

APPENDIX A

CONSTRUCTION OF A CONSISTENT MONEY STOCK SERIES

At the present time, the Board of Governors publishes the various money stock series only from the beginning of 1959 on a consistent basis. Most of the analysis that has been performed on the questions of velocity and/or the demand for money since the revision of the money stock concepts in 1980 has been restricted to the period since 1959. We feel that for a number of questions it is desirable to have a longer time series available, so we have attempted to construct a consistent time series that dates from January, 1947. This time series has been developed only for the M1 money stock concept as presently defined by the Board of Governors.

Two major changes in the M1 concept of money were introduced with the revisions of the early 1980s. First, the deposit component was broadened to include other so-called checkable deposits. This poses no problem in extending a consistent series back to 1947, since these deposits did not exist prior to 1963. At the same time, however, the deposit concept was redefined to exclude demand deposits held by foreign commercial banks and foreign official institutions. This change, which was recommended by the Bach Committee, reversed the previous conceptual revision that had occurred in 1962. At that time, foreign balances held on deposit at Federal Reserve Banks had been included in the definition of M1 to eliminate fluctuations that were occurring as foreign official institutions moved deposits back and forth between private commercial bank accounts and Federal Reserve Bank accounts. The alternative of subtracting out foreign commercial bank and official institution deposit accounts at domestic commercial banks from M1 was not chosen because only limited data were available on the size of these accounts. The article describing the revision of the money stock in the August, 1962 Federal Reserve Bulletin states:

Over the 1950-57 period foreign balances at FRBs showed a fairly steady decline. However, estimates indicate the roughly offsetting increases occurred in foreign balances at commercial banks. Consequently the estimated total of foreign demand balances was relatively stable and has not shared in the growth of the money supply since 1947. The addition, foreign balances at FRBs, has had no observable effect on seasonal factors for the series.

This suggests that the most appropriate adjustment to the old M1 concept is

to subtract a constant amount from the deposit component over the entire 47-58 period.

Data on the old M1 concept were obtained from Banking and Monetary Statistics, 1941-70, Table 1.1. The values of these series for January through December, 1959 were compared with the data published in the current Money Stock Revisions, March, 1986. Prior to seasonal adjustment, the monthly difference between the two series ranged from 2.6 to 2.9 billion dollars. These differences were typically within .1 billion dollars of the sum of Demand Deposits due to Foreign Commercial Banks, Demand Deposits due to Foreign Official Institutions found in Table 9 of the March, 1986, Money Stock Revisions, and Foreign Deposits at Federal Reserve Banks found in Table 9.7 of Banking and Monetary Statistics, 1941-70. Therefore, we have adjusted the old M1 deposit component downward by 2.7 billion dollars on a not-seasonally-adjusted basis for the entire period 1947 through 1958. This adjusted series was corrected for seasonal variation using the ratio of seasonally adjusted deposits to not-seasonally-adjusted deposits as found in Banking and Monetary Statistics, 1941-70.

The second conceptual revision, introduced in May, 1981, was the addition of nonbank Travelers Checks. In 1959 such checks were estimated to be only .3 billion dollars, and were estimated to change very little through the early 1960s on a seasonally adjusted basis. Therefore, we have projected a currency and travelers' check component of M1 back to 1947 by applying the average ratio of currency plus travelers checks to currency in 1959, on a seasonally adjusted basis, to the entire 1947-58 period. This adjustment amounts to increasing the old currency component measure by a factor of 1.38 percent.

A third problem which we feel needs to be considered is the legalization of nationwide NOW accounts in 1981. There is considerably evidence, all broadly consistent, that the availability of such accounts resulted in a portfolio shift out of non-M1 assets into other checkable deposits. This evidence is drawn from survey-type data that were used as a basis for the "Shift Adjustment" published by the Board of Governors in 1981 [Bennett, (1982)] and is supported by various types of aggregate time series evidence [Johannes and Rasche, (1987)]. The available evidence suggests that the transition was quite short and that the portfolio reshuffling was completed by approximately April, 1982. To abstract from this one-time portfolio shift, we have utilized a dummy variable that is successful in accounting for the NOW account transition in the Johannes-Rasche time series analysis of the money multiplier [Rasche and Johannes

(1987)]. This dummy involves multiplying the deposit component of M1, measured on a not-seasonally-adjusted basis, by a factor of 1.0327 in all months prior to January, 1982; multiplying by 1.0314 in January, 1982; multiplying by 1.0127 in February, 1982; multiplying by 1.0063 in March, 1982; and multiplying by 1.0000 in all months thereafter. The seasonally-adjusted deposit component on the equivalent basis is constructed by applying the ratio of the original seasonally-adjusted deposit component to the original not-seasonally-adjusted deposit component to this new series. This adjustment is equivalent to introducing a dummy variable into all the regressions involving the logarithm of M1 with a coefficient that is constrained to unity. The value of the dummy variable in a particular month will depend on the value of the above transformation for the month, the value of the seasonal-adjustment factor for the month (if the regression involves seasonally-adjusted data), and the value of the currency/deposit ratio for the month.

The published data from the sources indicated, with these transformations, provide the basic money stock numbers that are used in this study. The money stock numbers from March, 1985 through March, 1986 reflect the revisions as published in the May 8, 1986 H.6 Statistical Release of the Board of Governors.