M1 VELOCITY AND INTEREST RATE VARIABILITY: A COMMENT

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Introduction

James E. Payne (1995) provides evidence in this journal that variability in interest yields Granger causes M1 velocity. His analysis leaves two major questions unanswered:

(1) Why do other studies, such as Garner (1986) and Falls and Zangeneh (1989) arrive at different conclusions about the relations between V1 and interest rate instability?

(2) Why, in Payne's analysis, does interest variability Granger cause V1 in the full analysis period (1960–1990), but not in the most recent sub-period (1982–1990)?

The purpose of this comment is to suggest an answer to the above questions, while at the same time explaining a basic flaw that is common to all studies that deal with the relationship between V1 and interest rate instability. This flaw does not involve any of the technicalities of statistical testing, but rather is the result of a misapplication of the basic theory.

The "M1 Problem"

The basic theory is straight forward, and is best explained by Slovin and Sushka (1983). Interest rate instability creates a fear of capital losses in the bond market, thereby encouraging risk-adverse investors to increase their demand for money (causing velocity to decline). The basic flaw here is how this theory has been applied to changes in M1 and V1. This "M1 problem" can best be explained by a simple example of how interest rate instability could have an ambiguous effect on V1. If interest variability causes risk-adverse investors to increase money demand, these investors have two choices:

(1) They could simply hold more existing or newly created M1 balances, resulting in a decline in V1. They would avoid the risk of capital losses, and perhaps earn some interest from NOW accounts.

(2) The second choice would be to switch from M1 to deposits outside of M1 (non-M1 components of M2 or NM1M2). Again, capital losses would be avoided, but higher interest returns are possible. However, this choice would have exactly the opposite effect on V1, since MI demand would be declining (as opposed to an increase in (1) above).

In other words, this "M1 problem" is simply a result of the fact that an increase in the precautionary demand for money can be satisfied by either an increase in demand for M1 or an increase in demand for NM1M2 (and perhaps NM1M3). The first choice reduces V1, ceteris paribus, while the second choice increases V1.

Conversely, consider the case where interest yield *stability* is reducing money demand, while increasing the demand for various financial assets. Once again, the effects on V1 are ambiguous as illustrated by the following two examples:

(1) If existing M1 balances are used to purchase financial assets, the effect on V1 depends on whether the security sellers keep the proceeds in M1 balances or switch to a NM1M3 component such as money market mutual funds.

(2) If investors wish to use NM1M3 balances to buy assets, they would switch these balances to M1 for financial transaction purposes, thereby reducing V1 (if security sellers switched back to NM1M3, M1 and measured V1 would remain unchanged).

Again, the effect of such changes on V1 is not a question of general money demand versus demand for securities, but rather a question of the demands for M1, NM1M3, and securities.

This "M1 problem" is more significant in respect to the post 1980 period since the variability of interaggregate deposit substitution (IDS) has increased. A simple way to measure IDS is to use the ratio of NM1M3 to M1. From 1960.1 to 1979.3, the changes in this ratio had a standard deviation of .0207, while the standard

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deviation for the 1979.4 to 1990.4 period was .0602, almost triple the earlier period. Since the relationship between interest rate instability and IDS is inherently ambiguous, and since IDS has exhibited greater recent instability, it is not surprising that Payne's results for the 1982.1–1990.4 indicate no relationship between interest rate instability and V1.

Important institutional changes are the most likely explanation for the increased variability of IDS since 1980. Not only were there better substitutes for M1 in the form of new types of deposits, but there were also lower IDS transaction costs at thrift institutions since they were allowed to offer a full range of deposits (NOW accounts in 1980, and MMDA's in 1982). Conversely, the absence of these factors reduced the variability of IDS prior to 1980. The pre-1980 money supply definitions now used include deposits at the thrift institutions. This retroactive redefinition of the monetary aggregates reduces IDS variability for the earlier period, since *intrabank* IDS was not possible at the thrifts. The only way thrift depositors could affect the IDS ratio would be to switch funds between a commercial bank and a thrift (interbank IDS). The higher transaction costs of such shifts should have suppressed changes in IDS.

Conclusion

Since interest rate instability could have ambiguous effects on the demand for M1 versus NM1M3, it is not surprising that empirical studies arrive at different conclusions as to how interest instability affects V1. Since interaggregate deposit substitution (IDS) has become more unstable since 1980, it is also not surprising that Payne finds no significant relationship between V1 and interest rate variability for the 1982–1990 period.

The exact same reasoning here can be applied to those studies that investigate the relationship between the volatility of M1 growth and V1 (see Hall and Noble (1987) and Mehra (1989)). Again, the empirical results are contradictory, and the studies using more recent data (Brocato and Smith (1989) and Mehra (1989) tend to find no significant relationship between M1 growth volatility and V1. The same "M1 problem" is applicable to such studies: if past instability in money growth is increasing the demand for money, the key issue in respect to V1 is whether the demand for M1 *or* NM1M3 is changing.

References

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