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Federal Reserve Bank of Cleveland

Open and Operating: Providing Liquidity to Avoid a Crisis

by Bruce Champ

When the Twin Towers of the World Trade Center collapsed as a result of the terrorist attacks of September 11, 2001, much of the financial infrastructure of Lower Manhattan was badly damaged. Communications and computer systems were destroyed or heavily impaired. Sites important to the payments operations of numerous banks had to be evacuated. Air transportation, a key player in the payments system because it delivers checks, was grounded.

These disruptions kept some banks from sending payments, and, at the other end of the payments chain, greatly increased the demand for liquidity at those financial institutions that were not able to receive payments. Despite all of these problems, there was no sense of anything that looked like a financial panic or banking crisis. No bank runs occurred. Individuals had no problems cashing checks or withdrawing money from banks.

It wasn't always like this. In the past, our nation's financial system did not fare so well during periods of unusually high liquidity demand. Before the Federal Reserve System was established, financial crises had far-reaching and longer-lasting effects. To understand how bad the economic repercussions of liquidity crunches used to be, this *Commentary* examines the banking crises that occurred during one of the times when the United States had no central bank—an era referred to as the national banking period (1863–1913). Although the Fed is not the only institutional difference between now and then, looking at these earlier crises might help us appreciate how the Fed was able to avert a financial crisis on 9/11, when the heart of the nation's financial infrastructure was attacked.

■ An Anatomy of Banking Crises

"The month of August will long remain memorable as one of the most remarkable in our industrial history. Never before has there been such a sudden and striking cessation of industrial activity…. The complete unsettlement of confidence and the derangement of our financial machinery, which made it almost impossible to obtain loans or sell domestic exchange and which put money to a premium over checks, had the effect of stopping the wheels of industry…"

— *Commercial and Financial Chronicle,* September 17, 1893, reporting on the effects of the crisis of 1893

When bank customers attempt, en masse, to convert their deposits into cash at a large number of banks more or less simultaneously, economists call it a banking crisis. During the national banking period, the most severe banking crises occurred roughly every 10 years, in 1873, 1884, 1893, and 1907. Once a banking crisis got going, several things typically happened. First, bank reserves were depleted rapidly. Banks refused to make payments in cash, partially or completely. Firms had difficulty making their payrolls, and long-distance trade was interrupted. Local substitutes for cash sprang up, such as scrip. (Scrip was a local medium of exchange, typically redeemable in goods or services provided by the issuer.) Interest rates went through the roof, and currency premia were charged (more than a dollar's worth of deposits traded for a dollar's worth of currency).

The terrorist attacks of 9/11 triggered a staggering increase in demand for U.S. dollars all over the world, a demand which threatened to disrupt the American payments system but was met swiftly and successfully by the Federal Reserve. Earlier in the nation's history, the system didn't respond so well to severe shocks. This *Commentary* describes financial crises that occurred during one period in which the country had no central bank.

The crises of the national banking period happened during predictable liquidity crunches that occurred in the fall and spring. The U.S economy in the mid-1800s was based primarily on agriculture, and the needs of the agricultural sector dominated the demands placed on the banking system. Each spring, farmers required cash and loans to buy equipment and supplies for the planting season. In the fall, demand for liquidity also was high as farmers moved crops to market. Due to the long-distance nature of these transactions and the limited communication of the period, cash was typically demanded in payment.

But cash at these times was hard to come by. The National Banking Act had been passed to provide an "elastic currency," one that expanded with the seasonal demand for liquidity and contracted when the demand subsided. The act allowed national banks to issue banknotes backed 100 percent by eligible U.S. government bonds. Congress hoped that national banks would issue notes as necessary to supply the elasticity

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required by the seasonal fluctuations in liquidity demand. However, in this sense, the system failed. There was little variation in aggregate bank-note issuance across the seasons.

Compounding the problem was the way banks' cash reserves were stored. During periods of low money demand, too many reserves wound up concentrated in just one city because of "pyramiding of reserves." Banks in the interior of the country were allowed by law to hold a fraction of their reserves in banks located in cities designated as "reserve cities." Reserve city banks then could ship their excess funds to banks in cities designated as "*central* reserve cities." Ultimately, a significant percentage of reserves accumulated in New York City, where in 1907 only six banks held 75 percent of interbank deposits. When currency demand was high in the interior because of spring planting or crop moving in the fall, interior banks withdrew their interbank deposits. The resulting contraction of reserves forced New York banks to call in loans, leading to high interest rates in money markets.

At these seasonally recurring times of great currency demand, the banking system was under much stress, and any additional shock easily led the public to perceive instability in the system. The undermining of confidence periodically resulted in bank runs. Some banks needed infusions of reserves at these times, which they didn't get. But the evidence suggests that the banking system held sufficient reserves at the beginning of each of the period's crises. The problem was that reserves were not in the right place at the right time. Electronic transfers of funds between banks, of course, did not exist. Reserves needed to be physically transferred by the relatively slow transportation system of the period. The practice of holding reserves in a faraway bank made it difficult to obtain adequate reserves in a bank at the time of a run. The system provided no efficient means of redistributing reserves to the locations where they were most needed.

■ The Crisis of 1907

For an example of an additional pressure that the banking system might have to withstand, we can look to the crisis of 1907. The extra pressure began, in this case, with several trust companies, which had grown substantially from 1890 to the early 1900s. They held large volumes of deposits in commercial banks in New York City. Beginning in October 1907, during the fall crop-moving period, a number of the largest trusts experienced runs by depositors. The Knickerbocker Trust Company, the third-largest trust company in New York, was the first to experience problems on account of concerns about the quality of its balance sheet. This was followed by a run on the second-largest trust company.

New York banks were confronted not only with the normal seasonal withdrawals but also with withdrawals from the trust companies. Country banks, aware of difficulties obtaining currency during previous crises, reacted strongly in 1907 by quickly pulling funds from New York City banks. New York City banks began to restrict cash payments made to depositors.

Quickly, trepidation spread to other parts of the country. After New York City banks restricted payments, countrywide restrictions soon followed, with some states officially sanctioning the restrictions.

Restrictions on cash payments—which remained in effect until January 1908—took various forms, from limiting withdrawals to a certain amount to the total suspension of payments. While suspending payments preserved precious liquidity and bought banks time to acquire reserves or liquidate assets so they could eventually meet depositor withdrawals, the suspensions had consequences that spilled over into the economy as a whole.

One consequence was the difficulty firms faced in securing cash to make payrolls. Some firms had to lay off workers or cease operations for a period of time. Sometimes alternative forms of payment, such as company-issued scrip, partially overcame these difficulties. However, these alternative forms circulated only locally and did not facilitate long-distance transactions, which typically required cash. Railroads, for example, required cash to transport farmers' crops to market.

A short, but very severe, contraction accompanied the crisis, with real output falling around 11 percent from 1907 to 1908. According to economists Milton Friedman and Anna Schwartz in their *Monetary History of the United States*, the contraction, which began in May 1907, became more severe with the onset of the banking crisis in October. They claim that "there can be little doubt that the banking panic served to intensify and deepen the contraction."

Besides the collapse of the trust companies, two other factors helped to cause the 1907 crisis. One was a delay in implementing a mechanism that usually worked to provide some relief to banks in times of a liquidity crunch, the clearinghouse loan certificate. The certificates were issued by members of the New York Clearinghouse Association to settle interbank balances. Basically, they were a form of interbank loan between members of the clearinghouse. The certificates helped banks maintain liquidity by substituting for cash in settling balances at the clearinghouse. Clearinghouse loan certificates had the effect of making the reserves of all clearinghouse banks available to any threatened bank. However, during the crisis of 1907, clearinghouse loan certificates were issued too late to help many banks.

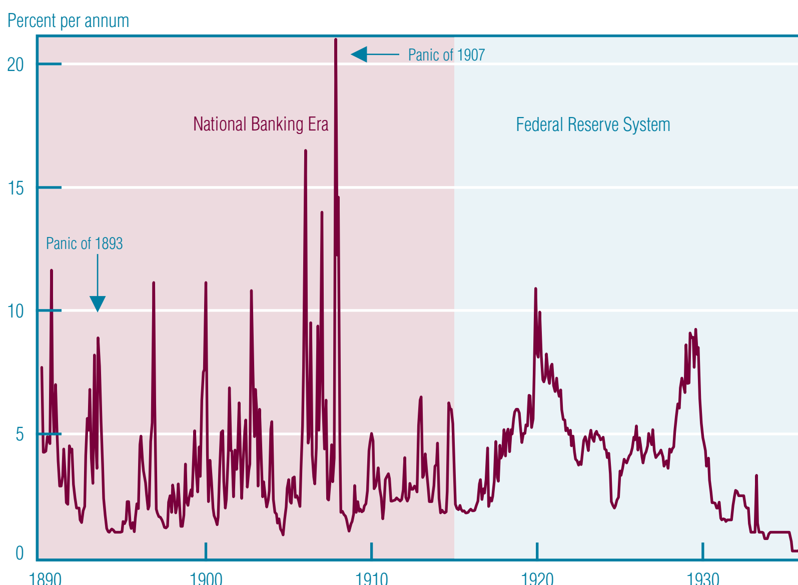
A renowned economic historian, O.M.W. Sprague, claims that the management committee of the clearinghouse delayed issuing the certificates because the members thought—erroneously, according to Sprague—that issuing them would cause banks to suspend payments. They believed this because in earlier panics certificate issuance had preceded payments suspension. Sprague asserts that if the clearinghouse had not delayed issuing its certificates, the 1907 crisis could have been averted.

Another contributing factor to the 1907 panic was speculative activity. During previous crises, currency had sold at a premium relative to deposits. In 1907, depositors, anticipating a recurrence of this phenomenon, withdrew their currency for speculative reasons. And, in fact, during the 1907 crisis, the currency premium ran as high as 4 percent.

■ Cries for Reform

After the crisis of 1907, Congress formed the National Monetary Commission and directed it to study possible reforms to the banking system. The commission's report criticized the national banking system and recommended its major overhaul as well as the creation of a central bank. Their suggestions ultimately resulted in the passage of the Federal Reserve Act, which was signed into law by President Woodrow Wilson in December 1913.

FIGURE 1 CALL LOAN RATES IN NEW YORK CITY



SOURCES: *Statistics for the United States, 1867–1909*, Government Printing Office, 1910; and Board of Governors of the Federal Reserve.

To compensate for the weaknesses of the national banking system, the Federal Reserve System was designed specifically to provide a currency that would expand and contract as necessary—"a more elastic currency," in the words of the Federal Reserve Act. The means by which the Federal Reserve was to provide the extra currency was by serving as a lender of last resort. The idea was that when commercial banks had exhausted all other possibilities, they could turn to the Federal Reserve for additional liquidity. The Federal Reserve would loan reserves to the banks, who would use their commercial paper (promissory notes of firms) as collateral. A commercial bank could come to the Fed's discount window with commercial paper, and the Fed would grant a loan to the bank by discounting the commercial paper. The loan would take the form of Federal Reserve notes (or equivalently, deposits at the Fed).

These loans were intended to provide a reliable source of reserves to the banking system. Although the operation of the discount window has changed significantly from this original conception, its purpose remains much the same today—an ultimate source of liquidity for the banking system. Subsequent legislation extended Fed powers to include open market operations, another means of providing reserves and liquidity to the banking system.

The extreme volatility in bank reserves seen during the national banking period diminished significantly after the founding of the Fed. Furthermore, as is evident in figure 1, the strong seasonality of interest rates observed during the national banking era diminished markedly with the Fed's founding. By providing a readily available source of reserves during periods of high liquidity demand, the Fed smoothed interest rates.

■ The Fed's Response after 9/11

When people think of how the Federal Reserve helps to keep the economy and the financial system working well, keeping inflation under wraps is likely to spring to mind before "providing liquidity." But the specter of the post-attack economic havoc that 9/11 could have caused—but didn't—can teach us how important the provision of liquidity can be in a time of crisis.

The initial impact of the terrorist attacks on the financial system is reminiscent of the beginnings of crises during the late 1800s and early 1900s. On September 11 and the following days, the system encountered a significant shock to the demand for liquidity. The disruptions in communications and transportation associated with the attacks conjure up the limited communications and transportation capabilities of the national banking era. However, one major difference is that during this modern crisis, an ultimate provider of liquidity to the financial system existed.

The Federal Reserve System reacted quickly to the events of September 11, releasing the following statement at 10 a.m.: "The Federal Reserve System is open and operating. The discount window is available to meet liquidity needs."

The provision of liquidity in the days following September 11 was unprecedented in Federal Reserve history. On September 12, discount window borrowing by financial institutions peaked at over $45 billion, relative to around $100 *million* on a typical day. On the same day, the Trading Desk of the Federal Reserve Bank of New York injected $38 billion in liquidity through open market operations, compared to a typical daily action of $3.5 billion. The Federal Reserve also extended swap lines with the European Central Bank, the Bank of England, and the Bank of Canada in an attempt to provide liquidity to international markets. In an intermeeting action on September 17, the Federal Open Market Committee lowered the federal funds rate 50 basis points to 3 percent. Its press release emphasized the Fed's intent to "continue to supply unusually large volumes of liquidity to financial markets" and that as a result, "the actual federal funds rate may be below its target on occasion." In fact, the effective rate remained below the target rate for six days, reaching a low of 1.19 percent on September 19.

This strong reaction by the Federal Reserve is deeply rooted in our nation's history. The crises of the late 1800s and early 1900s taught our nation important lessons about the consequences of a banking system hampered in its ability to provide liquidity when it is most needed.

■ Recommended Reading

O.M.W. Sprague. *History of Crises under the National Banking System*. Washington, D.C.: Government Printing Office, 1910.

Milton Friedman and Anna Schwartz. *A Monetary History of the United States, 1867–1960*. Princeton, N.J.: Princeton University Press, 1963.

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