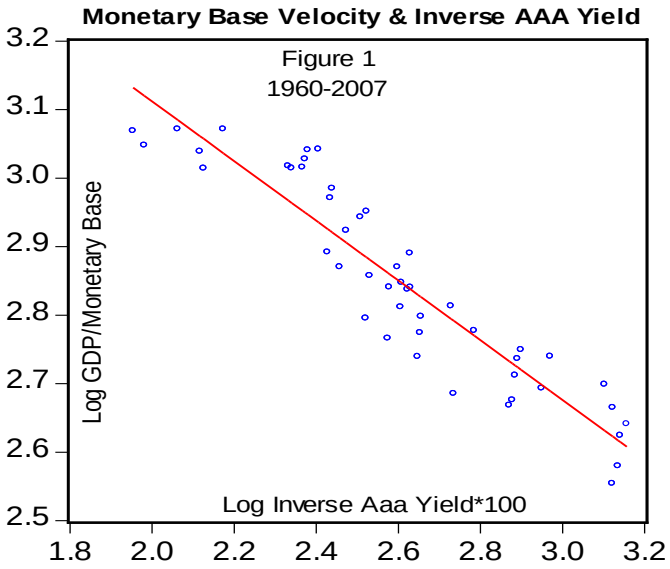
We review the stability of income velocity for money and credit within Friedman's framework of allowing for the return on other assets or their price. Stability is assessed for the following monetary aggregates – monetary base and MZM (money of zero maturity.) They are the two monetary aggregates that appear to have a stable income velocity in a prior study by Cosgrove, Singh, Marsh (2007.) That analysis is updated for this paper. Both M1 and M2 are unstable. The measures utilized for credit are mortgage debt for 1-4 unit family residences and a broader measure, nonfederal debt which includes all debt except the Federal government portion.

Monetary Base

The Federal Reserve is the monopoly supplier of its monetary base. But Federal Reserve officials place little or no emphasis on the monetary aggregates, so by implication, they must view the income velocity of aggregates as unstable or unpredictable. But other studies suggest that income velocity may not be unstable.

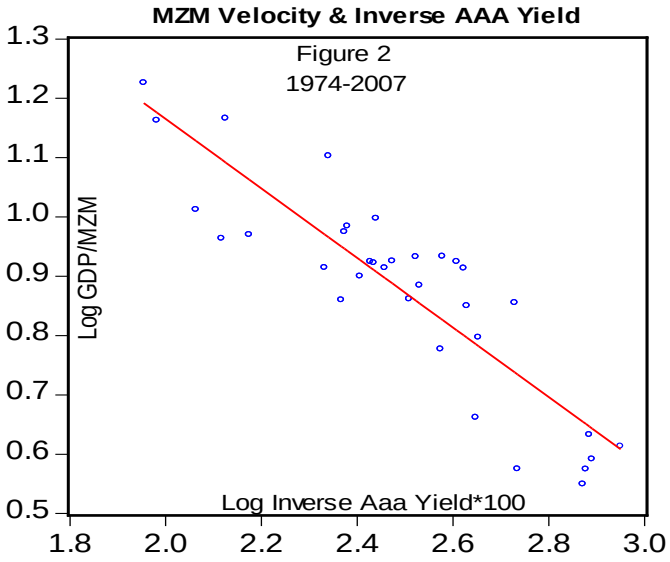
Anderson and Rasche (2001) discuss the stability of the U.S. monetary base, and conclude that money demand is found to be stable when considering the price of the base. Latane (1970) appears to have also derived a stable relationship between money and bond yields. Anderson and Rasche used the St. Louis adjusted monetary base series for their study. But for our study we use the New York Federal Reserve series adjusted for sweeps. This data series is reliable to the extent that time series of retail and commercial sweep balances are consistently estimated. A post-1994 adjustment for the introduction of sweep accounts is important for the magnitude of the monetary base measure. Dutkowsky et al. (2006) provide evidence to suggest that narrow money measures, adjusted for sweeps, produce reliable long-term velocity relationships. In addition Anderson and Rasche included data from 1919 to 1999, while we include data from 1960 to 2007.

We use the Aaa bond yield as a proxy for the price of the monetary base in this study. This measure was also used in the Latane study, Anderson and Rasche study and Cosgrove, Singh and Marsh study. The relationship, figure 1, appears to be linear when plotted in logs, which implies a constant interest rate elasticity. Each one percent change in Aaa yields results in 0.44 percent, or a nearly one-half percent change in the opposite direction in the monetary-base velocity. The simple correlation is -0.93. As expected, an increase in bond yields or increase in the price of money results in an increase in monetary-base velocity.



MZM

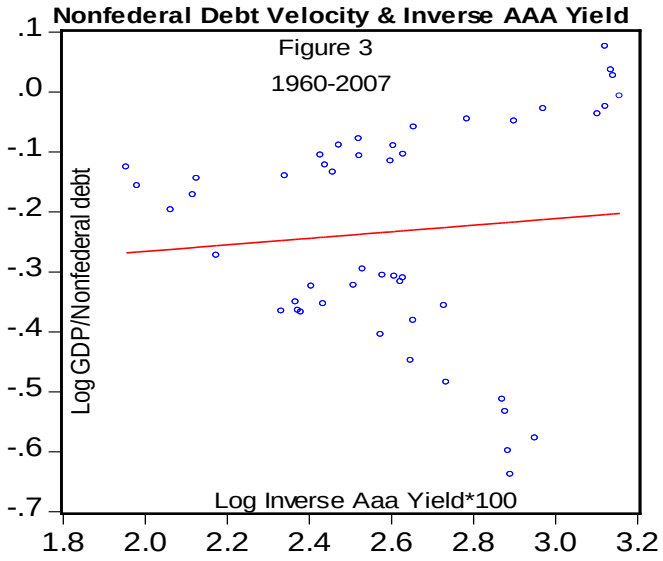
Teles and Zhou found that MZM (money of zero maturity) was an appropriate measure of the transactions demand, and that it was stable over time. Our analysis confirms that, Figure 2. When plotted in logs, the relationship appears to be approximately linear implying a constant interest elasticity. Every one percent change in Aaa yields results in a change in MZM velocity of 0.59 in the opposite direction. The simple correlation is -0.89.



CREDIT MEASURES

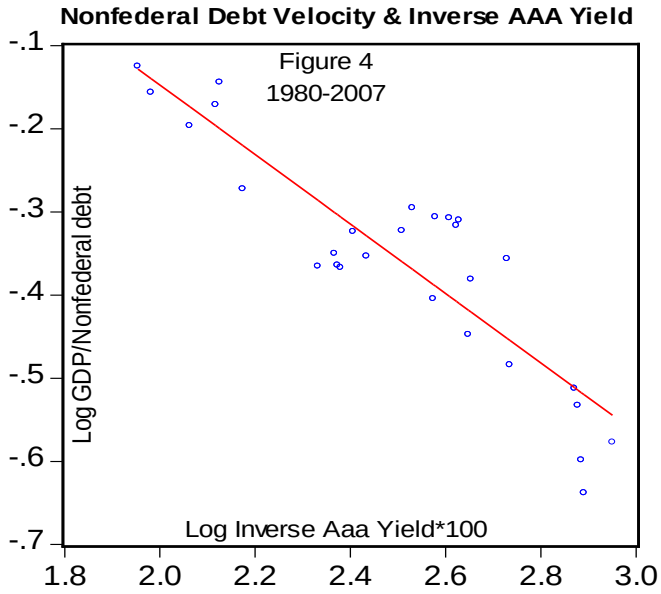
Nonfederal Debt

A broad measure is nonfederal debt relative to GDP – the debt of households, businesses and state and local governments, relative to their ability to pay it. Federal government debt is not included in this total because the federal government's ability to monetize its debt means it does not bear a burden of debt in the same sense that other institutions do. The relationship of this measure with interest rates is unstable for the overall period 1960 to 2007, figure 3.



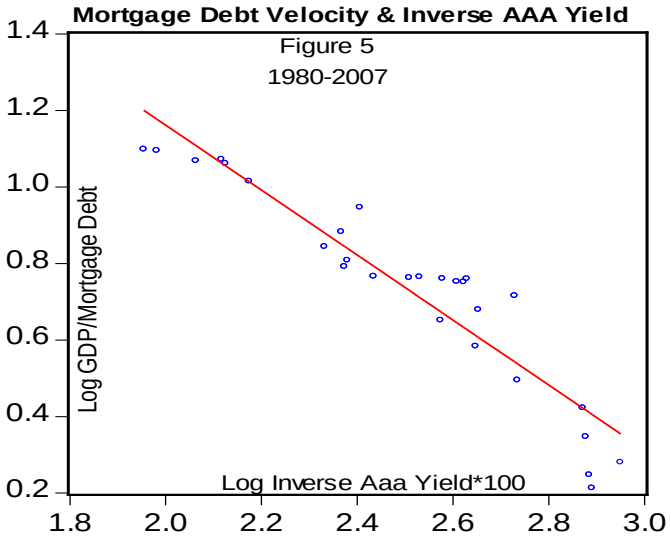
But this instability is mainly confined to the 1960 to 1979 period. In the 1980 to 2007 period, credit demand appears to be much more stable, figure 4 with a correlation of -0.90. The implication is that the Federal

Reserve can use this credit measure to assess its role in the management of aggregate demand, and that the Federal Reserve bears some responsibility for the creation of recent asset price bubbles.



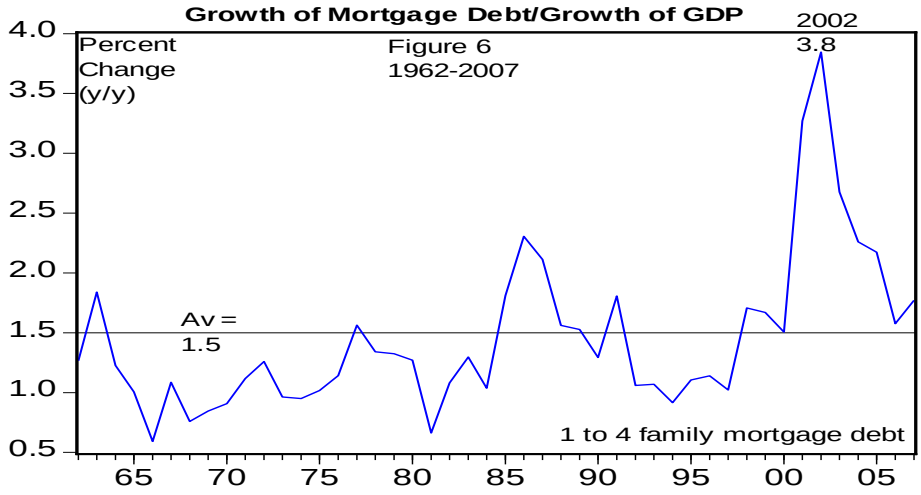
Mortgage Debt

Mortgage debt relative to GDP also appears to be linear in the 1980-2007 time frame, figure 5, although it wasn't in the 1960 to 1979 period (not shown.) The correlation is -0.94. Each one percent change in the Aaa bond yield results in a change in mortgage debt velocity of 0.84 in the opposite direction.



Trends in the Growth of Mortgage Debt

Figure 6 shows that growth in mortgage debt outstanding divided by the growth in GDP had an average ratio of 1.5 to one for much of the time since the early 1960s which resulted in a relatively constant mortgage debt-to-income ratio. However, during most of this decade, mortgage debt growth accelerated sharply, increasing the mortgage debt/income ratio, and setting the stage for the current housing price bubble contraction. Our fundamental question is, why did the Federal Reserve either overlook or ignore this ominous development? Stability of demand for credit suggests the Federal Reserve should have understood the implications of that bubble for meeting their goals.



SUMMARY

Our analysis suggests the approach of incorporating growth of monetary and credit aggregates into the Federal Reserve's framework for medium-to-long-term guidance of the direction of inflation pressures and/or bubbles would have merit for the Federal Reserve. Our findings suggest that both the monetary and credit aggregates have stable demand functions relative to their price. The implication is that the Federal Reserve could incorporate both monetary and credit aggregates into their framework for an indication of the influence of their growth rates on the direction of overall inflation as well as in development of bubbles. Failure to monitor the ratio of mortgage debt to income may have contributed to the current credit crisis. In particular, jawboning by Fed leaders, quantitative moves and regulatory steps were available to Federal Reserve leaders to temper the credit expansion in its early stage.

AUTHOR INFORMATION

Michael Cosgrove earned his Ph.D. at Ohio State University. Currently he is a full professor in the College of Business, University of Dallas, where he teaches economics and business courses and has published extensively. Mike is also principal at Econoclast, a Dallas-based capital markets firm.

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