so variable as to vitiate the effectiveness of a countercyclical policy. First, there are many reasons for doubting that the lag in the effects of monetary policy should be measured by comparing the timing relationships between cyclical turns in money and in business. It has been argued, for example, that other variables more directly under the control of policy makers, such as member bank nonborrowed reserves, or variables more clearly related to business decisions, such as interest rates, must also be taken into account. Yet, even if the behavior of the money supply be accepted as the indicator of policy, there are many alternative ways in which "the lag" between monetary and business behavior can be measured, and it makes a great deal of difference which measure is used. If, for example, the rate of change in the money supply is replaced by deviations in the level of the money supply from its long-run trend, the average lag between monetary peaks so measured and peaks in general business apparently shrinks from the sixteen months previously cited to a mere five months.[14] Alternatively, it can be plausibly argued that the appropriate measure is the lag between the rate of change in the money supply, and the *rate of change,* rather than the level, of some measure of business activity such as gross national product (GNP) or industrial production. When peaks and troughs for money and business are compared on this basis, the lead of money over business appears to be quite short.[15] The near simultaneity, in most cases, of peaks and troughs in the rates of change of the money supply and of GNP during the post-World War II period can be seen in Chart II. To be sure, movements in the two series are quite irregular, so that the decision on whether to treat a particular date as a turning point is sometimes rather arbitrary. Nevertheless, the lead of peaks and troughs in the rate of growth of money over peaks and troughs in the rate of growth of GNP appears to average about one quarter or less.[16]

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[14] This estimate is presented by Milton Friedman in "The Lag Effect in Monetary Policy", *Journal of Political Economy,* October 1961, page 456.

[15] See John Kareken and Robert Solow, "Lags in Monetary Policy", *Stabilization Policies* (Commission on Money and Credit, 1963), pages 21-24.

[16] When quarterly dollar changes in the money supply are correlated with quarterly dollar changes in GNP experimenting with various lags, the highest correlation is achieved with GNP lagged two quarters behind money. (For the 1947-II to 1967-III period the $R^2$ is .34.) The correlation with a one quarter lag is almost exactly as high, however ($R^2 = .33$). When percentage changes in the two series are used instead, the correlation virtually disappears, no matter what lag is used.