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# Banking Crises and the Federal Reserve as a Lender of Last Resort during the Great Depression

Gary Richardson\*

My research focuses on banking crises in the Great Depression, the structural flaws in the financial system that propagated the crises, the Federal Reserve's efforts to act as a lender of last resort, and the factors that shaped how policymakers responded to the crisis. Research on these issues involves gathering documents from the archives of the Federal Reserve System as well as collecting information from state regulators and private firms.

My emphasis on institutions and data stems from a desire to identify the causes of the crises and the effects of a lender of last resort. These events and policies were, obviously, endogenous, making it difficult and at times impossible to clearly identify cause and effect. Identification is complicated because the factors that facilitate identification in financial theory consist of information—like the beliefs and expectations of economic agents and policymakers—that is difficult (and often impossible) to observe in practice and that exists in few of the records remaining from the 1930s.

## Structural Weakness in the Commercial Banking System before the Great Depression

The NBER dates the onset of the Great Depression to August 1929. In the fall of 1930, 15 months after the onset of the contraction, the economy appeared

poised for recovery. The previous three contractions, in 1920, 1923, and 1926, had lasted an average of 15 months. In November 1930, however, a series of crises among commercial banks turned what up to that time had been a typical recession into the longest and deepest contraction of the twentieth century.

When the crises began, over 8,000 commercial banks belonged to the Federal Reserve System, but nearly 16,000 did not. Those non-member banks operated in an environment similar to that which existed before the Federal Reserve was established in 1914. That environment harbored the causes of the banking crises.

One cause was the practice of counting checks in the process of collection as part of banks' cash reserves. These "floating" checks were counted in the reserves of two banks, the one in which the check was deposited and the one on which the check was drawn, and in many cases additional banks through which the check flowed while clearing. In reality, however, the cash resided in only one bank. Bankers at the time referred to the reserves comprised of float as fictitious reserves. The quantity of fictitious reserves rose throughout the 1920s and peaked just before the financial crisis in 1930. Estimates vary, but in the fall of 1930, fictitious reserves probably accounted for more than half and possibly up to four-fifths of all reserves in non-member banks. This meant that the banking system as a whole had a limited amount of cash reserves available for emergencies.<sup>1</sup>

Another challenge was the inability to mobilize bank reserves in times of crisis. Non-member banks kept a portion of their reserves as cash in their

vaults and the bulk of their reserves as deposits in correspondent banks in designated cities. Many, but not all, of the ultimate correspondents belonged to the Federal Reserve System. This reserve pyramid limited country banks' access to reserves during times of crisis. When a bank needed cash, because its customers were panicking and withdrawing funds *en masse*, the bank had to turn to its correspondent, which might be faced with requests from many banks simultaneously, or might be beset by depositor runs itself. The correspondent bank also might not have the funds on hand because its reserves consisted of checks in the mail, rather than cash in its vault. If so, the correspondent would, in turn, have to request reserves from another correspondent bank. That bank, in turn, might not have reserves available or might not respond to the request.<sup>2</sup>

It should be noted that these flaws had been apparent to the founders of the Federal Reserve. Paul Warburg wrote about them even before the financial crisis in 1907. The National Monetary Commission described them in its series of reports. The initial leaders of the Federal Reserve System discussed them in their writings and explained how the structure of the Federal Reserve and the actions of its leaders solved these problems for member banks. But—here is a key part of the story—the Federal Reserve solved these problems only for member banks. For this reason, Warburg urged all commercial banks to join the Federal Reserve System. At the start of the depression, what the Federal Reserve could and should do for non-member banks remained an open question.

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## The Initial Banking Crisis and a Policy Experiment

These flaws in the financial system engendered the initial banking crisis of the Great Depression. This crisis began with the collapse of Caldwell and Company. Caldwell was a rapidly expanding conglomerate and the largest financial holding company in the South. It provided its clients with an array of services—including banking, brokerage, and insurance—through an expanding chain and a series of overlapping directorates controlled by its parent corporation headquartered in Nashville, Tennessee. The parent got into trouble when its leaders invested too heavily in securities markets and lost substantial sums when stock prices declined. In order to cover their own losses, the leaders drained cash from the corporations that they controlled.

On November 7, one of Caldwell's principal subsidiaries, the Bank of Tennessee (Nashville) closed its doors. On November 12 and 17, Caldwell affiliates in Knoxville, Tennessee, and Louisville, Kentucky, also failed. The failures of these institutions triggered a correspondent cascade that forced scores of commercial banks to suspend operations. In communities where these banks closed, depositors panicked and withdrew funds from other banks. Panic spread from town to town. Within a few weeks, hundreds of banks suspended operations. About a third of these banks reopened within a few months, but the majority liquidated.

Panic began to subside in early December. But on December 11, the fourth largest bank in New York City, Bank of United States, ceased operations. The bank had been negotiating to merge with another institution. The New York Fed had helped with the search for a merger partner. When negotiations broke down, depositors rushed to withdraw funds, and New York's Superintendent of Banking closed the institution. This event, like the collapse of Caldwell, generated newspaper headlines throughout the United States, stoking fears of financial Armageddon and inducing jittery depositors to withdraw funds from other banks.

The Federal Reserve's reaction to this crisis varied across districts. The crisis began in the Sixth District, headquartered in Atlanta. The leaders of the Federal Reserve Bank of Atlanta believed that their responsibility as a lender of last resort extended to the broader banking system. The Atlanta Fed expedited discount lending to member banks, encouraged member banks to extend loans to their non-member correspondents, and rushed funds to cities and towns beset by banking panics.

The crisis also hit the Eighth District, headquartered in St. Louis. The leaders of the Federal Reserve Bank of St. Louis had a narrower view of their responsibilities and refused to rediscount loans for the purpose of accommodating non-member banks. During the crisis, the St. Louis Fed limited discount lending and refused to assist non-member institutions.

Outcomes differed between the districts. After the crisis, in the Sixth District, the economic contraction slowed and recovery began. In the Eighth District, the banking system lay in shambles. Lending declined. Business faltered and unemployment rose.

I examine these events in a paper that estimates the effect of the intervention by the Federal Reserve Bank of Atlanta relative to the inaction of the Federal Reserve Bank of St. Louis.<sup>3</sup> To control for the factors that typically impede inference in such situations, we restrict our analysis to the state of Mississippi. The southern half of Mississippi belonged to the Atlanta District. The northern half belonged to the St. Louis District. None of the banks in Mississippi had connections to the Caldwell conglomerate, so the banking crisis in the state stemmed almost entirely from the panic and runs that spread throughout the region in the wake of Caldwell's collapse. An array of statistical tests (including non-parametric survival analysis and more common parametric regressions) demonstrate that during the panic in the Atlanta District, banks failed at much lower rates, and after the crisis, banks loaned larger amounts of funds, and output and employment were higher than in the St. Louis District. A

variety of robustness checks corroborate this claim.

To further examine the impact of Atlanta's lender-of-last resort policies, two co-authors and I exploit exogenous variation in banking conditions across Florida in 1929 to assess the effect of the Atlanta Fed's policies during the last banking crisis before the onset of the contraction. This crisis involved an infestation of Mediterranean fruit flies in the spring and summer of 1929. In the summer of 1929, the state and federal government began eradicating infested groves and embargoing shipments of crops from infested regions. Congress recessed without determining whether to compensate farmers for their losses. Within two weeks, runs began on the correspondent banks in Tampa which served as a hub of the financial network in central Florida. The Atlanta Fed intervened by rushing large quantities of cash to the afflicted institutions, stopping the panic in its tracks, and resuscitating the financial system.<sup>4</sup>

## Banking Crises in 1931 through 1933

Much of my research focuses on the initial banking crises of the Great Depression, because the structure of institutions and events enables plausible identification of cause and effect at that time. The banking crises continued, however, for two and a half years, and my research examines that period as well.

From 1931 to 1933, the US banking system experienced a series of regional crises as well as two national crises. The first national crisis coincided with the financial crisis in Europe and peaked after Britain's departure from the gold standard in the fall of 1931. The second national crisis began in the winter of 1933 and ended when Roosevelt declared a national banking holiday.

In one paper, I reassess a perennial debate concerning the causes of the banking crises during the Great Depression. One school argues that illiquidity forced most banks out of business, and therefore, an aggressive lender of last resort may have mitigated the crisis. Another

school argues that insolvency forced most banks out of business. These failures occurred, in other words, because the banks invested funds in assets that failed to pay back. Returns to investments fell because the industrial economy contracted. “Fundamental” investment losses drove banks out of business. In this case, a lender of last resort could not have ameliorated the crisis. Government assistance of financial institutions might have worsened the problem by enabling zombie banks to remain in operation and shifting losses from private investors to the public sector.

To address this debate, I examine a database on the causes of bank suspensions compiled by the Federal Reserve Board.<sup>5</sup> It indicates bank examiners’ conclusions concerning the causes of failure for almost all commercial banks operating in the United States at that time. The data demonstrate that both illiquidity and insolvency were substantial sources of bank distress. Periods when large numbers of banks failed were periods of intense illiquidity. Illiquidity and contagion via correspondent networks was particularly intense during the initial banking panic in the fall of 1930 and the last banking panic in the winter of 1933. As the depression deepened, asset values declined, and the Reconstruction Finance Corporation increasingly served as a lender of last resort, insolvency loomed as the principal threat to depository institutions.

In a series of three papers, I examine the transmission of the financial crisis from Europe to the United States in the summer and fall of 1931. The transmission might have occurred by directly affecting financial institutions in the United States, particularly the banks in New York, which had sizeable investments in and deposits from Europe. To determine the magnitude of this channel, my co-authors and I compare the performance of banks with substantial exposure to European deposits and debts with those with little or no exposure to European risks.<sup>6</sup> We demonstrate that the banks with European exposure did not change their behavior during or after the European crisis. In fact, the banks with

European exposure—which tended to be the largest money-center banks in the United States—performed significantly better by almost all measures than banks without European exposure.

Why? New York’s money-center banks predicted financial turmoil in Europe at least two years prior to the event. Recognizing their vulnerability to a trans-Atlantic crisis and realizing that they had to rely on their own efforts to survive the shock, these banks accumulated reserves and capital in preparation for the event. When the crisis came, they wrote down their reserves and both deliberately and collectively continued lending as usual.

Another paper examines a related question: why did bank failures in New York City, at the center of the U.S. money market, peak in July and August 1931, when the banking crisis peaked in Germany and before Britain abandoned the gold standard?<sup>7</sup> The chronological correlation suggests that a connection existed between events in New York and on the continent. Our research initially sought this connection. Instead, we found the correlation to be coincidental. Rather than the exposure to events overseas, bank distress rose in New York because of intensified regulatory scrutiny, which was a delayed reaction to the failure of the Bank of United States. In the summer of 1931, New York’s legislature held hearings regarding the performance of the Superintendent of Banking, whom they accused of lack of vigilance. Before and during the hearings, the bank superintendent directed a wave of examinations of banks in New York City and shut down a series of institutions that failed to pass muster.

A final essay examines the transmission of financial shocks from the periphery to the center of the financial system in the United States. In 1929, nearly all interbank deposits held by Federal Reserve member banks belonged to “shadowy” non-member banks which were outside the regulatory reach of federal regulators. Regional banking panics in the early 1930s drained these interbank deposits from central reserve city

banks of Chicago and New York. Money-center banks responded to the increasing volatility and declining quantity of interbank deposits by changing the composition of their balance sheets. They reduced lending to businesses and individuals, and increased their holdings of cash and government bonds.<sup>8</sup> This interbank channel accounted for a substantial share of the decline in lending during the contraction of the 1930s.

## What Have We Learned?

The financial crisis of 2008 and its aftermath highlight the importance of studying infrequent economic cataclysms. These events seldom occur, but when they do, economic agents and policymakers need to be prepared, because in a short span of time, they must make decisions that have tremendous impact on the lives of ordinary men and women and on the future of the world economy.

By studying the late 1920s and early 1930s, we learn that prosperous economies can have healthy financial systems that harbor hidden flaws. The depth of the structural problems may not be apparent during the boom years. Detecting them may be difficult even for scholars studying events after the fact. The structural flaws that I study are a case in point. Scholars studying the Depression after World War II attributed the weakness of the financial system to an institutional change that they believed had occurred around the time of the Federal Reserve Act.<sup>9</sup> In the nineteenth and early twentieth centuries, the principal defense mechanism for banks beset by runs was the suspension of the conversion of deposits to currency. Suspension of convertibility enabled banks to preserve their assets by strictly enforcing the contracts that depositors signed when they opened accounts. While the suspension of convertibility during crises before the founding of the Federal Reserve is widely recognized, leading scholars asserted that because of regulations associated with the founding of the Federal Reserve, banks could not suspend payments during the Great Depression. My research



drawing on records of the Division of Bank Operations of the Federal Reserve Board finds that during the early 1930s, banks could and frequently did suspend payments to depositors.<sup>10</sup> In the 1920s, the Division of Bank Operations established a nationwide reporting network that gathered information—including examiners' reports—on all bank suspensions, liquidations, and mergers.<sup>11</sup> This data clearly illuminates problems relating to reserves (which I described earlier) as the principal propagators of the commercial banking crises in 1930 and 1933 and a contributor to the financial crises that occurred in the interim.

We also learn that policymakers can take actions to mitigate a financial crisis. When a correspondent cascade knocks banks down like dominoes, rushing liquidity to nodes in the network can stop the chain reaction. The Atlanta Fed took this approach during crises in Florida in 1929 and Tennessee and Mississippi in 1930. Their efforts mitigated the panic and encouraged economic recovery.

<sup>1</sup> G. Richardson, "The Check is in the Mail: Correspondent Clearing and the Collapse of the Banking System, 1930 to 1933," *Journal of Economic History*, 67(3) (2007), pp. 643–71 (also issued as "Correspondent Clearing and the Banking Panics of the Great Depression," NBER Working Paper No. 12716, December 2006.)

<sup>2</sup> K. Mitchener and G. Richardson, "Shadowy Banks and Financial Contagion during the Great Depression: A Retrospective on Friedman and Schwartz," *American Economic Review*, 103 (May 2013), pp. 73–8.

<sup>3</sup> G. Richardson and W. Troost, "Monetary Intervention Mitigated Banking Panics During the Great Depression: Quasi-Experimental Evidence from the Federal Reserve District Border in Mississippi, 1929 to 1933," *Journal of Political Economy* 117 (2009), pp. 1031–76 (also NBER Working Paper No. 12591, October 2006).

<sup>4</sup> M. Carlson, K. Mitchener, and G. Richardson, "Arresting Banking Panics: Fed Liquidity Provision and the Forgotten Panic of 1929," *Journal of Political Economy* 119 (2011), pp. 888–924 (also NBER Working Paper No. 16460, October 2010.)

<sup>5</sup> G. Richardson, "Bank Distress during the Great Depression: The Illiquidity-Insolvency Debate Revisited," *Explorations in Economic History* 44 (2007), pp. 586–607. (also NBER Working Paper No. 12717, December 2006.)

<sup>6</sup> G. Richardson and P. Van Horn, "When the Music Stopped: Transatlantic Contagion During the Financial Crisis of 1931," NBER Working Paper No. 17437, September 2011, and G. Richardson and P. Van Horn, "Fetters of Debt, Deposit, or Gold during the Great Depression? The International Propagation of the Banking Crisis of 1931," *Jahrbuch für*

*Wirtschaftsgeschichte*, 52 (2011), pp. 29–54 (also NBER Working Paper No. 12983, March 2007.)

<sup>7</sup> G. Richardson and P. Van Horn, "Intensified Regulatory Scrutiny and Bank Distress in New York City during the Great Depression," *Journal of Economic History* 69 (2009), pp. 446–65 (also NBER Working Paper No. 14120, June 2008.)

<sup>8</sup> K. Mitchener and G. Richardson, 2013, *op cit*.

<sup>9</sup> M. Friedman and A. Schwartz. *A Monetary History of the United States, 1867–1960*. Princeton: Princeton University Press, 1963, and B. Bernanke, "Nonmonetary Effects of the Financial Crisis in the Propagation of the Great Depression," *American Economic Review*, 73 (1983), pp. 257–76.

<sup>10</sup> G. Richardson, "Quarterly Data on the Categories and Causes of Bank Distress during the Great Depression," *Research in Economic History* 25 (2008) pp. 37–115 (also NBER Working Paper No. 12715, December 2006.)

<sup>11</sup> G. Richardson, "Bank Distress during the Great Contraction, 1929 to 1933, New Data from the Archives of the Board of Governors," NBER Working Paper No. 12590, October 2006. I found this data in the National Archives. Milton Friedman read the draft of this paper and told me that he and Anna Schwartz had looked for this data long ago, but could not find it, and then listed the questions that I should try to answer with the information.