ness in measuring timing relationships relative to turning points in business activity. Waiving this difficulty, however, peaks and troughs in the money series as dated in one well-known study of the problem are marked on the chart for the 1947-60 period.[6] As can be seen, each monetary peak occurs during the expansion phase of the business cycle and thus leads the peak in business. Similarly, there is a monetary trough marked during three of the four postwar recessions acknowledged by the NBER. A fourth monetary trough, however, in February 1960 occurs somewhat before the onset of recession three months later.

The leads of the peaks in the money series with respect to the subsequent peaks in business activity are, it should be emphasized, quite variable, ranging from twenty months to twenty-nine months for the period covered in the chart and from six months to twenty-nine months for the entire 1870 to 1961 period. The corresponding range of leads of money troughs relative to subsequent troughs in business cycles varies from three months to twelve months for the charted period and up to twenty-two months for the longer period.

The significance, if any, of these leads in assessing the importance of cycles in money in causing cycles in business is highly problematical. Firstly, chronological leads do not, of course, necessarily imply causation. It is perfectly possible, for example, to construct models of the economy in which money has *no* influence on business but which generate a consistent lead of peaks and troughs in the rate of growth of the money supply relative to peaks and troughs in general business activity.[7] Secondly, the extreme variability of the length of the leads would seem to suggest, if anything, the existence of factors other than money that can also exert an important influence on the timing of business peaks and troughs. Certainly even if a peak or trough in the rate of growth of the money supply could be identified around the time it occurred, this would be of very little, if any, help in predicting the timing of a subsequent peak or trough in business activity. Thirdly, there is a real question as to whether anything at all can be inferred from the historical record about the influence of money on business if, as is argued in the next section,

[6] The dates used are essentially those presented in Milton Friedman and Anna J. Schwartz, *op. cit.*, page 37, Table I. Minor modifications of the Friedman-Schwartz dates have been made when these seemed obviously dictated by revisions in the data subsequent to publication of their work.

[7] See James Tobin, "Money and Income: Post Hoc Propter Hoc?", to be published.