

been achieved. The timing of changes in desired money market conditions reveals that the F.R. has been quick to pick up evidence of a need for action. But actual policy actions and money supply changes have often been in the wrong direction and of inappropriate magnitude. The analogy is made that the policy of manipulating money market conditions or interest rates is like a baseball player who can't hit curve balls. The policy is all right if market conditions are at an equilibrium associated with achievement of objectives. But otherwise, when the economy throws curves, tardy adjustments in desired money market conditions lead to strikeouts by swinging at where the economy was rather than where it is.

II. COULD THE FEDERAL RESERVE LIMIT VARIATION IN THE RATE OF MONETARY GROWTH IF IT TRIED?

Generations of American university students have learned how F.R. open market operations could be used to control bank reserves and other "lawful money." This is also called "high powered" or "base" money. It in turn has been interpreted as the cornerstone on which the money supply depends. The quantity of money is determined within a supply and demand or market framework. But this market process operates subject to important policy constraints including the amount of lawful money and the legal requirements imposed on banks to hold lawful money.

A number of empirical studies of the determination of the quantity of money within a market framework have been made in recent years.³ Most have used quarterly data and have accounted for about 80 percent of the variation in quarterly changes in the money supply. But these statistical results are not altogether relevant from the point of view of actual monetary control. It is not necessary to fix the quantity of the F.R. open market account or reserve requirements over the span of an entire three-month period as is the assumption of the quarterly models. The F.R. has weekly money supply statistics that are published with a lag of one week. It is in a position to observe when deviations in monetary growth from a desired rate are sufficiently great to warrant a reaction. It is certainly true that the F.R. must take into account various non-controlled factors that affect the supply or demand for lawful money. It presently makes day-to-day and week-to-week projections of likely changes in these non-controlled factors. Independent estimates show a large part of the variability in non-controlled factors that affects average bank reserves and other lawful money could readily be offset over a week or two by open market operations of sufficient magnitude.⁴

Changes in the ratio of money to lawful money are accountable to changes in the distribution of money among deposits subject to different reserve requirements, between monetary and non-monetary deposits, between lawful money reserve holdings of banks and currency holdings of the public, and finally, between bank required and excess reserves. These changes reflect both supply and demand factors in the money market. There is a relatively strong seasonal pattern in variation with respect to some of these non-controlled distributional factors; and there is knowledge with respect to their response to market interest rates and to spending. Though non-policy factors are important, it has been shown that a large part of the quarterly changes in money are accountable to changes in reserves (and other lawful money) and in reserve requirements.⁵ At but one remove from the money supply, another study has shown that more than two-thirds of the variation in changes in net deposits of member banks over half-monthly periods were accountable to changes in bank reserves, changes in required reserve ratios, and predictable changes in distribution of deposits subject to different reserve requirements. Though the deposit distribution is really very stable in the short run, taking account of seasonal factors and market prices reduces prediction errors by about 50 percent from those based on the naive

³ Frank de Leeuw, "A Model of Financial Behavior" in J. S. Duesenberry, G. Fromm, L. R. Klein, and E. Kuh, "The Brookings Quarterly Econometric Model of the United States," Chicago: Rand McNally & Co., 1965; Stephen M. Goldfield, "Commercial Bank Behavior and Economic Activity," Amsterdam: North Holland Publishing Co., 1966.

⁴ William G. Dewald and William E. Gibson, "Sources of Variation in Member Bank Reserves," "Review of Economics and Statistics" (May 1967), 143-50.

⁵ William G. Dewald, "Money Supply Versus Interest Rates as Proximate Objectives of Monetary Policy," "National Banking Review" (June 1966), 509-22; and Karl Brunner, "A Scheme for the Supply Theory of Money," "International Economic Review" (January 1961), 79-109.