

Neutralization of the Money Stock

by PATRIC H. HENDERSHOTT*

THE AUGUST 1969 ISSUE of this *Review* contained three papers dealing with the adequacies of the observed money stock as an indicator of Federal Reserve policy actions. In the first paper¹, Emanuel Melichar asserted, on the basis of my analysis², that the money stock is an inaccurate measure of policy actions. He suggested as an alternative my neutralized money stock—the observed money stock after removal of the impact of the business cycle. In the second paper³, Michael Keran argued that observed money is a better indicator than neutralized money because the Federal Reserve offsets the impact of the business cycle on the money stock.⁴ Finally, in the third paper,⁵ Leonall Andersen examines empirically the argument that the money stock is influenced by the business cycle. He concludes that it is not.

In this short note, I first consider Keran's theoretical argument against neutralizing the money stock. Keran's argument is a familiar one that I had hoped

my book would put to rest. I then point out that the results of Andersen's empirical work are neither inconsistent with my results nor very surprising. Andersen defines his monetary policy variable so broadly that there is scarcely any room left for an endogenous money stock.

*Keran's Critique of the Neutralized Money Stock*⁶

Keran's principal argument is that money is an exogenous variable controlled by the Federal Reserve, not an endogenous variable, and thus that it is the best measure of Federal Reserve policy actions. He seems willing to acknowledge that the banking system's demand for free reserves, foreigners' demand for the U.S. gold stock, and the public's demand for commercial bank time deposits are all negatively related to U.S. interest rates. He contends that money is not endogenous because the Federal Reserve acts to offset the impact of these responses on the money stock.

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¹Emanuel Melichar, "Comments on the 'St. Louis Position,'" this *Review* (August 1969), pp. 9-14.

²Patric Hendershott, *The Neutralized Money Stock: An Unbiased Measure of Federal Reserve Policy Actions* (Richard D. Irwin, Inc., Homewood, Illinois, 1968).

³Michael Keran, "Reply," this *Review* (August 1969), pp. 15-18.

⁴He also mistakenly criticizes Melichar for using the neutralized money stock as a measure of the impact of all monetary influences on the economy. There is no basis for Keran's criticism. Melichar states explicitly in numerous places in his paper that the neutralized money stock is used as a measure of monetary policy actions only (see particularly pp. 11-12). Further, Melichar's use of a policy, rather than a total monetary, measure is appropriate because Bowsher and Kalish, in the paper that induced Melichar's response, were quite straightforward in their identification of changes in the rate of change in the money stock with changes in Federal Reserve policy actions. See "Does Slower Monetary Expansion Discriminate Against Housing?," this *Review* (June 1968), pp. 5-6.

⁵Leonall Andersen, "Additional Empirical Evidence on the Reverse-Causation Argument," this *Review* (August 1969), pp. 19-23.

⁶I want to correct one exception to Keran's otherwise quite accurate summary of my work. Keran asserts (p. 16) that I constructed the "modified-neutralized" money stock, which implicitly treats gold flows as if they were offset by Federal Reserve actions, because the Federal Reserve likely offsets such flows. My real reason for calculating this is clearly stated in the paragraph immediately preceding the figure containing the modified-neutralized money stock:

The appropriateness of a comparison of Federal Reserve policy actions with the expressed intent of policymakers depends on whether the definition of policy actions employed is the same as that which the policymakers had in mind when they discussed their actions and issued directives.

. . . Since it is likely that policy statements refer to actions net of offsetting gold movements, a modified-neutralized money stock, which differs from the neutralized money stock in that the impact of the business cycle is not removed from the gold reserves component, is calculated and compared with the expressed intent of policymakers (p. 132).

(A footnote is attached to this paragraph pointing out that a "neutral" policy was defined in the FOMC minutes as staying out of the market after offsetting gold flows.) Thus, Keran's statement (p. 16) that there "is no reason why Hendershott should have stopped with allowing only for offsetting actions with respect to gold" is incorrect.

The concept of an endogenous money stock can be formalized as follows. The money stock depends upon the actions of the Federal Reserve, denoted by the vector MP, and a vector of interest rates R:

$$(1) \quad M = f(\text{MP}, R),$$

where MP is defined so that increases in it lead to increases in M. Since an increase in interest rates leads to increases in free reserves and time deposits, which are uses of reserves, and to a decline in the U.S. gold stock, which is a source of reserves, money is unambiguously related to R in a positive manner.

The MP vector includes a source-of-bank-reserves variable, legal reserve requirements, the discount rate, ceiling rates on time and saving deposits, and other selective controls sometimes employed. In my book I treated the Federal Reserve's portfolio of government securities plus various minor reserve components as the source-of-bank-reserves variable.⁷ Here I adjust this variable for changes in legal reserve requirements, denote it by P*, and substitute P* for MP, thereby capturing the principal monetary policy instruments in one variable:

$$(2) \quad M = g(P^*, R).$$

Let us make the unlikely assumption that the Federal Reserve *always* varies P* so as to offset exactly the impact on M of changes in R. For example, if R falls, the Federal Reserve raises P* by precisely enough to hold money constant. This would, indeed, remove money from the class of endogenous variables.⁸ But it would hardly make the money stock an accurate indicator of Federal Reserve actions. In fact, we have explicitly assumed, following Keran, that every time interest rates change, the Federal Reserve takes actions that, on net, are not reflected in the money stock. And these actions are quite interesting. Since interest rates have tended to fall just prior to, or concurrently with, the onset of U.S. recessions, Keran implicitly admits that the Federal Reserve has taken expansive actions at this crucial juncture of the cycle. Moreover, because the money stock is unchanged, his position forces him to conclude that the Federal Reserve is essentially doing nothing.⁹ Since

only those actions over and above the offsetting ones are attributed to the Federal Reserve, this procedure is clearly biased toward an unfavorable interpretation of anti-recession policies. In contrast, I have argued that *all* Federal Reserve actions should be credited to the monetary authority.¹⁰ Thus, in order to obtain an unbiased measure of Federal Reserve policy actions, I removed the impact of the business cycle from the money stock, leaving a series whose cyclical movement reflects only Federal Reserve actions (and other exogenous forces).

For an illustration of the implications of Keran's view, consider a business recession that leads banks to sell securities to the public and repay its borrowing from the Federal Reserve. Since the public gives up deposits in this exchange with banks, the stock of money declines. If the Federal Reserve offsets this decline by purchasing securities (in particular, by purchasing the securities the banks wish to sell, thereby preventing interest rates from rising and money demand from falling), Keran would interpret the Federal Reserve as doing nothing; if the Federal Reserve does nothing, Keran would interpret it as taking restrictive actions; if the Federal Reserve offsets only part of the decline by purchasing a portion of the securities banks are selling, Keran would interpret it as *selling* securities.

Keran's defense of the observed money stock as the best indicator of Federal Reserve policy actions is very reminiscent of the argument of those who use observed interest rates as the indicator of policy actions. The latter would view a decline in interest rates during a recession as indicative of an easy monetary policy, even if the Federal Reserve were partially offsetting a decline in private security supply by selling securities. Keran views a decline in the money stock during recessions as indicating restrictive actions, even if the Federal Reserve were partially offsetting a decline in bank demand by purchasing securities. The views are, of course, equally erroneous.¹¹

Perhaps an analogy with fiscal policy will make my argument even more compelling. Say that the

⁷The minor reserve components are those Keran denoted by C_t and O.

⁸The endogenous tendency of money would, of course, still remain. That is, if the Federal Reserve ceased to follow its offsetting policy, money would behave endogenously.

⁹Keran's views are quite similar to those expressed by Culbertson in "Reply," *Southern Economic Journal*, (April 1963), pp. 330-35. For a detailed critique of Culbertson's position, see Hendershott, pp. 99-102.

¹⁰Hendershott, pp. 93-99.

¹¹In addition to the discussion in *The Neutralized Money Stock*, pp. 1-5, see Patric Hendershott and George Horwich, "Money, Interest, and Policy," Institute Paper No. 250, Krennert Graduate School of Industrial Administration, Purdue University (June 1969), pp. 21-23 and 29-31. (This paper was presented at the U.S. Savings and Loan League Conference on Saving and Residential Financing in May 1969 and will be published in the proceedings of the conference.)

Federal Government raised tax rates during recessions in order to maintain a constant, balanced budget. Would we view this fiscal policy as being contractionary or not? The "old view" is that since the budget is still balanced, policy must be neutral. The "new view," which is based on the "high-employment budget surplus" concept and to which the St. Louis Federal Reserve Bank subscribes,¹² says that policy is restrictive because the Government actually raised tax rates. If we were to apply Keran's analysis, we would be led to the old view. That is, Keran would "not count" the increase in tax rates because it was an automatic offsetting response to the decline in tax receipts accompanying the recession. Thus, the fiscal policy of raising tax rates during recessions would be interpreted as a neutral policy with respect to the business cycle.

As I pointed out in my book, the neutralized money stock measure of monetary policy is analogous to the full-employment budget surplus measure of fiscal policy; the impact of the business cycle is absent from both. To accept one measure and not the other is inconsistent and, I suspect, quite revealing of one's biases.

Andersen and Endogenous Money

Andersen has taken a quite narrow view of the endogenous money stock concept. In particular, he views the money stock as being related to a monetary policy variable and gross national product (GNP). In light of the free-reserves, gold, and time-deposits

¹²See Federal Reserve Bank of St. Louis *Review* (August 1969), p. 4.

responses noted above, the money stock should be related to a policy variable and interest rates. And such a distinction is important. For example, I concluded that GNP has had only a small impact on money, where interest rates have had a large impact.¹³

In addition to relating the money stock to the "wrong" endogenous variable, Andersen defines the monetary policy variable so broadly that his inability to estimate successfully an endogenous money stock relation is hardly surprising. In particular, the two reserve components that I found to be primarily responsible for the strong stock-interest rate relation — member bank borrowings from the Federal Reserve and the U.S. gold stock — are treated as policy-determined by Andersen.¹⁴ The only interest rate relations that Andersen allows are the admittedly weak excess-reserves relation and a stronger time deposit relation which has, however, only a small impact on the money stock.

In conclusion, Andersen's empirical estimates are based on a model which, by choice of the policy and endogenous variables, rules out the expected money stock links to the economy. Thus, the estimates should not be interpreted either as a criticism of my work or as an adequate treatment of the subject.

¹³Hendershott, pp. 140-41.

¹⁴Hendershott, p. 117 and Keran, p. 16. Subsequent discovery of a computational error in the neutralization of the money stock reveals that the gold relation was not as strong as initially believed. For a discussion of the error and an analysis of the correctly neutralized money stock, see Patric Hendershott, "A Quality Theory of Money," *Nebraska Journal of Economics and Business* (Autumn 1969), or Hendershott and Horwich, pp. 25-28.

The Comment to this article begins on the next page.