

BANK DEPOSITS AND BUSINESS FLUCTUATIONS

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By
Edison H. Cramer, Chief,
Division of Research and Statistics,
Federal Deposit Insurance Corporation.

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Department of Economics
University of Colorado
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I want to describe some of the results of a study of the relation of banking to business fluctuations which was undertaken by the Division of Research and Statistics of the Federal Deposit Insurance Corporation several years ago. The study was initiated and has been carried through by Clark Warburton, who has been on the senior research staff of the Division since 1934. The principal part of the study deals with the relation of bank obligations which serve as circulating medium or money to the ups and downs of business; and that is the part which I wish to describe to you. Bank obligations which serve as circulating medium consist in part of deposits and in part of circulating notes. Such notes are now issued only by the Federal Reserve banks; and though important, they form, with other forms of pocket currency, less than one-fifth of the total money supply. More than four-fifths of the money supply consists of bank deposits. Consequently, whenever I speak of the amount or change in the money supply, it is primarily bank deposits or a change in the aggregate amount of those deposits which is involved.

In Dr. Warburton's initial hypothesis he assumed that business depressions of moderate intensity result from various forces outside of the banking and monetary system, such as those customarily described in the text books and periodical literature. Such forces, it was assumed, affect demand in an important segment of the economy, and therefore lower the value of products sold, and tend to lower prices, profits, and wages paid in the affected segments of the economy. These effects then spread to other parts of the economy.

Since the force involved in these fluctuations was assumed to be outside of the banking and monetary system, it was also assumed that that force had no direct immediate effect on the quantity of bank deposits or supply of money. However, the reduced spending must be reflected either in a decline in the money supply, or in the rate of use of money; and it was desirable to find out which of these typically occurred in the early stages of a business recession. Further, it was reasonable to assume that in a time of reduced spending, whatever the cause, some spending units would tend to reduce their indebtedness to banks and others to avoid borrowing which they might have done with better prospects. Consequently, a business recession was likely to be accompanied by a contraction in bank assets and therefore in their deposits. If this occurred, it would tend to make recovery from the recession difficult. The decline in the quantity of money, in view of customary habits of use of money, would make a decline in the general price level necessary, so that the downward price adjustments and discouragement to business in some segments of the economy would occur without any possibility of compensating upward adjustments in prices and encouragement to business in other segments.

Mr. Warburton's initial hypothesis continued with the assumption that shrinkage in the money supply accompanying an ordinary business recession should not be permitted. He argued that monetary contraction under this circumstance is not due to decisions of individuals or business enterprises to reduce their cash holdings (except momentarily as with any other use of money), but is an unwanted by-product of retirement of debt to banks, or perhaps inability to do so with a consequent charge-off by the banks. If the process of reduction of debt were not accompanied by its unintended result of a shrinkage in cash balances we would have the accumulation of

idle cash balances, which would show up statistically in a reduced circuit velocity of money in the early stage of a business recession. Accumulation of idle money during the downswing would tend to have an immediate effect upon the availability of credit and the rate of interest at which money could be borrowed by business and individuals, and would therefore facilitate a rapid readjustment to the nonmonetary conditions which had initiated the recession. That is to say, he thought that the chief difference between moderate recessions and severe depressions might be the degree of monetary contraction which occurs in the downward phase of the cycle, and if so, this should show up in the statistical data. If the factual record supported this hypothesis, monetary policy directed toward maintenance of a normal money supply should prevent the recession phase of a business cycle from degenerating into a deep depression, and should facilitate rapid recovery.

To scrutinize the factual data relevant to the foregoing hypothesis, statistical series of the average outstanding quantity of money and of its circuit velocity were needed for periods sufficiently short to measure the changes during the early and later parts of each business upswing and downswing. Also, a series was needed which would show the fluctuations in the amount of spending for final products of the economy. No suitable tabulations were then available for any of these series. It was of course impossible for original data to be compiled by the Federal Deposit Insurance Corporation; and consequently pertinent available data had to be used, with such adjustments as could be made.

For the total quantity of money, Mr. Warburton took the Federal Reserve series of "total adjusted deposits and currency" for June 30 and

December 31 of each year, added United States government deposits in the Federal Reserve banks since those deposits are the government's checking accounts, and made a few other adjustments. By interpolation of banking figures for year-end dates during 1917-1922, it was possible to run this series back to the middle of 1917. These figures of the total quantity of money were then divided into three parts: the portion owned by Federal, State and local governments; the portion owned by foreigners; and the balance, attributed to the ownership of business and individuals. As those of you who are familiar with the available data are aware, the estimates of the portions held by governments and foreigners are subject to considerable error. However, the residual provided a better series of money held by business and individuals than was available elsewhere.

The estimates of total money supply and the portion owned by business and individuals for mid-year and year-end dates were then used as base data for estimates of annual and quarterly averages. For this purpose the mid-year and year-end data were adjusted on the basis of monthly or quarterly averages of the deposits reported by the weekly reporting member banks and the monthly averages of daily figures for "money in circulation."

One of the most fundamental aspects of business fluctuations is the variation in "effective demand," or aggregate expenditure of the people of the nation for the products of the economy. Estimates of such expenditures available when the work on the study began consisted of two sets of series not entirely comparable with each other: a set called "gross national product", prepared by the Department of Commerce and going back

to 1929; and a set prepared by the National Bureau of Economic Research covering the years 1919-1938. These two sets of estimates had not been joined together in a manner which seemed appropriate. In addition, certain items included in "gross national product" do not represent expenditures of money, and other items represent expenditures for goods designed for re-sale rather than for consumption or permanent use. Consequently, in preparing annual and quarterly estimates of the value of final products sold and of the amounts paid for such products by business and individuals, for use in relating the flow of money to business fluctuations, Mr. Warburton deducted from "gross national product" items which represent income in kind, change in business inventory, and net exports of goods and services, and adjusted the National Bureau estimate to agree as closely as possible with the resulting series. These estimates were first prepared on an annual basis. Quarterly estimates were prepared from the annual series by the use of Department of Commerce quarterly series back to 1939, Barger's estimates published by the National Bureau for the years 1921-1938, and scattered information for 1919 and 1920.

When the estimates of effective demand were completed, annual and quarterly measures of the circuit velocity of money were prepared in two forms for the period back to 1919; one derived by relating total payments for final products to the average total money supply; the other by comparing expenditures for final products by business and individuals with the quantity of money held by business and individuals. Variations in effective demand must also represent either variation in the quantity of final products purchased or in prices paid for them. There is now no series currently published which is reasonably representative of the total output of the nation or of the quantity of final products sold to the people; nor is any index

of prices of final products available which is sufficiently comprehensive to be regarded as representative of their general level. Satisfactory indexes can be constructed only by a far more elaborate investigation than Mr. Warburton could undertake. However, he prepared crude annual and quarterly indexes for the period since 1919 in order to see what light they would throw on the timing, in the course of the business cycle, of changes in the quantity and in the prices of final products sold. I understand that the Department of Commerce has under preparation indexes of the quantity and prices of the leading components of gross national product. When these become available, better indexes of the quantity and prices of final products sold can be constructed.

The economy of the United States, as has been emphasized in recent discussions of national economic policy, is normally characterized by growth in the physical volume of output and therefore in expenditures of the people for that output. This was recognized in the hypothesis, and it was assumed, therefore, that business fluctuations should be viewed as variations from secular trends rather than as variations from levels reached at a previous date. The slope and shape of secular trends are difficult to determine, and it is often difficult to decide whether a trend over a few years should be regarded as likely to continue in the future. For this reason estimates or indexes of the volume of output and of the quantity and circuit velocity of money were prepared for several decades prior to 1918 as well as for the period since that time. The conclusions which were reached from these series are that an upward trend in production and a downward trend in the circuit velocity of money have existed since the beginning of the 19th century, and that for the purpose of application to data for recent decades, both trends can be represented by percentage change

curves. The slopes finally chosen, after considerable experimentation, were an increase of 3.6 percent per year in output and an increase of 1.45 percent per year in holdings of money relative to expenditures for final products. The latter is, of course, the reciprocal of the circuit velocity of money. Selection of these trends meant use of an upward trend of 5 percent per year for the quantity of money, on the assumption that stability in the value of money or level of prices of final products is a characteristic of a normally functioning economy.

When these measures for quantity and circuit velocity of money were adjusted for trend, and then scrutinized, it was found that the quantity of money led and its circuit velocity lagged at the turning points of business cycles. This suggested that the original hypothesis of the study did not place enough emphasis on changes in the supply of money and that forces impinging on the supply of money needed examination. The pre-depression theory that banks tend to utilize their resources to the limit of their reserves was an obvious hypothesis to be examined. To do this, reported figures for bank reserves needed adjustment for factors influencing their effectiveness. Mr. Warburton therefore prepared annual and quarterly series of effective bank reserves. These series are derived from the published data on monthly daily averages of member bank reserves, with adjustments for changes in percentage reserve requirements, shifting of deposits among banks and accounts subject to different percentage requirements, and changes in the amount of deposits subject to reserve relative to the total deposits in the money supply. Adjustment for change in the amount of currency relative to the amount of deposits in the money

supply is also being made in a monthly series of effective reserves which is now under preparation.

When all the foregoing series were compared for the period since 1918 the following typical sequence emerged for significant turning points relative to trend: effective bank reserves, money supply, effective demand, circuit velocity of money. Peaks and troughs in both bank reserves and money supply precede the peaks and troughs of the business cycle, whether the latter is measured by the aggregate expenditures for final products or by the reference dates of the National Bureau of Economic Research; and the circuit velocity of money lags behind the business cycle peaks and troughs. The leads and lags are typically shorter in the case of the troughs than in the case of the peaks, and there are more cases of turning points occurring in the same quarter at the troughs than at the peaks.

Central bank theory, technique, policies, and criteria

The typical sequence of events at business cycle peaks shown by the factual analysis - effective bank reserves, quantity of money, effective demand, circuit velocity of money - also made it desirable to review the nature and mode of operation of the forces impinging upon bank reserves. This involved a review of central banking theory, techniques, policies, and criteria, including a review of the theory underlying establishment of the Federal Reserve System. The difficulties with the banking and monetary structure prior to establishment of the Federal Reserve System, which were most prominent in the thinking of economists who had a hand in the framing of the Federal Reserve Act, were factors which impinged on bank reserves. As would be expected from this situation, by far the most important result of the Federal Reserve Act was a profound

alteration of the forces dominating the quantity of bank reserves.

Since 1917, when the provisions of the act regarding member bank reserves were amended, legal reserves against deposits of banks which are members of the Federal Reserve System have consisted solely of balances or deposit accounts in the Federal Reserve banks. The Federal Reserve banks have substantial liabilities of other types, primarily government and foreign deposits and circulating notes. The types of assets which the Federal Reserve banks may acquire are limited, and these limitations were somewhat narrower in the 1920's than now. However, the amount of assets eligible for acquisition by the Federal Reserve banks has always been large relative to the amount acquired, and the amount actually acquired has always been dominantly influenced by the terms of acquisition and relinquishment set by the Federal Reserve authorities. If then, the primary function of the Federal Reserve System is the stabilization of bank credit with a reasonable rate of growth in an expanding economy, as was the intention of its founders, the operating task of the system is to acquire and maintain such a volume of assets as will maintain stability and growth in the quantity of member bank reserves.

Inasmuch as the dominant factor in changes in bank reserves is the asset acquisition and relinquishment policies of the Federal Reserve banks, the statistical work on reserves was followed by a review of the techniques and policies of those banks, as reflected in their assets and in the annual reports of the Federal Reserve Board, with special attention to each of the periods when the turning points in reserves occurred. Between the two World Wars there were ten of these, five peaks and five

troughs, according to the business cycle reference dates of the National Bureau of Economic Research. Of the five periods of depression represented by the troughs, two were moderate in amplitude and duration; the other three were severe but of varying length. The Federal Reserve bank asset and relinquishment policies which produced the peaks and troughs in effective reserves before or at the various turning points is most clearly seen at the beginning of the three cases of severe depression.

At the close of World War I and throughout the 1920's bills discounted for member banks were the major part of Federal Reserve bank assets other than gold. After the successful flotation of a Victory Loan in 1919, the Federal Reserve Board notified the reserve banks that it would approve advances in discount rates. Rates were raised in October and November of that year at all twelve of the reserve banks, and again in January and February 1920. In May rates were raised still farther at four of the reserve banks, and in October and February of the following year at two more. These various changes, which lifted discount rates from a range of 4 to 4 1/2 percent to a range of 6 to 7 percent, had a substantial effect on the volume of rediscounting and therefore on the amount of member bank reserves. In addition, reserves were also reduced by a reduction in Federal Reserve holdings of bills bought and of United States government obligations. Still further, in order to exert pressure on banks which were discounting heavily, the Federal Reserve authorities established a maximum limit to the credit to be given each member bank and imposed cumulative rates on banks considered to be discounting excessive amounts. This penalty rate, according to testimony before a Congressional committee, reached as high as 87 1/2 percent a year in the case of a small national bank in a cotton section of the south at the height of the season.

This was the first experience of the Federal Reserve authorities in attempting to stop inflation, and it is not surprising that they did not judge accurately the severity of the impact on business resulting from the contraction of bank credit nor the lag in time before these effects were fully felt. It is therefore understandable that they took more drastic action than was needed, and continued to raise discount rates after the peak in prices and business had been passed. But when the result of their actions became fully apparent in 1921, policies were reversed, and business revived promptly. During the next several years more reversals of policy, with less drastic action, were made. Credit was eased and reserves increased when prices began to fall or business conditions appeared unfavorable, and credit was tightened and reserves decreased or prevented from growing when prices were rising or business appeared to be approaching an unhealthy boom. Many economists concluded that the Federal Reserve authorities had learned how to accomplish the primary purpose for which the system was established, that of preventing undue variation in the volume of bank reserves and hence in bank credit used as circulating medium.

But toward the end of the 1920's the Federal Reserve authorities shifted their attention away from general business conditions and prices of the goods making up the current output of the economy, and concentrated on the problem of the change in prices of corporate stocks with its accompanying speculation. Their first specific action to withdraw bank credit from the securities market was to raise discount rates and to sell government securities in the early months of 1928. This was followed by additional open market operations in the latter part of 1928 and the early part of 1929, so that by July 1929 the sum of bills bought and United

States government securities held by the Reserve banks was smaller than at any time in the preceding ten years. In February 1929 the authorities reminded member banks that Federal Reserve credit should not be used for speculation, and in effect instructed all member banks which had loans used for speculative purposes and also were rediscounting with a reserve bank either to call the loans or to stop rediscounting. For a number of previous years the Federal Reserve authorities had been concerned about the fact that some member banks tended to rediscount continuously, and had been fostering a tradition that member banks should borrow only occasionally and never continuously. When this tradition was reinforced by direct pressure in 1929, and later in the depression by the difficulties member banks had in rediscounting when they needed funds to meet deposit withdrawals, it tended to make rediscounts an unstable and small element in the assets of Federal Reserve banks.

Because of these policies--the tradition against rediscounting, direct pressure, and treatment of banks faced with deposit withdrawals--the volume of rediscounting did not recover sufficiently to produce an adequate volume of reserves when discount rates were reduced in 1930 and 1931. At the same time the Federal Reserve banks did not acquire enough assets through open-market operations to replace reserves which disappeared as banks obtained currency to meet deposit withdrawals. The net result of all these circumstances was a reduction in reserves from the Spring of 1928 to the end of February 1933 by about 40 percent relative to the amount needed for maintenance of business stability.

In 1933 reserves were increased by Federal Reserve bank purchases of United States government securities and a return of currency to the banks. Following the change in the price of gold early in 1934 reserves increased very rapidly as a result of gold imports. Because of losses of capital and other reasons, however, bank credit expansion could not follow as rapidly as reserves were increasing; and before the banks had restored their deposits to the 1928 level, even without any allowance for further growth, the Federal Reserve Board took action to make such a return impossible. This was done by doubling the percentage reserve requirement, partly effective in 1936 and partly in the early months of 1937. While this action left member banks as a whole with a substantial amount of excess reserves, these were held mostly by the country banks. Banks in the central reserve cities sold about a billion dollars of United States government obligations to meet their own increased reserve requirements and withdrawals of deposits by banks in other cities for the purpose of meeting the increased requirements. Deposits in reporting member banks reached a peak in the last week of February 1937; in all member banks deposits declined by 4 percent between the call dates at the end of December 1936 and the end of March 1937. This shrinkage in bank credit in the large cities and the fall in security prices resulting from sale of bonds by the banks disturbed the plans of businessmen. This disturbance was accentuated by the fear that the conditions of the early part of the decade would be repeated. However, a part of the increased reserve requirement was cancelled in April 1938, and gold imports continued, so that the pressure on reserves lasted only about a year. Bank credit and

business expansion were then renewed, to continue until the impact of World War II brought the usual wartime condition of an abnormally high rate of deposit expansion.

In reviewing the techniques and policies of the Federal Reserve banks it has also been appropriate to review the purposes underlying their use, and to compare these purposes with the criteria suggested by banking theorists as appropriate guides for central bank action. In the older literature on central banking, derived mainly from British experience, three types of criteria had been developed. One was to watch gold movements and to adjust bank rate or use other devices to attract or repel gold. Another was to watch the price level, using changes in bank rate to encourage bank credit expansion when prices were falling and to restrict it when prices were rising. The third was to watch the course of business, changing the discount rate or using other techniques to stimulate monetary expansion when unemployment began to increase and production began to drop and to reverse the process when there was very little unemployment and a boom appeared to be starting.

Monetary theorists believed that prompt attention to the signals should result in reversals of policy fast enough to reduce the amplitude of business fluctuations and eliminate severe depressions. This belief was shaken by the occurrence of the great depression. However, the factual data for bank reserves during the period from 1929 to 1933 show that the usual signals were ignored, and the publications of the Federal Reserve System indicate that this was done knowingly. The evidence appears to be clear that the Federal Reserve authorities made serious mistakes in the

late 1920's with respect to both criteria and techniques. They substituted a false goal for the traditional criteria. At the same time they destroyed the effectiveness of changes in the discount rate, and in the succeeding years did not make sufficient use of other techniques for influencing the volume of Federal Reserve bank assets.

During the past 12 months, I have had an opportunity to scrutinize Dr. Warburton's work and to go over it with him step by step. I am convinced the factual data revealed by his study proves conclusively that moderate depressions as well as severe ones are due to aberrations in the quantity of money, and that these aberrations, in turn, are the result of Federal Reserve policies. If this is correct, and the Federal Reserve uses the proper criterion for monetary policy, it should be able not only to prevent small depressions or booms from growing into big ones, but also to avoid those of moderate size. That is to say, the goal of maintenance of prosperity and full employment, except for a reasonable amount of frictional enemployment, without price inflation is easily within our grasp.

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