APPENDIX TABLE 5 (continued)

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<th>$\frac{\sum X_4}{M_1 * X_4}$</th>
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The Definition of Money: A Critique of the Conceptual Framework

JAMES F. GATTI*

Abstract

The money supply is traditionally restricted to monetary assets held by the nonbank public, yet there has been little discussion of the conceptual framework underlying that distinction. This paper will demonstrate that the basis of current definitions is inappropriate. An alternative and more theoretically acceptable definition is developed which limits money balances to those held on account of free market forces.

Introduction

There is not and probably can never be a final answer to the question of the proper empirical measure of money. That measure will have to be altered from time to time to reflect changing institutional arrangements. It is essential, therefore, that the conceptual framework upon which the empirical definition is based be explicitly recognized and consistent with general economic theory.

The development of a conceptually sound empirical measure of money requires answers to two separate theoretical questions. First, what types of financial assets possess the characteristics of money, and second, under whose control and under what circumstances should specific balances of monetary assets be counted in the money supply? To date, the bulk of the literature on the subject has dealt only with the first question. It is usually taken for granted that, regardless of the particular asset types chosen, they should be considered money only when held by the "nonbank public." This paper examines the appropriateness of the usual composition of this group. It will be argued here that the conventional approach is conceptually unsound. An alternative framework for asset classification is offered for consideration, and preliminary implications of its implementation are discussed.

The Traditional Approach

The "standard" composition of the "nonbank public" and its underlying logic are seldom discussed in the literature. Most authors simply accept the concept developed by the Federal Reserve System. The Fed, while thoroughly detailing the composition of the nonbank sector, offers few insights into the theory upon which that composition is based. The most complete analysis of the problem is to be found in Monetary Statistics of the United States, where Friedman and Schwartz (hereafter F & S) go to great lengths to explain and justify the procedures used to generate their empirical measures of money. Since their ultimate measures differ only slightly from those of the Fed, the following discussion will use their position as a base.

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1Recent exceptions have dealt with residency of deposit holders and the treatment of government deposits. [2,1] The thrust of these studies has been that the suggested alterations will improve the statistical relationship between the empirical measure of money and economic activity. This paper is concerned with the more fundamental question of the conceptual framework behind the empirical measures.
proxy for standard practice. Failure to refer explicitly to other definitions is due to the absence of an explanation of the rationale behind them and does not imply acceptance. The procedure used by F & S categorizes owners of monetary assets as being part of the nonbank public, bank, and monetary authority sectors according to the nature of the holder's liabilities. In this Monetary History... they state:

"The distinction between holders is in terms of their role as issuers of claims that might be designated as money." [5, p. 777]

In general, those holders who do not issue monetary claims are considered part of the "bank" and those who do are included in either the monetary authority or banking sectors. The distinction between the banks and monetary authority is based on the latter's possession of the "...ultimate monetary authority...," the ability to issue what has come to be known as high powered or base money. [5, p. 777]

The money supply is then defined to be the sum of monetary asset balances held by units included in the public sector. This classification rule is chosen in order to avoid the double counting of balances. F & S hold that monetary assets of a unit are already represented in the money supply to the extent that the unit's own liabilities are held by the nonbank public and classified as monetary. Thus they argue that to include the former as well as the latter would be to overstate the stock of money. In principle F & S desire to exclude only those balances which are held on account of the existence of monetary liabilities. Thus,

"For 'money' defined to exclude bank deposits, as money was generally defined before the twentieth century..., the currency figures (where currency is defined as total currency in circulation less vault cash of commercial banks) are too small. Commercial bank vault cash should be added back in. It is held for the public indirectly by the banks. On this view, the excess of deposit liabilities over vault cash is a nonmoney asset of the public, but each cash is a clearly a monetary asset." [6, p. 62]

They continue by stating that,

"If commercial bank time deposits are not included in the monetary total, then there is no double counting between such time deposits and that part of currency held by commercial banks that can be regarded as held on account of time deposits. That part of currency should be included in currency held by the public. It is a 'back' with respect to its demand deposit business, part of the public with respect to its time deposit business." [6, p. 62]

They would exclude other money balances held by the American Express Company because they count outstanding travelers checks as money and, to the extent that trust institution liabilities are considered money, F & S would also exclude their monetary asset balances. In this procedure which differentiates their approach from that of the Fed, since the latter does not alter the composition of excluded cash balances as the definition of money broadens.

Thus, for F & S, the existence of monetary liabilities is a necessary condition for excluding a domestic unit's monetary asset balance from the money supply.

However, the existence of several qualifying comments makes it clear that it is not a sufficient condition. When dealing with the problem of monetary authority liabilities held by either the Fed or the Treasury, F & S clearly indicate that their preference is to exclude only those balances which are held for the purpose of monetary control. They feel that balances which serve the more mundane day-to-day operational needs are legitimate candidates for inclusion in the domestic money supply. ... If feasible, it is desirable to include the monetary balances federal agencies hold for purposes connected with ordinary operations of the government as part of the public's holdings of money rather than as part of the operations of the monetary authorities. We have not included any part of the U.S. Treasury's balances... though in principle some should be because of the near-impossibility of separating operating balances from monetary authority balances... [5, p. 777]

"Their failure to act upon this principle in their own estimates is solely a matter of inadequate data." [5, p. 779]. For want of an explicit definition by F & S, let this additional condition be called a "use" criterion.

A Critique of the Traditional Definitions

The approach used by F & S can be faulted on two grounds. First, they fail to apply the "use" criterion consistently to both official and nonofficial issuers of monetary liabilities.

"In a fully consolidated statement, liabilities of some banks held by other banks will cancel; similarly, monetary authority liabilities held by the monetary authorities will cancel... For our purposes, we shall treat the banks on a consolidated basis. We shall not, however, fully consolidate the accounts of the monetary authorities at all points in our analysis... The accounts we regard as those of monetary authorities are a mixture of monetary authority accounts proper and working balances of government agencies." [5, pp. 777-778, emphasis added]

No reason is offered for the inconsistent treatment, but the distinction between monetary authorities and the banks is too explicit to be an oversight. In any event, the dichotomy is incorrect, since banks are no less operating units than the Fed or the Treasury. Consistency with their own implicit rule would require that bank "operating balances" be included in principle, and that the understatement caused by their exclusion be noted in practice.

The second and more serious criticism concerns the use of double counting as a reason for excluding cash assets of units which issue monetary liabilities. Double counting implies that items have been included twice in the same total and that, in so doing, the total is no longer an accurate measurement of the concept it represents. In calculating GNP, only final output is desired so that the inclusion of the full value of intermediate goods is clearly inadvisable. However, if a measure of total real transactions is desired, the inclusion of the sale of intermediate products is clearly not double counting in any meaningful sense.

The same logic holds for money. An empirical measure of money is desired because a theory exists which holds that there is a causal relationship between it and the nominal level of economic activity. There seems to be no prior reason to believe that satisfying an arbitrary accounting convention will make the empirical measure more or less compatible with the theoretical.

An anonymous referee asserts that because GNP contains no element of double counting, the measure of money should also be free of duplication. However, unless this assertion can be substantiated with a specific example, it is not sufficient grounds to question the rejection of the double counting criterion. Indeed the history of monetary theory suggests that consistency in the degree of duplication is not a requirement of the empirical measure of money. Fisher's basic analysis related money to the nominal level of transactions, not income. [4] Fisher and others have interpreted the transactions/income relationship which then implied a money/income relationship. The same logic
was used by the Cambridge school, where de-
aired nominal cash was made a fraction of nomi-
nal income. [9] Clearly the same measure of money has been tra-
ditionally related to various measures of economic activity without
regard to maintaining consistency in the use of internal duplication as
between dependent and independent variables.

Furthermore, it is easy to conceive of situa-
tions where application of the double counting
criterion would lead to a questionable categori-
ization of certain balances. For instance, assume
that a wholly nonfinancial firm finances a por-
tion of its capital requirements by issuing a
bearer security redeemable on demand at face
value plus accrued compound interest. Re-
demption could be handled by brokerage
houses, designated banks, or the firm's own re-
tail outlets where available. Cash balances
held by the firm would be positively related to
both the variability of cash flow and the cost of
having insufficient cash to meet net out-
flows, and inversely related to the cost of hold-
ing idle balances. In no sense is this firm
different than any other economic unit, and its
cash balances should clearly be included in the
money supply.

Now suppose that over time these securities
begin to circulate as a medium of exchange. At
that point it becomes appropriate to place these
demand liabilities in the class of monetary as-
sets, and the nonbank public's holdings of
them in the money supply. However, the
double counting criterion requires the exclusion
from the money stock of that portion of the is-
uing firm's cash balances held on account of its
durable monetized liabilities.

Yet again there is nothing which suggests
that monetization should alter the firm's de-
mand function for idle cash balances. These
balances remain a function of cash flow vari-
ability, the implicit and explicit return to cash,
and the opportunity costs of holding such
balances. The monetization of the firm's debt
does not, in general, enable it to economize on
other cash holdings by substituting its own li-
abilities for the monetary liabilities of other
economic units. Only the monetary authorities
have that capability. As Tobin points out, the
cost/yield relationship limits the issue of mone-
try liabilities in the same way that it limits the
issue of any other security. [10, pp. 416-418]
Therefore, once in equilibrium, a unit's own
liabilities can be increased only temporarily to
finance a negative cash flow or the accumula-
tion of real assets. Eventually real or financial
assets must be disposed of in order to restore
equilibrium.

To be sure, the monetization may reduce
borrowing costs and/or alter the variability
and the size of demand for cash balances. The
demand function becomes more important.
Indeed, the theory is quite explicit in that re-

dent. The demand for money is assumed to be
dependent upon the institutional structure of
the economy. Thus if one changes the rules in
particular. A change in financial structure
such as that suggested above should alter
the relative demand for money.

Clearly, the criteria used by F & S are not
sufficiently general to serve as a rule for deter-
mining the composition of the money supply.

An Alternate Set of Criteria

The major difficulty with earlier work is the
failure to examine the basis of the definitions.
Incremental alterations in definitions are often
made on an ad hoc basis in response to institu-
tional changes. As a result they are too often
made without regard to the logical consistency
of the whole. What is required is the specifica-
tion of a general set of characteristics for cash
balances held by the "public."

"The problem is one common to scientific
work: how to choose an empirical counterpart
to an abstract concept. For us the test is
strictly pragmatic: which counterpart is most
useful in making predictions about observable
phenomena on the basis of the theory one ac-
tends." (6, p. 1 emphasis added)

The emphasis by F & S on the pragmatic
nature of the test is unfortunate and certainly
overstated; for their test is not in fact strictly
empirical. F & S may contend that "... no is-

sue of principle is involved..." that "... the test is
strictly pragmatic..." but there must be some
basic principle which requires that money be
restricted to those monetary assets held by some collection of units called the
"public." It is the nature of monetary balances when held by this group which makes
it desirable to classify them as "money," and this nature is in turn a function of the applica-
table theory.

In principle this admits the possibility of a
separate definition of money for each individual
theory and its variations. However, as long as
the adjustment of cash balances is viewed as the
rational allocation of scarce resources and not a
random process, it is possible to develop a
single set of generally acceptable criteria.

For all practical purposes both Keynesian
and monetarist theories view money as having its
impact through a process of portfolio adjust-
ment. In each case the mechanism revolves around the attempt by economic units to elimi-
nate any disparity between desired and actual
balances. Proponents of the alternate theories
will debate the functional determinants of de-
sired balances and the size of various partial
derivatives, but there is agreement about general
process.

Given this, there are two factors which should
characterize monetary balances. First, since
the whole of economic theory revolves around
the problem of maximization within constraints,
the theorists insist that the size and disposition of the balance should
be an attempt to maximize some utility func-
tion within a quantity constraint, i.e., a money
balance should be a scarce resource to the unit
which owns it.

Second, since the analysis is within the con-
text of a market economy, demand for mone-
y is shaped by consumer behavior. It should also be noted that, contrary to common
belief, F & S never totally dismiss the prior ap-
proach. Witness the following quote: "It is
recognized that the difficulty of making such
a distinction where only a part of a unit's liabil-
ities are monetary, they do not take this analysis far enough.

For instance, a major factor in decision to held idle cash is the variability of total cash flow. In order to
assess the portion of cash held on account of a specific
liability requires in part the variability of cash
flow attributable to the specific liability be identified.
However, what is to be done in the case where a unit
issues or buys back some cash flows are negatively
correlated? The change in variability of total cash
flow caused by the addition of either security will be
negative. Should cash held on account of both securi-
ties be negative?"

"A less general criticism of the double coun-
ting criterion deals with the problem of determining that
portion of cash held on account of monetary liabilities.
While it is accepted that the difficulty of making such
a distinction where only a part of a unit's liabilities are
monetary, they do not take this analysis far enough." [6, pp. 93-95]
tary balances should be responsive to market forces and not be determined by law of custom. Balances held for the latter reasons are fixed and, as such, cannot respond to economic forces or influence the level of economic ac-
tivity. Thus, they have no place in an empirical measure of money, though the decision to hold them may be a rational utility maximizing decision. These characteristics can be summarized in the following rule:

In order for any monetary asset balance to be included in an empirical measure of money, the demand for that balance must be a voluntary profit or utility maximizing response to non-
rectory variables.

Application of this rule to the hypothetical firm discussed earlier would preclude the exclu-
sion of its cash balances from the money supply simply on the basis of the nature of the firm’s liabilities. If the regulatory agencies were to establish minimum cash balances, the re-
quired reserves would have to be eliminated; but all other cash balances still would be eligible for inclusion in the money stock.

It may be argued that by itself this rule is not sufficient to define the subset of monetary asset balances which constitute the money supply. For instance, Burger and Balbach suggest that monetary balances held by foreign residents are excluded from the money supply, since “the foreign holders react differently to changes in the dollar holdings of dollars than do U.S. residents.”

A reviewer has argued that in Nick’s foreign banks (those subject to administrative pricing) the adjustment process may be blocked. He goes on to assert that “most financial markets are foreign markets.” As such he concludes that “the rule of whi-
called market forces in this case is rather trivial, be-
cause the monetary authority may in fact permanently block the adjustment process.”

The argument is without merit on two counts. First, Nick’s foreign exchanges are not foreign in nature, and holds that they generally re-
gard a test bank fashion to market forces. (Hicks, The Crisis in Keynesian Economics, p. 51)

Second, the existence of rigid prices or quantities may cause inefficiencies in resource allocation, but cannot prevent adjustment. Should output be lower, balances only if held by commercial banks. The above criteria require their exclusion no matter who owns them and regardless of the nature of the holder’s liabilities. F & S find it impossible to separate cash held against commercial bank demand vs. time deposits, and the Fed does not try; therefore the rule has practical significance only with regard to required reserves of thrift institutions.

(2) Instead of excluding monetary authority cash on the basis of double counting, the rule developed here requires their exclusion because their size and composition are not a "... profit or utility maximizing response..." This is not to say that the authorities do not operate with the intent to maximize some utility function, for clearly they do. It is also recognized that those agencies do operate under budget restric-
tions which limit the levels of their expendi-
tures. However, the management of their cash balances is not itself part of that utility maxi-
mizing process.

The Fed is a source of high powered money and as such holds no cash balances other than those of cash balances or Federal Reserve Board. It has no need to, since there are no effective limits to its ability to acquire earning assets by creating the reserve balances of member banks. This ability to produce fiat money at zero cost eliminates the wealth constraint and makes the concept of constrained utility maximization meaningless.

The Treasury represents a somewhat different problem. It does have the power to issue coins, but such power does not, in practice, give it a costless access to cash, since coins is not an ef-
fective substitute for demand balances in the vast bulk of Treasury transactions. Any in-
crease in its cash balances requires greater tax revenues, lower levels of expenditure, or the sale of financial assets. However, the Treasury’s power to tax, the resulting unlimited borrowing potential, and the payment of the Fed’s excess profits to the Treasury all combine to eliminate any wealth constraint on the quantity of cash held.

The Fed seems to include these currency balances more by accident than by design, while F & S clearly desire their presence in the money supply. See Foot-
note 4 above.

On the basis of the rule suggested above, the inclu-
sion of government balances as suggested by Anderson and Morris would also be inappropriate [1].
Summary and Conclusions

The problem addressed here is that of determining the appropriate basis for including a monetary asset balance in the money stock. It has been shown that the traditional composition of the nonbank public is based in part upon an accounting convention which is inapplicable to the question of money stock construction.

The suggested alternate rule proposed here limits the money supply to those balances whose size and disposition are functions of market forces. The quantitative importance of the changes suggested above is difficult to establish. Legally required cash balances of thrift institutions generally cannot be directly estimated from available data, and currency holdings of government agencies are unavailable.

The only readily available figures are those for excess reserves of commercial banks. Using FOMC call reports and a Treasury compilation of state reserve requirements, this component was estimated to be $5.12 billion in 1973 or about two percent of money narrowly defined.

A thorough evaluation of the quantitative importance of this change requires a time series on effective cash reserve requirements imposed on state member banks and nonbank financial intermediaries, a task beyond the scope of the present paper.

This, however, neither diminishes the logic of the argument nor obviates the need for altering existing definitions. In this regard it is worth repeating that there is no final answer to the empirical measure of money; that the measure must be altered periodically to account for changes in the institutional setting; that the only way to insure the appropriateness of any measure of money is to see to it that it is based on a conceptual definition consistent with general economic theory.

Bibliography


On Stability With A Foreign Exchange Reserve Target For Monetary Policy

JUNICHI UHIE

Introduction

In the literature of the policy mix for an open economy under a fixed exchange rate, the target variable for monetary policy, when it is directed to the external goal, has been some desired magnitude of the balance of payments, usually a "zero" balance of payments. Mundell (22), Fleming (7), Whitman (31). In the literature of the reaction function of the monetary authority or of endogenous monetary policy, some desired value of the balance of payments is considered to be one of the target variables to which monetary policy instruments are applied. Diewald and H. G. Johnson (4), Hamblin (14), Preby (11).

It has been pointed out repeatedly, however, that the target variable of policy directed to the external goal should be the "stock" level of foreign exchange reserves rather than a particular value of the rate of change of it in a non-growing, non-inflationary, open economy with a fixed exchange rate. This argument is based on the following two conceptually distinct but related reasons. First, balance of payments deficit or surplus, per se, does not cause trouble or comfort. It is the level of foreign reserves from which services come, and it is the low level of such reserve from which discomfort arises. Mundell (22), Nehama (25). Second, any balance of payments deficit or surplus automatically tends to correct itself. In a non-growing, non-inflationary economy, the balance of payments goes automatically to zero value as long as the economic system has a stable stationary state. Aghievi and Borts (1), Swoboda (29), Whitman (31). Unless the authority is not indifferent about the level of reserves when the balance of payments has the equilibrium value of zero, or unless it is not indifferent about the size of the balance of payments which goes to zero value in equilibrium, there is no clear reason why it should utilize monetary policy for stabilization of the external balance.

The model in this paper adapts the portfolio balance approach and emphasizes the stock adjustment nature of the balance of payments adjustment process. McKinnon (20), Jones (17), Frenkel and Rodriguez (10), Dornbusch (6), Allen (2).

We will introduce the external stock balance and the internal "stock" balance into the model. Monetary policy is assumed to be directed to achieving external stock balance, i.e. equality between the actual level of foreign reserves in the hands of the monetary authority and the long-run desired level of such reserves. External balance is defined in terms of the stock but not in terms of the current flow. A zero balance of payments is simply one particular point of flow equilibrium in the money market, such equilibrium occurring when the domestic flow supply of money is just absorbed by the private sector. The internal stock balance, which involves equality between the long-run desired level of wealth and the actual level of wealth, is assumed to be attained by the market response in the private sector. The internal stock balance implies equality between income and expenditure, not just flow equilibrium in the

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