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M. Friedman and A.J. Schwartz: The Great Contraction, 1929-1933

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THE GREAT CONTRACTION
1929-33

THE CONTRACTION from 1929 to 1933 was by far the most severe business-cycle contraction during the near-century of U.S. history we cover and it may well have been the most severe in the whole of U.S. history. Though sharper and more prolonged in the United States than in most other countries, it was worldwide in scope and ranks as the most severe and widely diffused international contraction of modern times. U.S. net national product in current prices fell by more than one-half from 1929 to 1933; net national product in constant prices, by more than one-third; implicit prices, by more than one-quarter; and monthly wholesale prices, by more than one-third.

The antecedents of the contraction have no parallel in the more than fifty years covered by our monthly data. As noted in the preceding chapter, no other contraction before or since has been preceded by such a long period over which the money stock failed to rise. Monetary behavior during the contraction itself is even more striking. From the cyclical peak in August 1929 to the cyclical trough in March 1933, the stock of money fell by over a third. This is more than triple the largest preceding declines recorded in our series, the 9 per cent declines from 1875 to 1879 and from 1920 to 1921. More than one-fifth of the commercial banks in the United States holding nearly one-tenth of the volume of deposits at the beginning of the contraction suspended operations because of financial difficulties.

Voluntary liquidations, mergers, and consolidations added to the toll, so that the number of commercial banks fell by well over one-third. The contraction was capped by banking holidays in many states in early 1933 and by a nationwide banking holiday that extended from Monday, March 6, until Monday, March 13, and closed not only all commercial banks but also the Federal Reserve Banks. There was no precedent in U.S. history of a concerted closing of all banks for so extended a period over the entire country.

To find anything in our history remotely comparable to the monetary collapse from 1929 to 1933, one must go back nearly a century to the contraction of 1839 to 1843. That contraction, too, occurred during a period of worldwide crisis, which intensified the domestic monetary uncertainty already unleashed by the political battle over the Second Bank of the United States, the failure to renew its charter, and the speculative activities of the successor bank under state charter. After the lapsing of the Bank's federal charter, domestic monetary uncertainty was further heightened by the successive measures adopted by the government—distribution of the surplus, the Specie Circular, and establishment of an Independent Treasury in 1840 and its dissolution the next year. In 1839–43, as in 1929–33, a substantial fraction of the banks went out of business—about a quarter in the earlier and over a third in the later contraction—and the stock of money fell by about one-third.¹

The 1929–33 contraction had far-reaching effects in many directions, not least on monetary institutions and academic and popular thinking about the role of monetary

¹For an interesting comparison of the two contractions, see George Macesich, "Monetary Disturbances in the United States, 1834–45," unpublished Ph.D. dissertation, University of Chicago, June 1958.

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factors in the economy. A number of special monetary institutions were established in the course of the contraction, notably the Reconstruction Finance Corporation and the Federal Home Loan Banks, and the powers of the Federal Reserve System were substantially modified. The contraction was shortly followed by the enactment of federal insurance of bank deposits and by further important modifications in the powers of the Federal Reserve System. It was followed also by a brief period of suspension of gold payments and then by a drastic modification of the gold standard which reduced it to a pale shadow of its former self (see Chapter 8).

The contraction shattered the long-held belief, which had been strengthened during the 1920's, that monetary forces were important elements in the cyclical process and that monetary policy was a potent instrument for promoting economic stability. Opinion shifted almost to the opposite extreme, that "money does not matter"; that it is a passive factor which chiefly reflects the effects of other forces; and that monetary policy is of extremely limited value in promoting stability. The evidence summarized in the rest of this chapter suggests that these judgments are not valid inferences from experience. The monetary collapse was not the inescapable consequence of other forces, but rather a largely independent factor which exerted a powerful influence on the course of events. The failure of the Federal Reserve System to prevent the collapse reflected not the impotence of monetary policy but rather the particular policies followed by the monetary authorities and, in smaller degree, the particular monetary arrangements in existence.

The contraction is in fact a tragic testimonial to the importance of monetary forces. True, as events unfolded, the

decline in the stock of money and the near-collapse of the banking system can be regarded as a consequence of non-monetary forces in the United States, and monetary and nonmonetary forces in the rest of the world. Everything depends on how much is taken as given. For it is true also, as we shall see, that different and feasible actions by the monetary authorities could have prevented the decline in the stock of money—indeed, could have produced almost any desired increase in the money stock. The same actions would also have eased the banking difficulties appreciably. Prevention or moderation of the decline in the stock of money, let alone the substitution of monetary expansion, would have reduced the contraction's severity and almost as certainly its duration. The contraction might still have been relatively severe. But it is hardly conceivable that money income could have declined by over one-half and prices by over one-third in the course of four years if there had been no decline in the stock of money.²

1. THE COURSE OF MONEY, INCOME, PRICES, VELOCITY, AND INTEREST RATES

Figure 1, which covers the two decades from 1914 to 1933, shows the magnitude of the contraction in the perspective

²This view has been argued most cogently by Clark Warburton in a series of important papers, including: "Monetary Expansion and the Inflationary Gap," *American Economic Review*, June 1944, pp. 320, 325–326; "Monetary Theory, Full Production, and the Great Depression," *Econometrica*, Apr. 1945, pp. 124–128; "The Volume of Money and the Price Level Between the World Wars," *Journal of Political Economy*, June 1945, pp. 155–163; "Quantity and Frequency of Use of Money in the United States, 1919–45," *Journal of Political Economy*, Oct. 1946, pp. 442–450.

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of a longer period. Money income declined by 15 per cent from 1929 to 1930, 20 per cent the next year, and 27 per cent in the next, and then by a further 5 per cent from 1932 to 1933, even though the cyclical trough is dated in March 1933. The rapid decline in prices made the declines in real income considerably smaller but, even so, real income fell by 11 per cent, 9 per cent, 18 per cent, and 3 per cent in the four successive years. These are extraordinary declines for individual years, let alone for four years in succession. All told, money income fell 53 per cent and real income 36 per cent, or at continuous annual rates of 19 per cent and 11 per cent, respectively, over the four-year period.

Already by 1931, money income was lower than it had been in any year since 1917 and, by 1933, real income was a trifle below the level it had reached in 1916, though in the interim population had grown by 23 per cent. Per capita real income in 1933 was almost the same as in the depression year of 1908, a quarter of a century earlier. Four years of contraction had temporarily erased the gains of two decades, not, of course, by erasing the advances of technology, but by idling men and machines. At the trough of the depression one person was unemployed for every three employed.

In terms of annual averages—to render the figures comparable with the annual income estimates—the money stock fell at a decidedly lower rate than money income—by 2 per cent, 7 per cent, 17 per cent, and 12 per cent in the four years from 1929 to 1933, a total of 33 per cent, or at a continuous annual rate of 10 per cent. As a result, velocity fell by nearly one-third. As we have seen, this is the usual qualitative relation: velocity tends to rise during the expansion phase of a cycle and to fall during the contraction

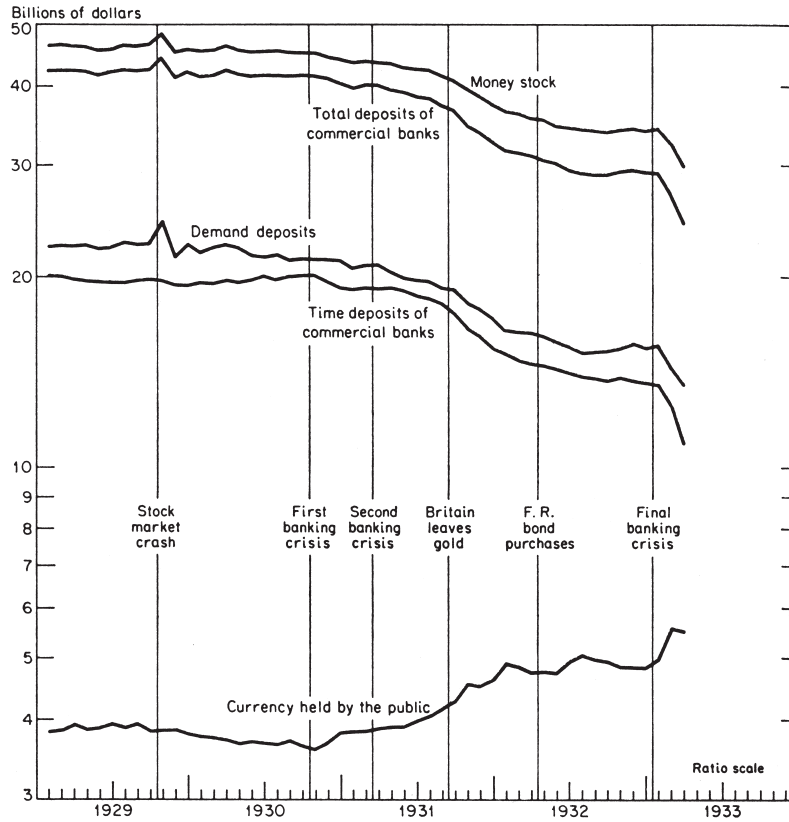
phase. In general, the magnitude of the movement in velocity varies directly with the magnitude of the corresponding movement in income and in money. For example, the sharp decline in velocity from 1929 to 1933 was roughly matched in the opposite direction by the sharp rise during World War I, which accompanied the rapid rise in the stock of money and in money income; and, in the same direction, by the sharp fall thereafter accompanying the decline in money income and in the stock of money after 1920. On the other hand, in mild cycles, the movement of velocity is also mild.³ In 1929–33, the decline in velocity, though decidedly larger than in most mild cycles, was not as much larger as might have been expected from the severity of the decline in income. The reason was that the accompanying bank failures greatly reduced the attractiveness of deposits as a form of holding wealth and so induced the public to hold less money relative to income than it otherwise would have held (see section 3, below). Even so, had a decline in the stock of money been avoided, velocity also would probably have declined less and thus would have reinforced money in moderating the decline in income.

For a closer look at the course of events during these traumatic years, we shift from annual to monthly figures. Figure 2 reproduces on an expanded time scale for 1929 through March 1933 the stock of money, as plotted on Figure 1, and adds series on deposits and currency. Figure 3 reproduces the series on industrial production and wholesale prices, and adds a series on personal income. Figure 4

³See Milton Friedman, *The Demand for Money: Some Theoretical and Empirical Results*, New York, National Bureau of Economic Research, Occasional Paper 68, 1959, p. 16.

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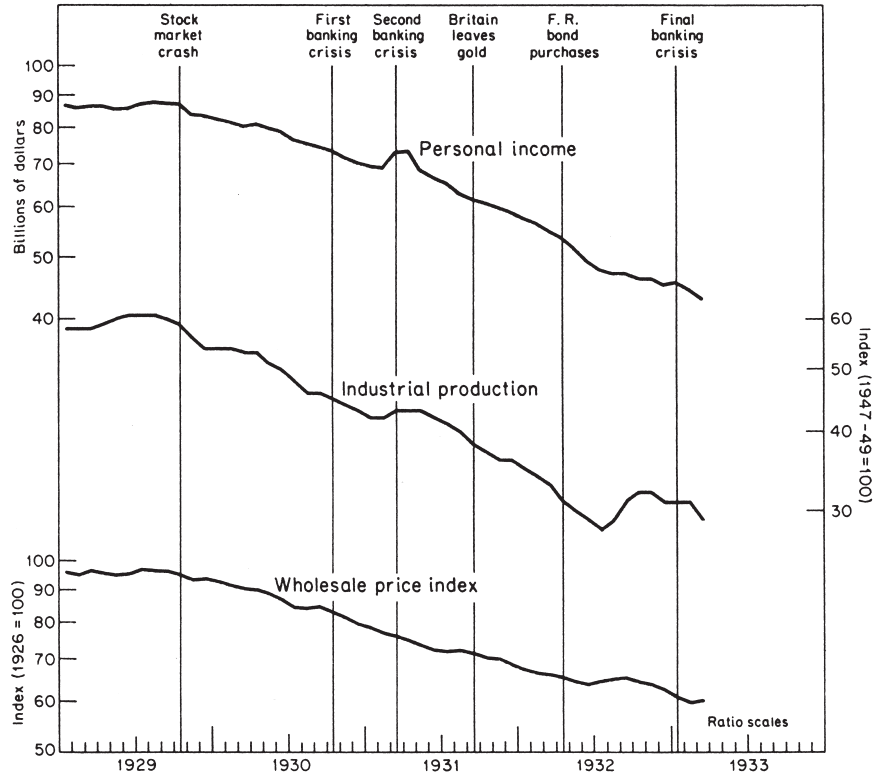
FIGURE 2
Money Stock, Currency, and Commercial Bank Deposits, Monthly,
1929–March 1933



SOURCE: Table A-1.

plots a number of interest rates—of special importance because of the crucial role played during the contraction by changes in financial markets—and also Standard and Poor’s index of common stock prices and the discount rates of the Federal Reserve Bank of New York.

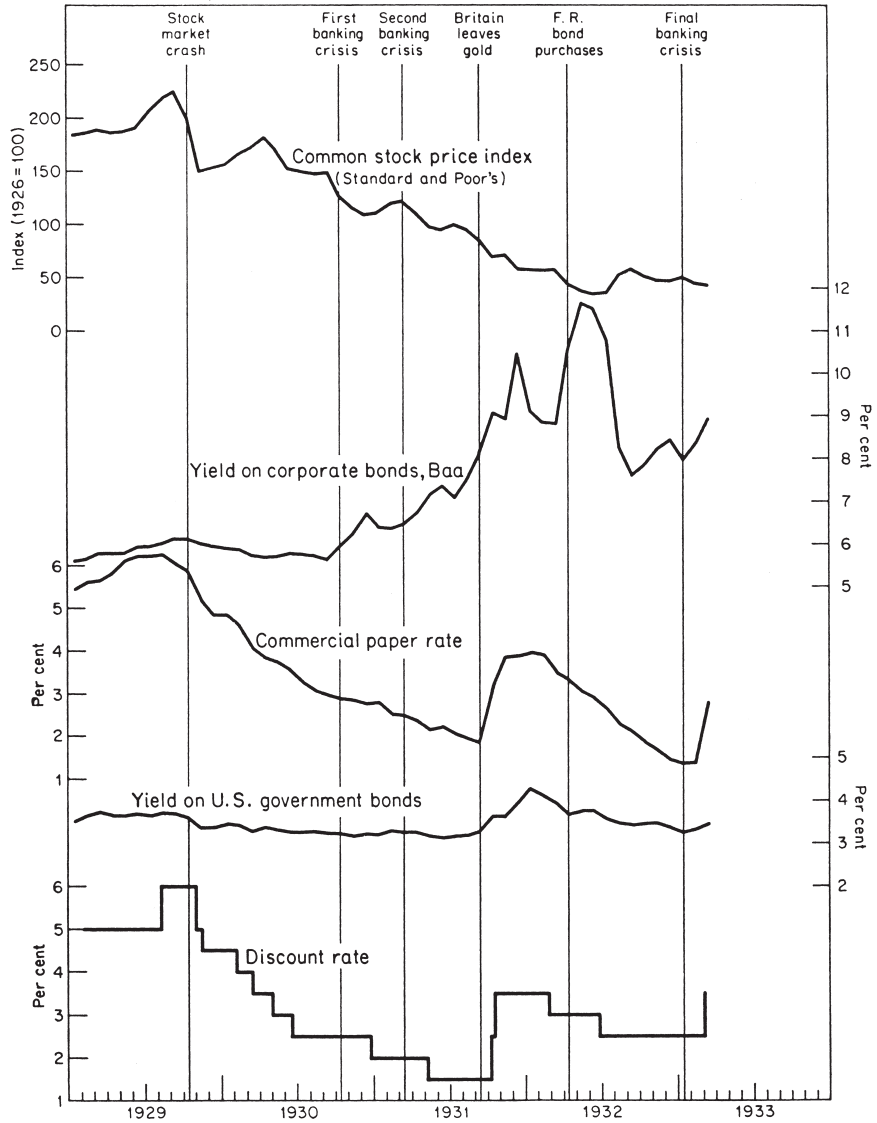
FIGURE 3
Prices, Personal Income, and Industrial Production, Monthly,
1929–March 1933



SOURCE: Industrial production, same as for Figure 1. Wholesale price index, same as for Chart 62. Personal income, *Business Cycle Indicators* (Princeton for NBER, G. H. Moore, ed., 1961), Vol. II, p. 139.

It is clear that the course of the contraction was far from uniform. The vertical lines mark off segments into which we have divided the period for further discussion. Although the dividing lines chosen designate monetary events—the focus of our special interest—Figures 3 and 4

FIGURE 4
Common Stock Prices, Interest Yields, and Discount Rates of Federal Reserve
Bank of New York, Monthly, 1929–March 1933



SOURCE: Common stock price index, Standard and Poor's, as published in *Common-Stock Indexes, 1871–1937* (Cowles Commission for Research in Economics, Bloomington, Ind., Principia Press, 1938), p. 67. Discount rates, *Banking and Monetary Statistics*, p. 441. Other data, same as for Chart 35.

demonstrate that the resulting chronology serves about equally well to demarcate distinctive behavior of the other economic magnitudes.

The Stock Market Crash, October 1929

The first date marked is October 1929, the month in which the bull market crashed. Though stock prices had reached their peak on September 7, when Standard and Poor's composite price index of 90 common stocks stood at 254, the decline in the following four weeks was orderly and produced no panic. In fact, after falling to 228 on October 4, the index rose to 245 on October 10. The decline thereafter degenerated into a panic on October 23. The next day, blocks of securities were dumped on the market and nearly 13 million shares were traded. On October 29, when the index fell to 162, nearly 16½ million shares were traded, compared to the daily average during September of little more than 4 million shares.⁴ The stock market crash is reflected in the sharp wiggle in the money series, entirely a result of a corresponding wiggle in demand deposits, which, in turn, reflects primarily an increase in loans to brokers and dealers in securities by New York City banks in response to a drastic reduction of those loans by others.⁵ The

⁴As in pre-Federal Reserve times, J. P. Morgan and Company assumed leadership of an effort to restore an orderly market by organizing a pool of funds for lending on the call market and for purchase of securities. But the bankers' pool did not stem the tide of selling. By the second week after the crash the phase of organized support of the market was over.

⁵During the two weeks before the panic on Oct. 23, loans to brokers for the account of others by reporting member banks in New York City declined by \$120 million, largely as a result of withdrawals of funds by foreigners. From then to the end of the year, those loans declined by

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adjustment was orderly, thanks largely to prompt and effective action by the New York Federal Reserve Bank in providing additional reserves to the New York banks through open market purchases (see section 2, below). In particular, the crash left no mark on currency held by the public. Its direct financial effect was confined to the stock market and did not arouse any distrust of banks by their depositors.

The stock market crash coincided with a stepping up of the rate of economic decline. During the two months from the cyclical peak in August 1929 to the crash, production, wholesale prices, and personal income fell at annual rates of 20 per cent, 7½ per cent, and 5 per cent,

\$2,300 million, or by no less than 60 per cent. Loans on account of out-of-town banks fell an additional \$1 billion. More comprehensive figures show a decline of roughly \$4.5 billion in brokers' loans by out-of-town banks and others from Oct. 4 to Dec. 31, and a more than halving of total brokers' loans.

For the data on New York City weekly reporting member bank loans to brokers and dealers in securities, see *Banking and Monetary Statistics*, Board of Governors of the Federal Reserve System, 1943, Table 141, p. 499, and, for quarterly estimates of the total of such loans by all lenders, see *ibid.*, Table 139, p. 494. Although both tables show similar captions for the principal groups of lenders—most of whose funds were placed for them by the New York banks—except for loans by New York City banks for their own accounts, the breakdowns are not comparable. In the weekly series, “out-of-town domestic banks” include member and nonmember banks outside New York City and, to an unknown amount, customers of those banks, whereas in the comprehensive series that category is restricted to member banks outside New York City. Similarly, “others” in the weekly series cover mainly corporations and foreign banking agencies, but in the comprehensive series include also other brokers, individuals, and nonmember banks.

For loans except to brokers and dealers by New York City weekly reporting member banks, which also increased in the week after the crash, see *ibid.*, p. 174. Also see the discussion of that episode in sect. 2, below.

respectively. In the next twelve months, all three series fell at appreciably higher rates: 27 per cent, 13 ½ per cent, and 17 per cent, respectively. All told, by October 1930, production had fallen 26 per cent, prices, 14 per cent, and personal income, 16 per cent. The trend of the money stock changed from horizontal to mildly downward. Interest rates, generally rising until October 1929, began to fall. Even if the contraction had come to an end in late 1930 or early 1931, as it might have done in the absence of the monetary collapse that was to ensue, it would have ranked as one of the more severe contractions on record.

Partly, no doubt, the stock market crash was a symptom of the underlying forces making for a severe contraction in economic activity. But partly also, its occurrence must have helped to deepen the contraction. It changed the atmosphere within which businessmen and others were making their plans, and spread uncertainty where dazzling hopes of a new era had prevailed. It is commonly believed that it reduced the willingness of both consumers and business enterprises to spend;⁶ or, more precisely, that it decreased the amount they desired to spend on goods and services at any given levels of interest rates, prices, and income, which has, as its counterpart, that it increased the amount they wanted to add to their money balances. Such effects on desired flows were presumably accompanied by a corresponding effect on desired balance sheets, namely, a shift away from stocks and toward

⁶See A. H. Hansen, *Economic Stabilization in an Unbalanced World*, Harcourt, Brace, 1932, pp. 111–112; J. A. Schumpeter, *Business Cycles*, McGraw-Hill, 1939, Vol. II, pp. 679–680; R. A. Gordon, *Business Fluctuations*, Harper, 1952, pp. 377–379, 388; J. K. Galbraith, *The Great Crash, 1929*, Boston, Houghton Mifflin, 1955, pp. 191–192. See also Federal Reserve Board, *Annual Report* for 1929, p. 12.

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bonds, away from securities of all kinds and toward money holdings.

The sharp decline in velocity—by 13 per cent from 1929 to 1930—and the turnaround in interest rates are consistent with this interpretation though by no means conclusive, since both declines represent fairly typical cyclical reactions. We have seen that velocity usually declines during contraction, and the more so, the sharper the contraction. For example, velocity declined by 10 per cent from 1907 to 1908, by 13 per cent from 1913 to 1914, and by 15 per cent from 1920 to 1921—though it should be noted that the banking panic in 1907, the outbreak of war in 1914, and the commodity price collapse in 1920 may well have had the same kind of effect on the demand for money as the stock market crash in 1929 had. In contraction years that were both milder and unmarked by such events—1910–11, 1923–24, and 1926–27—velocity declined by only 4 to 5 per cent. It seems likely that at least part of the much sharper declines in velocity in the other years was a consequence of the special events listed, rather than simply a reflection of unusually sharp declines in money income produced by other forces. If so, the stock market crash made the decline in income sharper than it otherwise would have been. Certainly, the coincidence in timing of the stock market crash and of the change in the severity of the contraction supports that view.

Whatever its magnitude, the downward pressure on income produced by the effects of the stock market crash on expectations and willingness to spend—effects that can all be summarized in an independent decline in velocity—was strongly reinforced by the behavior of the stock of money. Compared to the collapse in the next two years, the decline in the stock of money up to October 1930

seems mild. Viewed in a longer perspective, it was sizable indeed. From the cyclical peak in August 1929—to avoid the sharp wiggle in the stock of money produced by the immediate effects of the stock market crash—the money stock declined 2.6 per cent to October 1930, a larger decline than during the whole of all but four preceding reference cycle contractions—1873–79, 1893–94,⁷ 1907–08, and 1920–21—and all the exceptions are contractions that were extraordinarily severe by other indications as well. The decline was also larger than in all succeeding reference cycle contractions, though only slightly larger than in 1937–38, the only later contraction comparable in severity to the earlier ones listed.

The decline in the stock of money is especially notable because it took place in a monetary and banking environment that was in other respects free of marked difficulties. There was no sign of any distrust of banks on the part of depositors, or of fear of such distrust on the part of banks. As Figure 2 shows, currency held by the public declined by a larger percentage than deposits—8 per cent compared with 2 per cent—though the reverse relation had been an invariable accompaniment of earlier banking crises. Similarly, the banks made no special effort to strengthen their own liquidity position. Excess reserves—for which no estimates are available before 1929—remained negligible. As we shall see in more detail in the next section, the

⁷Since only June estimates of the money stock are available for those years, the decline was measured from June 1892 to June 1894 rather than from Jan. 1893 to June 1894, the monthly reference dates.

In view of the 5.4 per cent decline in the money stock from Jan. 1867 to Jan. 1868—the earliest dates for which we have estimates—another possible exception is the reference contraction from Apr. 1865 to Dec. 1867.

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decline in the stock of money up to October 1930 reflected entirely a decline in Federal Reserve credit outstanding which more than offset a rise in the gold stock and a slight shift by the public from currency to deposits.

Onset of First Banking Crisis, October 1930

In October 1930, the monetary character of the contraction changed dramatically—a change reflected in Figure 5 by the extraordinary rise in the deposits of suspended banks. Before October 1930, deposits of suspended banks had been somewhat higher than during most of 1929 but not out of line with experience during the preceding decade. In November 1930, they were more than double the highest value recorded since the start of monthly data in 1921. A crop of bank failures, particularly in Missouri, Indiana, Illinois, Iowa, Arkansas, and North Carolina, led to widespread attempts to convert demand and time deposits into currency, and also, to a much lesser extent, into postal savings deposits.⁸ A contagion of fear spread among depositors, starting from the agricultural areas, which had experienced the heaviest impact of bank failures in the twenties. But such contagion knows no geographical limits. The failure of 256 banks with \$180 million of deposits in November 1930 was followed by the failure of 352 with over \$370 million of deposits in December (all figures seasonally unadjusted), the most dramatic being the failure on December 11 of the Bank of

⁸The growth of postal savings deposits from 1929 to 1933 is one measure of the spread of distrust of banks. In Nov. 1914 postal savings deposits were \$57 million. By Aug. 1929 they had grown by only \$100 million. By Oct. 1930 they were \$190 million; from then to Mar. 1933 they increased to \$1.1 billion.

United States with over \$200 million of deposits.⁹ That failure was of especial importance. The Bank of United States was the largest commercial bank, as measured by volume of

⁹ *Annual Report of Superintendent of Banks*, State of New York, Part I, Dec. 31, 1930, p. 46.

For two and a half months before its closing, Joseph A. Broderick, New York State Superintendent of Banks, had sponsored various merger plans—some virtually to the point of consummation—which would have saved the bank. Governor Harrison devised the final reorganization plan, the success of which seemed so sure that, two days before the bank closed, the Federal Reserve Bank had issued a statement naming proposed directors for the merger. The plan would have become operative had not the Clearing House banks at the last moment withdrawn from the arrangement whereby they would have subscribed \$30 million in new capital funds to the reorganized institution. Under Harrison's plan, the Bank of United States would have merged with Manufacturers Trust, Public National, and International Trust—a group of banks that had a majority of stockholders and directors of the same ethnic origin and social and financial background as most of the stockholders and directors of the Bank of United States—with J. Herber Case, chairman of the board and Federal Reserve agent of the New York Bank, as head. The decision of the Clearing House banks not to save the Bank of United States was reached at a meeting held at the New York Bank and was not changed despite personal appeals by Broderick and New York State Lieutenant Governor Herbert H. Lehman. Broderick, after waiting in an anteroom for hours despite repeated requests to be allowed to join the bankers in their conference room, was finally admitted through the intercession of Thomas W. Lamont, of J. P. Morgan and Company, and Owen D. Young, a director of the New York Federal Reserve Bank. Broderick's account of his statement of the bankers follows in part:

I said it [the Bank of United States] had thousands of borrowers, that it financed small merchants, especially Jewish merchants, and that its closing might and probably would result in widespread bankruptcy among those it served. I warned that its closing would result in the closing of at least 10 other banks in the city and that it might even affect the savings banks. The influence of the closing might even extend outside the city, I told them.

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deposits, ever to have failed up to that time in U.S. history. Moreover, though an ordinary commercial bank, its name had led many at home and abroad to regard it somehow as an official bank, hence its failure constituted more of a blow to confidence than would have been administered by the fall of a bank with a less distinctive name. In addition,

I reminded them that only two or three weeks before they had rescued two of the largest private bankers of the city and had willingly put up the money needed. I recalled that only seven or eight years before that they had come to the aid of one of the biggest trust companies in New York, putting up many times the sum needed to save the Bank of United States but only after some of their heads had been knocked together.

I asked them if their decision to drop the plan was still final. They told me it was. Then I warned them that they were making the most colossal mistake in the banking history of New York.

Broderick's warning failed to impress Jackson Reynolds, president of the First National Bank and of the Clearing House Association, who informed Broderick that the effect of the closing would be only "local."

It was not the actual collapse of the reorganization plan but runs on several of the bank's branches, which had started on Dec. 9 and which he believed would become increasingly serious, that led Broderick to order the closing of the bank to conserve its assets. At a meeting with the directors after leaving the conference with the bankers, Broderick recalled that he said: "I considered the bank solvent as a going concern and . . . I was at a loss to understand the attitude of askance which the Clearing House banks had adopted toward the real estate holdings of the Bank of United States. I told them I thought it was because none of the other banks had ever been interested in this field and therefore knew nothing of it." Until that time, he said he never had proper reason to close the bank.

Broderick did succeed in persuading the conference of bankers to approve immediately the pending applications for membership in the Clearing House of two of the banks in the proposed merger, so that they would have the full resources of the Clearing House when the next day he announced the closing of the Bank of United States. As a result, the two banks, which like the Bank of United States had been affected by runs, did not succumb.

it was a member of the Federal Reserve System. The withdrawal of support by the Clearing House banks from the concerted measures sponsored by the Federal Reserve Bank of New York to save the bank—measures of a kind the banking community had often taken in similar circumstances in the past—was a serious blow to the System’s prestige (see section 3, below).

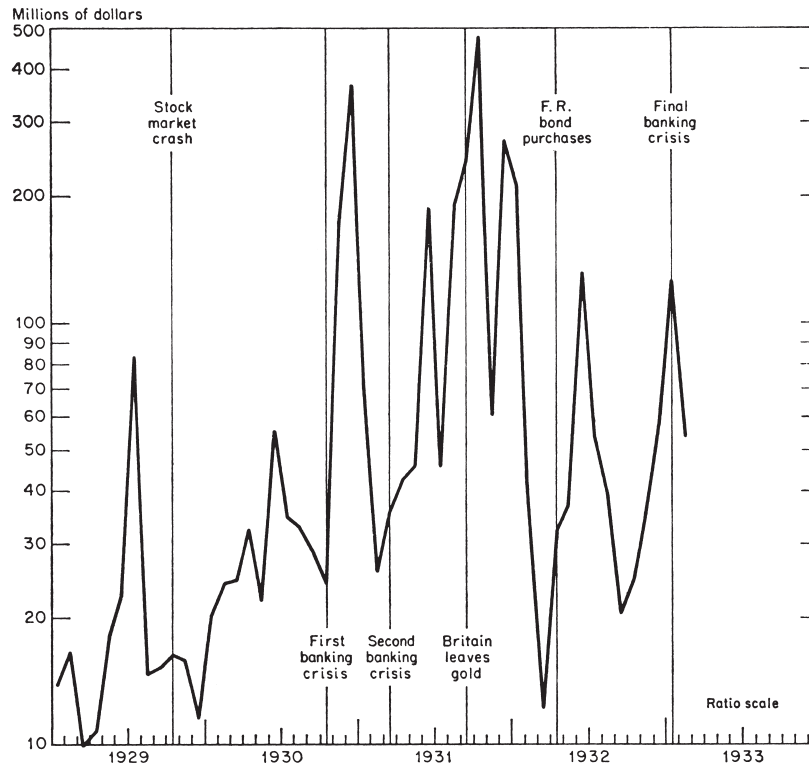
The change in the character of the contraction is reflected clearly in Figure 2. Currency held by the public stopped declining and started to rise, so that deposits and currency began to move in opposite directions, as in earlier banking crises. Banks reacted as they always had under such circumstances, each seeking to strengthen its own liquidity position. Despite the withdrawal of deposits, which worked to deplete reserves, there was a small increase in seasonally adjusted reserves, so the ratio of deposits to bank reserves declined sharply from October 1930 to January 1931.

We have already expressed the view (pp. 167–168) that under the pre-Federal Reserve banking system, the final months of 1930 would probably have seen a restriction, of the kind that occurred in 1907, of convertibility of deposits into currency. By cutting the vicious circle set in train by the search for liquidity, restriction would almost certainly have prevented the subsequent waves of bank failures that were destined to come in 1931, 1932, and 1933, just as restriction in 1893 and 1907 had quickly ended bank

The details of the effort to save the bank were revealed in the second of two trials of Broderick upon his indictment by a New York County grand jury for alleged neglect of duty in failing to close the bank before he did. The first proceedings ended in a mistrial in Feb. 1932. Broderick was acquitted on May 28. See *Commercial and Financial Chronicle*, May 21, 1932, pp. 3744–3745 for the quotations; also June 4, 1932, p. 4087, for Harrison’s testimony.

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FIGURE 5
Deposits of Suspended Commercial Banks, Monthly, 1929–February 1933



SOURCE: Data from *Federal Reserve Bulletin*, Sept. 1937, p. 909, were adjusted for seasonal variations by the monthly mean method, applied 1921–33.

suspensions arising primarily from lack of liquidity. Indeed, under such circumstances, the Bank of United States itself might have been able to reopen, as the Knickerbocker Trust Company did in 1908. After all, the Bank of United States ultimately paid off 83.5 per cent of its adjusted liabilities at its closing on December 11, 1930, despite its having to liquidate so large a fraction of its assets during

the extraordinarily difficult financial conditions that prevailed during the next two years.¹⁰

As it was, the existence of the Reserve System prevented concerted restriction, both directly and indirectly: directly, by reducing the concern of stronger banks, which had in the past typically taken the lead in such a concerted move, since the System provided them with an escape mechanism in the form of discounting; and indirectly, by supporting the general assumption that such a move was made unnecessary by the establishment of the System. The private moves taken to shore up the banking system were therefore extremely limited.¹¹ The result was that the episode, instead of being the climactic phase of the banking difficulties, was only the first of a series of liquidity crises that was to characterize the rest of the contraction and was not to terminate until the banking holiday of March 1933.

The initial crisis did not last long. Bank failures declined sharply in early 1931, and the banks' scramble for liquidity came to a halt. There was a marked rise in the ratio of deposits to reserves from January 1931 to March 1931, the terminal month of the segment we have been discussing and the month of the onset of the second banking crisis. In January and February, the public slackened its demand

¹⁰ *Annual Report of Superintendent of Banks*, State of New York, Part 1, 1931–45, Schedule E in each report. Four-fifths of the total recovered by depositors and other creditors was paid out within two years of the bank's closing.

¹¹ In some communities financial reconstruction was attempted by arrangements for a strong bank to merge with a weakened bank or, if several weakened banks were involved, by establishing a new institution with additional capital to take over the liabilities of the failing banks, the stockholders of which took a loss (F. Cyril James, *The Growth of Chicago Banks*, New York, Harper, 1938, Vol. II, pp. 994–995).

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for additional currency; demand and time deposits, after declining in January, rose a trifle in February and held nearly constant in March.

Interest rates show clearly the effects of the banking crisis. Until September 1930, the month before the first banking crisis, both long- and short-term interest rates had been declining, and so had the yields on corporate Baa bonds. Synchronous with the first crisis, a widening differential began to emerge between yields on lower-grade corporate bonds and on government bonds. The yields on corporate bonds rose sharply, the yields on government bonds continued to fall. The reason is clear. In their search for liquidity, banks and others were inclined first to dispose of their lower-grade bonds; the very desire for liquidity made government bonds ever more desirable as secondary reserves; hence the yield on lower-grade securities rose, which is to say, their prices fell, while the yields on government bonds fell. The decline in bond prices itself contributed, as we shall see in more detail later, to the subsequent banking crises. It made banks more fearful of holding bonds and so fostered declines in prices. By reducing the market value of the bond portfolios of banks, declines in bond prices in turn reduced the margin of capital as evaluated by bank examiners, and in this way contributed to subsequent bank failures.¹² The end of the

¹²According to a memorandum, dated Dec. 19, 1930, prepared for the executive committee of the Open Market Policy Conference, banks “dumped securities to make their positions more liquid,” thus increasing the pressure on the bond market. Weak bond prices in turn produced “a substantial depreciation in the investment portfolios of many banks, in some cases causing an impairment of capital.” In addition, the bond market was almost completely closed to new issues (George L. Harrison Papers on the Federal Reserve System, Columbia University Library,

first banking crisis was registered in a sharp improvement in the bond market after the turn of the year; the onset of the next crisis, in renewed deterioration.

The onset of the first liquidity crisis left no clear imprint on the broad economic series shown in Figure 3. However, after the turn of the year, there were signs of improvement in those indicators of economic activity—no doubt partly cause and partly effect of the contemporaneous minor improvement in the monetary area. Industrial production rose from January to April. Factory employment, seasonally adjusted, which had fallen uninterruptedly since August 1929, continued to fall but at a much reduced rate: in all but one month from August 1929 to February 1931, the decline was equal to or greater than the total decline in the three months from February to May 1931. Other indicators of physical activity tell a similar story. Personal income rose sharply, by 6 per cent from February to April 1931, but this is a misleading index since the rise was produced largely by government distributions to veterans.¹³ All in all, the figures for the first four or five months of 1931, if examined without reference to what actually followed, have many of the earmarks of the bottom of a cycle and the beginning of revival.

Perhaps if those tentative stirrings of revival had been reinforced by a vigorous expansion in the stock of money, they could have been converted into sustained recovery. But that was not to be. The effects of returning confidence

Harrison, *Open Market*, Vol. I, Dec. 19, 1930; for a full description of the Papers, see Chap. 5, footnote 41 and the accompanying text).

¹³U.S. advances to veterans of World War I of up to 50 per cent of the face value of their adjusted service certificates were made possible by legislation of Feb. 27, 1931. These loans totaled \$796 million in the first four months after the enactment.

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on the part of the public and the banks, which made for monetary expansion by raising the ratios of deposits to currency and to reserves, were largely offset by a reduction in Federal Reserve credit outstanding (see section 5, below). Consequently, the total stock of money was less than 1 per cent higher in March than in January 1931, and lower in March than it had been in December 1930. In March, a second banking crisis started a renewed decline in the stock of money and at an accelerated rate. A month or two later, a renewed decline started in economic activity in general, and the hope of revival that season was ended.

Onset of Second Banking Crisis, March 1931

As Figure 5 shows, deposits of suspended banks began to rise in March, reaching a high point in June. From March on, the public resumed converting deposits into currency, and from April on, banks started strengthening their reserve position, liquidating available assets in order to meet both the public's demand for currency and their own desire for liquidity. Excess reserves, which in January 1931 had for the first time since 1929, when data become available, reached the \$100 million level and had then declined as confidence was restored, again rose, reaching a level of \$125–\$130 million in June and July.¹⁴ Once bitten, twice shy, both depositors and bankers were bound to react more vigorously to any new eruption of bank failures or banking difficulties than they did in the final months of 1930.

Events abroad still further intensified the financial weakness—a feedback effect, since the events were themselves largely a response to the prior severe economic and

¹⁴ *Banking and Monetary Statistics*, p. 371.

monetary decline in the United States which reduced markets for both goods and services and for foreign securities. The failure in May 1931 of the Kreditanstalt, Austria's largest private bank, had repercussions that spread throughout the continent. It was followed by the closing of banks in Germany on July 14 and 15, as well as in other countries, and the freezing of British short-term assets in Germany. A one-year intergovernmental debt moratorium, and a "standstill agreement" among commercial banks not to press for repayment of short-term international credits, both proposed by President Hoover and agreed to in July,¹⁵ gave the countries involved only temporary relief, as did strict control of foreign exchanges by Germany and borrowing by Britain in France and the United States.

These events had mixed effects on the monetary situation in the United States. On the one hand, they stimulated a flight of capital to the United States, which added to the already swollen gold stock. On the other hand, U.S. commercial banks held a large amount of short-term obligations of foreign banks which were now frozen. Furthermore, financial panic is no respecter of national frontiers. The failure of world-famous financial institutions and the widespread closing of banks in a great country could not but render depositors throughout the world uneasy and enhance the desire of bankers everywhere to strengthen their positions.

The downward pressure on the money stock arising from attempts by depositors to convert deposits into currency and by banks to add to their reserves relative to their liabilities was offset to some extent by the gold inflow from

¹⁵ Herbert Hoover, *Memoirs, The Great Depression, 1929–1941*, Macmillan, 1952, pp. 61–80.

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abroad. But this was the only offset. Federal Reserve credit outstanding showed only its usual seasonal movements, though minor open market purchases were undertaken, June–August, to ease the market (see section 5, below). In all, from February to mid-August, there was no net change in Federal Reserve credit outstanding, despite an unprecedented liquidation of the commercial banking system.

The result was that the second banking crisis had far more severe effects on the stock of money than the first. In the six months from February to August 1931, commercial bank deposits fell by \$2.7 billion or nearly 7 per cent, more than in the whole eighteen-month period from the cyclical peak in August 1929 to February 1931. In the seven months from February to September 1931, commercial bank deposits fell by 9 per cent, one percentage point more than the maximum decline in deposits during the whole of the 1920–21 contraction. Currency in the hands of the public increased, absorbing the increase in gold and the decline in reserves, so that the total stock of money fell by a smaller percentage than deposits did. Even so, it fell by nearly 5½ per cent from February to August 1931, or at a rate of 11 per cent per year.

The effects of the banking crisis on interest rates show up clearly in the renewed and far more drastic rise in yields on lower-grade corporate bonds, as banks sought to realize on their portfolios and in the process forced bond prices ever lower. By that time, too, the economic contraction had seriously impaired the earning power of many concerns and sharply raised the chances of default. Yields on long-term government bonds continued to fall and reached extraordinarily low levels in mid-1931; so the yield differential rose as a result of a movement in both low- and high-grade securities. One reason, already cited, was that

the very desire for liquidity served to enhance the value of government securities. Another was that those securities could be used as collateral for loans from Federal Reserve Banks, hence the decline in Federal Reserve discount rates served to make them more attractive as a secondary reserve. Yields on commercial paper also fell, keeping nearly a stable relation to discount rates.

Britain's Departure from Gold, September 1931

The climax of the foreign difficulties came on September 21, when, after runs on sterling precipitated by France and the Netherlands, Britain abandoned the gold standard.¹⁶ Anticipating similar action on the part of the United States, central banks and private holders in a number of

¹⁶Some 25 other countries followed Britain's lead within the following year. The currencies of about a dozen—the sterling area within which British financial and economic influence remained dominant—moved in general conformity with sterling.

Because of the weakness in sterling immediately after the departure from gold, there was no internal relaxation of orthodox financial standards for several months: Britain balanced her budget and repaid foreign credits; Bank rate went up to 6 per cent on the date of suspension and was not reduced until February 1932, when it was changed to 5 per cent. From that point on, defense of sterling was in general no longer considered necessary; instead, control was substituted to prevent a rise in sterling exchange that, it was feared, would eliminate the stimulus a low rate was expected to give to British exports. Imports were restricted by a new protective tariff passed in February. Accompanying the protective tariff policy was a cheap money policy, adopted originally to facilitate refunding wartime issues at lower rates. An expansion in bank credit began in the second quarter of 1932; the trough of the British business contraction was reached in August 1932, according to NBER reference cycle chronology.

