Monetary Growth and Business Cycles

Part I: The Theoretical and Historical Perspective

By **Bryon Higgins**

History clearly shows that the pattern of economic growth in the United States has been uneven. Periods of economic expansion frequently have been interrupted by business contractions of varying length and severity. Despite extensive investigation of the sources of economic instability, however, economists disagree about the relative importance of various factors that have contributed to the cyclical nature of economic growth.

There is particularly sharp disagreement among economists regarding the extent to which changes in the rate of monetary growth are responsible for cyclical variations in income, employment, and inflation. Monetarists contend that changes in the rate of monetary growth are the primary factor accounting for economic instability. Consequently, they recommend that monetary policy be directed toward maintaining steady growth in the money supply. Nonmonetarists, on the other hand, believe that monetary growth is only one of several important determinants of aggregate economic performance. Thus, nonmonetarists advocate a flexible approach to monetary policy, believing that the appropriate rate of monetary growth depends on the numerous nonmonetary factors influencing the course of the economy.

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The relationship between monetary growth and business cycles is discussed in this article. In the first section, factors contributing to the historical association between monetary growth and business cycles are analyzed, and the cyclical .pattern of monetary growth is documented for three historical periods spanning over 100 years. The monetarist interpretation of this evidence is presented in the second section, and the policy implications of this interpretation are discussed. In the third section, nonmonetarist objections to the monetary explanation of business cycles are outlined. A nonmonetarist theory of business cycles and its policy implications are also examined. A summary and conclusions are presented in the final section.

MONEY AND BUSINESS CYCLES: THE HISTORICAL PERSPECTIVE

Monetary growth in the United States has exhibited a distinct cyclical pattern, generally increasing during economic expansions and declining during economic downturns. This basic pattern has persisted for more than a century despite major changes in economic and financial institutions. The pattern characterized the period from **1867** through **1913,** i.e., before the Federal Reserve System was established. Moreover, the pattern continued in the period from **1914** through **1951,** after the System was organized but before the proper function of a central bank was fully developed.

Finally, the characteristic relationship between monetary growth and business cycles persisted during the period from **1952** through **1978,** when the role of an independent monetary authority was generally understood. In each of the three periods, the institutional economic and policy factors that determined the cyclical behavior of monetary growth differed substantially. These factors are discussed for each period in the remainder of this section, and the relationship between monetary growth and business cycles is identified in some detail.

The Pre-Federal Reserve Era: 1867-1913

For most of the period from **1867** to **1913,** movements in the U.S. money stock were importantly affected by gold flows resulting from surpluses or deficits in the international balance of payments. This relationship resulted from the adoption in **1879** of a strict monetary gold standard in which gold and currency were freely convertible. Under this type of monetary arrangement, gold inflows associated with balance of payments surpluses led to increases in bank reserves and the money supply, and gold outflows accompanying balance of payments deficits led to decreases in bank reserves and the money supply.

In addition to international gold flows, however, movements in the U.S. money supply before **1914** were strongly influenced by internal currency drains associated with banking panics. When the public became apprehensive about financial conditions and the soundness of the banking system, the ensuing panic resulted in a widespread attempt to withdraw currency from banks. Because there was no central bank or any other mechanism under the National Banking System for expanding bank reserves in the short run, banks were frequently unable to obtain sufficient cash to meet their depositors' demand for currency and were forced to liquidate assets or to suspend operation. Internal currency drains, therefore, often resulted in a wave of bank failures and a cumulative decline in the money stock, which were often accompanied by a sharp contraction in economic activity. Thus, in the pre-Federal Reserve era, banking panics played a major role in determining the behavior of the money stock as well as the relationship between monetary growth and business cycles.

The Early Years of the Federal Reserve System: 1914-51

In the period from **1914** to **1951,** the money supply was, in principle, determined by the monetary policy actions of the Federal Reserve. By expanding or contracting its loans to member banks and its holdings of Government securities, the Federal Reserve could offset the impact of gold and currency flows on bank reserves and could thereby influence the behavior of the money supply.

The Federal Reserve's monetary policy from **1914** to **1951** was strongly influenced by major economic and social upheavals and the System's inexperience in using the tools of monetary management to deal with them. During the first and last parts of the period, Federal Reserve policy and monetary growth were determined primarily by the U.S. Treasury's need to finance large deficits associated with World War I and World War II. In the period between the two world wars, the Federal Reserve's lack of experience resulted in monetary policy actions that were sometimes inappropriate. In both **1920** and **1936-37,** for example, the Federal Reserve responded to the threat of inflation by taking policy actions that contributed to abrupt declines in the money supply and the level of economic activity. From **1929** to **1933,** moreover, the Federal Reserve failed to alleviate a prolonged decline in the money stock

by offsetting the currency drains associated with the banking panics during the Great Depression.

The Post-Accord Era: 1952-78

Deliberate policy actions by the Federal Reserve have been a major factor determining the cyclical pattern of monetary growth since 1952. In 1951, an agreement between the Federal Reserve and the Treasury ended the Federal Reserve's policy of accommodating Treasury financing requirements. This agreement, which is commonly referred to as the Accord, has been widely interpreted both within the Federal Reserve System and by outside observers as formal recognition of the desirability of an independent monetary policy. Moreover, by 1952, the Federal Reserve's understanding of financial management had progressed to the point where monetary policy tools could be used effectively to achieve policy objectives.

Since 1952, a major objective of the Federal Reserve's monetary policy has been to moderate cyclical fluctuations in the growth of money and credit. The Federal Reserve has, for example, taken actions to restrain monetary growth when sustained periods of economic expansion threatened to produce accelerating inflation and has eased monetary restraint when the economy appeared weak.

The Average Cyclical Pattern of Monetary Growth

Despite the diversity in the factors that determined behavior of the money stock, the cyclical pattern of monetary growth in the three periods was generally similar. Chart 1 shows the average quarterly M2 growth rates in the vicinity of cyclical peaks in economic activity for each of the three historical periods. Chart 2 shows the average cyclical pattern of M1 growth only for the 1914-51 and 1952-78 periods, since reliable data on M1 are not available prior to 1914.[1] The charts show that, in each period, monetary growth rates declined before a cyclical peak in economic activity and increased thereafter.

The pattern of M2 growth for the eight business cycles between 1914 and 1951 was quite similar to the pattern established during the 12 business cycles between 1867 and 1913. In both periods, M2 growth reached a maximum rate of almost 10 per cent a few quarters before the cyclical peak in economic activity and declined sharply for several quarters thereafter. M2 growth began to increase rapidly following a period of negative growth soon after the onset of a recession. The general cyclical behavior of M1 from 1914 to 1951 was quite similar to the behavior of M2, although the variability in growth rates was somewhat less for M1 than for M2.

The general characteristics of monetary growth in the vicinity of the five business cycle peaks between 1952 and 1978 are similar to those in earlier periods, but the precise timing and magnitude of cyclical changes in the rate of monetary growth were somewhat different in the 1952-78 period. For both M1 and M2, the cyclical variability in growth rates has only been about one-half as great in the post-Accord period as in the earlier two periods. Since 1952, moreover, monetary growth has accelerated before, rather than after, the onset of a recession. The relatively mild character of recessions in the past three decades may be related to the earlier reversal of the downward trend in monetary growth rates and the reduced variability of monetary growth. To the extent that the increased independence and expertise

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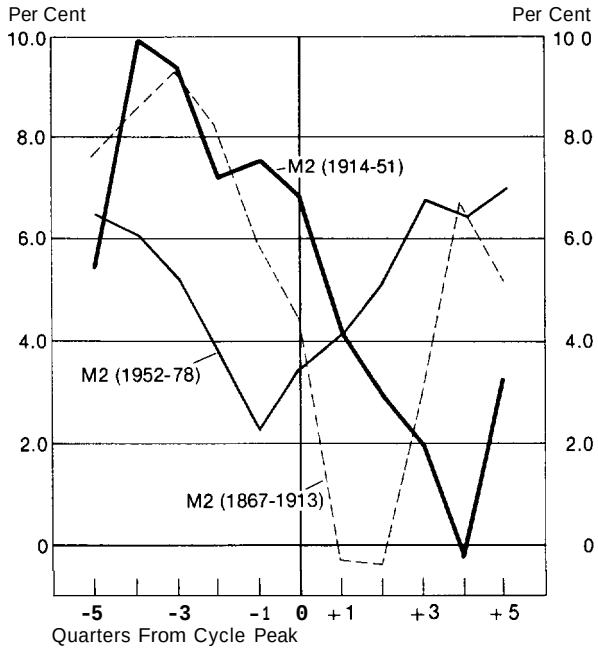
[1] M1 consists of demand deposits and currency held by the nonbank public. M2 includes time and savings deposits at commercial banks in addition to M1 assets.

Chart 1
CYCLICAL PATTERN OF M2 GROWTH



of the Federal Reserve have been responsible for the alteration in the cyclical pattern of monetary growth since 1952, therefore, monetary policy has contributed to economic stability in the post-Accord period.

THE MONETARY THEORY OF BUSINESS CYCLES

Some analysts have interpreted the historical relationship between money and business cycles as strong evidence that changes in the rate of monetary growth are the primary determinant of cyclical variations in employment, income, and inflation. Monetarists argue that monetary growth is a largely independent factor accounting for economic fluctuations rather than a passive reaction to those fluctuations.

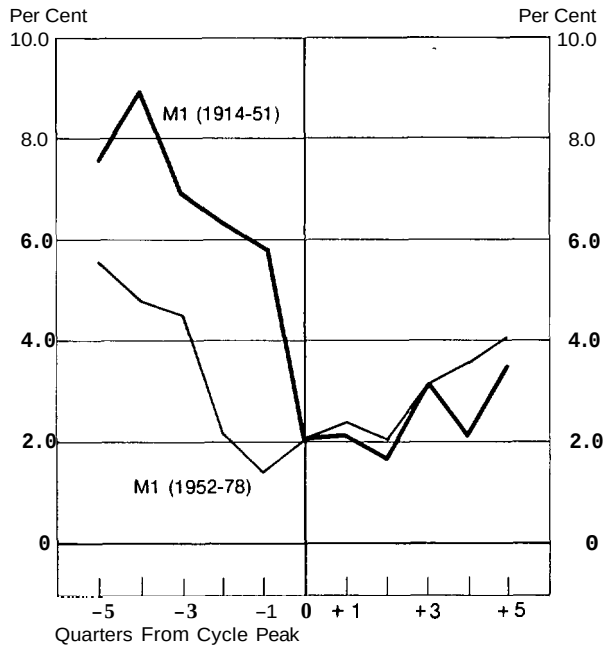
The Monetarist Interpretation of the Historical Evidence

After extensive investigation of the historical circumstances surrounding business cycles in the United States, Milton Friedman and Anna Jacobson Schwartz, whose view of the relation between monetary growth and business cycles is shared by many other monetarists, concluded that:

> Appreciable changes in the rate of growth of the money stock are a necessary and sufficient condition for appreciable changes in the rate of growth of money income.[2]

Friedman and Schwartz rely on three basic types of evidence to support the monetary

Chart 2
CYCLICAL PATTERN OF M1 GROWTH



explanation of business cycles—the pervasive influence of money on other economic variables, the persistence of the association between monetary growth and business cycles during periods with different institutional arrangements, and the observed timing relationship between changes in the rate of monetary growth and changes in other economic variables.

The Pervasive Influence of Money. Friedman and Schwartz point out that money, unlike many other economic variables that exhibit a cyclical pattern of growth, is generally believed to influence a wide variety of important economic aggregates. Although growth in many economic variables conforms to the general business cycle, the cyclical behavior of most of these variables can best be explained as resulting from fluctuations in the overall level of economic activity rather than playing an important independent role in causing those fluctuations. The production of pins, for example, may be closely associated with the general level of economic activity, but pin production is generally thought to have a negligible effect in determining the course of the economy. Money, on the other hand, plays a major role in most economic theories that attempt to explain aggregate economic relationships.

The Persistence of the Relationship Between

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2 Friedman and Schwartz, "Money and Business Cycles," *Review of Economics and Statistics,* February 1963, p. 53. For a more detailed exposition of Friedman and Schwartz's view, see Milton Friedman and Anna Jacobson Schwartz, *A Monetary History of the United States, 1867-1960* (Princeton, N.J.: Princeton University Press, 1963).

Money and the Business Cycles. The second type of evidence cited by Friedman and Schwartz in support of the monetary theory of business cycles is the persistence of the relationship between monetary growth and cyclical fluctuations in business activity. Moreover, the relationship has remained essentially the same despite major changes in economic and financial institutions. Changes in monetary growth have been produced in some periods by external factors, such as the discovery of new sources of gold, and in other periods, by conscious policy decisions, such as increases in discount rates or reserve requirements. In each case, however, appreciable changes in the rate of monetary growth have been accompanied by appreciable changes in other aggregate economic variables. Friedman and Schwartz interpret the apparent stability of the relationship between monetary growth and business cycles under a variety of circumstances as the single most convincing type of evidence in support of a monetary explanation of business cycles.

The Timing of the Relationship. Changes in the rate of growth of the money supply generally precede changes in economic activity and inflation. Friedman and Schwartz argue that this temporal pattern supports the view that the association between monetary growth and business cycles primarily reflects the independent influence of money on the rest of the economy. If the cyclical pattern of monetary growth were merely a reflex reaction to developments in the rest of the economy, Friedman and Schwartz argue, one would expect changes in the growth rate of money to follow rather than precede changes in other important economic variables. Since this has not been the observed historical pattern, Friedman and Schwartz conclude that monetary growth exerts a largely independent influence in determining cyclical variations in employment, income, and inflation.

Policy Implications of the Monetary Theory of Business Cycles

Monetarists believe that monetary policy actions are transmitted to the economy primarily through changes in the rate of monetary growth. They observe, for example, that recessions since 1914 have typically been preceded by restrictive Federal Reserve actions that resulted in a slowdown in monetary growth. Major economic contractions could have been averted, these analysts argue, if the Federal Reserve had taken actions to prevent the reductions in monetary growth. Indeed, many monetarists argue that the Federal Reserve could control aggregate spending by controlling the rate of growth in the money supply. They advocate, therefore, that the Federal Reserve adopt policy procedures designed to ensure relatively constant growth in the money supply, thereby alleviating inflationary pressures during economic expansions and preventing large reductions in output and employment during economic contractions.

Monetarists also consider the rate of monetary growth to be the best indicator of the impact of monetary policy. They believe that growth in the money supply is a more reliable measure of the effects of Federal Reserve actions than are movements in interest rates or changes in credit conditions. Since monetarists base their forecasts of the future course of the economy almost solely on current and past growth rates of one or more monetary aggregates, they interpret a substantial reduction in monetary growth as an indication that an economic downturn is imminent.

THE KEYNESIAN THEORY OF BUSINESS CYCLES

Friedman and Schwartz's interpretation of the relationship between monetary growth and

business cycles has elicited dissenting views from nonmonetarists.' These economists, who are sometimes referred to as Keynesians, stress the importance of nonmonetary factors in explaining the cyclical behavior of income, employment, and prices. Keynesians recommend that the Federal Reserve consider the behavior of a wide range of monetary and nonmonetary variables in formulating monetary policy.

The Keynesian View of the Monetary Theory of Business Cycles

Nonmonetarists have expressed doubt about the plausibility of a theory that assigns monetary growth the primary role in explaining business cycles as well as the validity of the empirical evidence offered in support of that theory. These analysts maintain that there are numerous economic variables other than money that have pervasive and systematic effects on the economy. Some of these, such as fiscal policy and interest rates, are important explanatory variables in Keynesian economic theories. Thus, nonmonetarists question whether appeal to economic theory justifies exclusive reliance on monetary growth in explaining business cycles. Nonmonetarists also doubt that the empirical evidence marshaled by Friedman and Schwartz fully supports the monetary explanation of business cycles. Demonstration that monetary growth exerted a largely independent influence on the economy in certain specific instances does not necessarily imply that monetary growth has not been primarily a passive reaction to underlying economic forces in other instances.' Moreover, the timing of monetary changes relative to changes in other economic variables does not indicate which are the causes and which are the effects. Changes in monetary growth might precede changes in the economy even if money exerted no independent influence.[5] For all of these reasons, nonmonetarists have been reluctant to accept the monetary explanation of business cycles expounded by Friedman and Schwartz and have developed an alternative interpretation of economic fluctuations.

The Keynesian Interpretation of Business Cycles

Keynesians assign an important role to investment spending in explaining economic

3 See, for example, James Tobin, "The Monetary Interpretation of History," American Economic Review, June 1965. Also, see Comments by Hyman P. Minsky and Arthur Okun accompanying Friedman and Schwartz's, "Money and Business Cycles."

4 It is quite plausible, for example, that both the rapid monetary expansion and the high inflation during World War I and World War II resulted from the large increases in Government spending. If so, monetary growth and inflation during those periods were both by-products of economic mobilization for the war efforts.

5 There are two basic reasons why this might be so. First, a spurious lag can be introduced by comparing the timing relationship between changes in the growth rate of one variable and changes in the level of another variable, since changes in growth rates always precede changes in levels for any variable exhibiting cyclical behavior. For example, a decline in the rate of growth of the money supply would precede a decline in the level of economic activity even if the levels of both variables change simultaneously. Secondly, when the monetary authorities react passively by providing whatever amount of money the public desires to hold at current values of income, wealth, and interest rates, the money stock is determined primarily by demand forces. In this case, changes in the growth rate of money could precede changes in both the level and growth rate of economic activity if the changes in monetary growth were responses to changes in the quantity of money demanded resulting from anticipation of future changes in income or expenditures. Even if the resulting changes in the money stock had no impact on the economy, changes in the growth rate of money would be observed to occur before changes in the level of business activity. Thus, it is necessary to know the determinants of the demand for and supply of money and their interaction with other economic variables if timing relationships are to be taken as indications of causality. For a more complete discussion of this point, see James Tobin, "Money and Income: Post Hoc Ergo Propter Hoc?" Quarterly Journal of Economics, May 1970.

fluctuations.[6] Investment spending-defined broadly to include household expenditures for housing, automobiles, and durable goods in addition to business expenditures for plant, equipment, and inventories — is the most volatile component of aggregate demand. A precipitous drop in investment spending is typically associated with a recession, and a boom in investment spending generally accompanies an economic expansion. Moreover, a change in investment spending has a magnified effect on the economy because income generated in the production of investment goods gives rise to increased consumption expenditure, which in turn generates additional income that can be spent by its recipients. Relatively small changes in investment spending can, through this multiplier process, have a major impact on aggregate income, employment, and prices.

Keynesians evaluate the impact of monetary policy by analyzing its effects on various types of investment spending.[7] Monetary policy actions affect investment spending by influencing the cost and availability of credit, total wealth, and monetary growth. The level of interest rates plays a particularly critical role in the Keynesian theory of economic fluctuations because it measures the cost of obtaining funds to finance investment spending. Since the real money supply — that is, the money supply adjusted for changes in the price level — is an important determinant of the level of interest rates in the Keynesian framework, Keynesians focus on the behavior of the real money supply when analyzing the impact of monetary growth on the future course of the economy. For a given inflation rate, monetary growth that is insufficient to satisfy the public's demand for real money balances causes an increase in interest rates, which can choke off investment spending and lead to a cumulative decline in economic activity. Thus, Keynesians consider interest rates, growth in the real money supply, fiscal policy, and numerous other factors important determinants of cyclical fluctuations in the economy.

Policy Implications of the Keynesian Theory of Business Cycles

Keynesians reject the view that constant growth in the money supply is the most effective means of promoting economic stability. If the public's demand for money changes over time, for example, a 4 per cent growth rate of money could exert a more expansionary impact on the economy in one period than does a 6 per cent growth rate in another period. Moreover, Keynesians argue, the appropriate rate of monetary growth depends on fiscal policy and other economic conditions. Fiscal policy, like investment spending, has a multiplier effect on the economy and is believed by Keynesians to be a powerful policy tool to moderate economic fluctuations. The adverse effects on the economy of an autonomous decline in investment spending, for example, can be offset either by an increase in government spending and a tax cut or by a more expansionary monetary policy. Thus, Keynesians believe that both monetary and fiscal policies can be used to promote economic stability but doubt that a constant rate of monetary growth is the most desirable monetary policy in all circumstances.

In the Keynesian framework, there is no single financial variable that serves as an adequate indicator of monetary policy in all circumstances. Interest rates and growth in the

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6 See, for example, Paul Samuelson, *Economics*, McGraw-Hill, Inc., any edition, for a simple exposition of the role of investment spending in the Keynesian theory of income determination.

7 See, for example, Warren L. Smith, "A Neo-Keynesian View of Monetary Policy," in *Controlling Monetary Aggregates.* Federal Reserve Bank of Boston, 1969.

real money supply, however, are generally considered by Keynesians to be among the important gauges of the effects of Federal Reserve policy. Keynesians interpret a decline in the growth rate of the real money supply, especially if accompanied by higher interest rates, as one of several factors that could result in an economic downturn.

CONCLUSION

Historical evidence clearly indicates that there has been a close association between monetary growth and business cycles in the United States. Empirical evidence of this association, when interpreted in light of alternative theories of how the economic system functions, gives rise to very different policy recommendations, however. On the one hand, monetarists believe that the historical relationship between money and business cycles is strong evidence that substantial changes in the rate of monetary growth are the principal cause of economic instability. They recommend, therefore, that the Federal Reserve maintain steady growth in the money supply in order to avoid major fluctuations in the economy. Keynesians, on the other hand, do not believe that a cyclical pattern of monetary growth in the past necessarily indicates that steady monetary growth would ensure increased economic stability in the future. A persistent question confronting the Federal Reserve, therefore, is whether economic stabilization is better served by steady growth in the money supply or by a more flexible approach that takes account of a wider variety of information.

Accurate interpretation of the significance of changes in the rate of monetary growth has assumed increased importance in recent months. Some analysts have pointed to the apparent continuation of economic strength as evidence that the recent decline in monetary growth may be a temporary aberration with limited economic significance. Other analysts point out, however, that the recent decline in the rate of monetary growth is similar to the monetary decelerations that have been associated with recessions in the past. This issue will be explored in the following article: Monetary Growth and Business Cycles, Part II: The Relationship Between Monetary Decelerations and Recessions.