Bank Stocks and the Great Depression

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Abstract

We examine the performance of bank stocks during the Great Depression. Little is known about the stock returns of financial intermediaries during the great slump because they traded over-the-counter. We employ a new bank stock database compiled by Global Financial Data (GFD) using the *Commercial and Financial Chronicle*, a well-known financial publication from the period. The new data show that the banking sector accounted for almost **_19%_** of all publicly traded stocks in the United States before the Great Crash. The GFD Bank stock index increased more than 600% during the Great Bull market of the 1920s and declined 87% during the bear market that began with the 1929 Crash. We then examine bank stock indices for the 12 Federal Reserve Districts. We find that bank stock returns predict economic activity which is consistent with the hypothesis that banking problems played an important role in the propagation of the Great Depression. Furthermore, we find that shocks to the money supply were generally important for pricing bank stocks.

KEYWORDS: Great Depression, banks, stock markets, Great Crash
JEL CLASSIFICATION: E30, N12

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I. Introduction

Financial economists have argued that the collapse of the banking system played an important role in the duration and severity of the Great Depression (Anderson et al., 2018; Calomiris, 1999; Calomiris and Mason, 1997, 2003; Benmelech et al., 2018; Friedman and Schwartz, 1963). Indeed, a simple google search of the words Great Depression, United States, and banks yields more than 39 million hits. In a classic study, Bernanke (1983) argued that the 7,000 bank failures between 1929 and 1933 were an important propagating mechanism of the severe economic downturn. Firms were credit-constrained and often unable to undertake profitable business opportunities because of the large number of bank failures. The fall in bank lending led to a decrease in investment through the financial accelerator which reduced GDP.

Despite the banking sector's importance for business-cycle fluctuations during the Great Depression, surprisingly little is known about the performance of bank stocks in this period. One possible explanation is that the market capitalization of bank stocks was not very large compared to other publicly-traded sectors. This was not the case. The financial sector was the largest publicly traded sector on US financial markets before the Great Crash with a market capitalization of $17 billion, representing almost *__19%__* of all publicly-traded stocks in the United States. The National City Bank of New York (later renamed CitiCorp) was the sixth largest corporation in the United States, with a market capitalization of $1.28 billion, making it larger than the New York Central Railroad, Mobil or Sears, Roebuck and Co. The Financial Sector represented between 16% and 19% of total market capitalization in

the United States between 1920 and 1932, then fell to the 11% to 12% range between 1933 and 1940.

Rather, the small literature on bank stocks during the Great Depression can probably be explained by the fact that most financial intermediaries traded over-the-counter (OTC) and were not listed on the NYSE or the major regional stock exchanges (Calomiris and Wilson, 2004). Indeed, Gandhi and Lustig (2010) argue, for example, that there were not enough banks listed in CRSP to study the banking sector and government guarantees before the 1970s. We fill this gap in the literature by using data from Global Financial Data (GFD) which has collected data on thousands of banks that traded over-the-counter. Using this data set, we have constructed and analyzed a comprehensive monthly bank stock index from 1920 through 1939 using monthly price data from Global Financial Data.

The empirical analysis of bank stock establishes several stylized facts about the performance of financial intermediaries during the Great Depression. The findings also contribute to the literature on the impact of monetary policy on asset prices (Lagos and Zhang, 2018; Bordo and Wheelock, 2004). First, we find that the GFD bank stock index rose from a value of 100 in January 1920 to a peak value of 709.73 in September 1929. We attribute the large rise in bank stock prices to financial innovation and economic growth that increased the profits of financial intermediaries. The 609.73% increase in the bank stock index during the Great Bull market of the 1920s was subsequently followed by a steep decline that began a month

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before the 1929 Crash. The bank stock index fell more than 87% from September 1929 to an index value of 89.37 in May 1932.

We next compare stock returns for the banking sector to 16 other sectors using the Fama–French methodology for constructing sector indices using SIC codes. We find that the banking sector had the third largest runup in the 1920s among the Fama-French 17 sectors. The subsequent decline in the bank stock index ranks as the fifth largest decline based on a sector peak to sector trough analysis.

Furthermore, we investigate the relationship between bank stocks and economic activity during the Great Depression. We use market-weighted bank stock indices calculated by GFD for the United States as well as the 12 Federal Reserve districts for the period 1920-1934 when the regional banks set their own discount rates. We find that bank stock returns forecast industrial production growth at the national level and retail sales growth at the Federal Reserve District level using standard regressions and an Arellano-Bond dynamic panel model. Furthermore, we find that bank stock returns predict economic activity measured by industrial production or retail sales in a simple two-variable vector autoregression. The results suggest that the banking sector played an important role in the duration and severity of the Great Depression.

We then estimate vector autoregressions (VARs) to analyze the impact of monetary policy on bank stock price indices for the 12 Federal Reserve Districts. The empirical analysis shows that monetary policy shocks as measured by district estimates of the money supply had an economically and statistically significant effect

on bank stock prices. Overall, we conclude that Federal Reserve monetary policies were an important factor in pricing bank stocks during the largest financial crisis in US history.

The remainder of the paper proceeds as follows. We first discuss the innovations in the bank sector in the 1910s and 1920. We then introduce the database of bank stocks from 1920-1940. This is followed by an empirical analysis of bank stock returns and the relationship between the stock returns of banks and the growth rate of retail sales. The last section conclusion with a discussion of the results.

II.   Innovations in Banking Services During the 1920s

The 1920s saw a transformation in the activities of banks in the United States. The establishment of the Federal Reserve in 1913, the stimulus to increase funding for the government during World War I and enhanced competition between banks, trusts and other financial intermediaries provided new profit-seeking opportunities for firms (Carlson and Mitchener, 2009). Banks, trusts and related financial intermediaries dramatically increased their profits and stock prices during the 1920s (White, 1990).

There were several significant changes in the laws and regulations affecting the banking sector between 1913 and 1925. With the passage of the Federal Reserve Act in 1913, Section 11 (k) granted national banks the right to exercise fiduciary

powers.   Congress added trust powers in 1918 by which time national banks had the same fiduciary powers as state banks or trusts.

During World War I, the government encouraged individuals to purchase war bonds through their banks. To meet this demand, banks set up bond departments which sold government debt obligations directly to bank customers. The sale of Liberty and Victory Bonds during World War I meant that banks were now directly involved in providing federal government bonds, municipal bonds and eventually corporate bonds to their customers. After World War I, banks had bond departments that sold bonds to their customers. The number of national banks engaged in the securities business grew from 72 in 1922 to 235 by 1929 (Peach, 1941).

National banks faced competition from trusts after World War I which offered a more complete range of financial services to their customers, enabling them to combine banking services with fiduciary powers. The expansion of fiduciary powers to national banks in 1918 allowed them to compete directly with trusts and expand the services they offered to customers. Typically, a national bank, such as the National City Bank of New York, would expand their operations by creating a trust subsidiary which they would divest to its shareholders through a stock distribution. Shareholders could then receive dividends through their ownership in both the parent bank and the subsidiary.

National Banks expanded their fiduciary powers through trust operations and their security dealings through their securities affiliates. Securities affiliates

were incorporated under general laws of incorporation and could engage in virtually any type of security transaction not governed by banking or trust laws. National banks carried out "incidental activities" such as foreign exchange trading, the safekeeping of securities and the offering of loans on the collateral of stocks, bonds and mortgages. All of these activities created new opportunities for banks to expand their activities and their customer base.

A good example of the expansion of a bank's activities through new fiduciary activities is provided by the National City Bank of New York (which changed its name to Citicorp in 1974 and merged with Travelers Group into Citigroup in 1998) and the First National Bank of the City of New York. The First National Bank of the City of New York created the First Security Co. and the National City Bank of New York created the National City Co. Securities affiliates could either be provided a pro rata interest in the affiliated company to its shareholders, the bank could invest in the affiliate, or the investment company could be owned by a holding company that also owned the bank. The first was the most common. The affiliates existed to acquire the stocks of banks and trust companies a national bank could not legally acquire. The banks provided ownership in these subsidiaries to shareholders who received dividends directly from the subsidiaries enhancing the value of those banks.

The McFadden Act of 1927 dealt with three important banking issues. First, the legislation granted the twelve Federal Reserve Banks perpetual charters, replacing their 20 year charters. The action was taken, in part, because the US

government failed to renew the twenty-year charter of the Second Bank of the United States. The McFadden Act also expanded branch banking. It permitted national banks to have branches to the extent that it was allowed by state law. This meant that national banks did not have to operate in just one building as they did in many states (Rajan and Ramcharan, 2015). States on the east and west coasts generally allowed branching while states in the interior of the United States were more likely to have unit banking. The legislation encouraged banks to acquire other banks and expand their services to a larger geographic area.

The McFadden Act formally conferred on banks the power to sell investment securities. It was only at the end of the 1920s that national banks began dealing directly in individual stocks. The National City Co. began this in 1927. By 1929, many banks in New York City underwrote, distributed and dealt in debt securities for their customers. Customers would purchase the bonds from their bank, deposit them in safe deposit boxes and redeem their coupons as they came due. Customers did not speculate in the bonds, but saw them as a source of higher returns than they could receive from leaving the money in their checking or saving account.

The 1920s also saw the creation of bank holding companies that held an interest in dozens of banks across state lines. The First National Stock Corp. of Minneapolis created the Northwest Bancorporation in 1929 to acquire the Northwestern National Bank of Minneapolis and a controlling interest in over 50 banks, trust companies and other financial institutions operating in the northwestern United States. Through its affiliate the First Securities Corp. the

Northwestern Bancorporation controlled about 100 banks, and the First Securities Corp. handled the securities business for all of them. The Northwest Bancorporation acquired Wells Fargo in 1998 in a reverse acquisition and changed its name to Wells Fargo & Co. making it one of the largest banks in the United States

By tying commercial and investment banking together, banks were able to successfully penetrate the securities business. The degree of their penetration is illustrated by the fact that the percentage of bond issues originated by national bank affiliates rose from 10.1% in 1927 to 17.8% in 1930 and for all banks from 22% in 1927 to 44.8% in 1930 (White, 1984).

By 1929, banks were no longer focused on taking deposits and lending money to customers, especially in money-center cities such as New York, Chicago and San Francisco. Because of changes in rules and regulations, national banks could create subsidiaries which were fully controlled by the parent bank which provided the same fiduciary activities that trust companies offered. Banks could deal in foreign exchange, buy and sell not only government bonds, but corporate bonds and individual equities for their depositors. Banks could issue new bonds and sell them directly to their customers. Because of the passage of the McFadden Act in 1927, banks found it beneficial to acquire other banks to increase the number of branches. Between 1913 and 1929, banks were able to expand their services to the point where they were able to offer virtually any financial activity to their customers.

When the crash came in 1929, banks were often blamed for the financial implosion that followed. The majority of banks that went bankrupt after 1929 were small banks located in the unit banking states of the middle of the United States, not in money-center cities such as New York where most of the banking expansion had taken place. The Glass-Steagall Act of 1933 allowed banks to keep their trust activities, but forced banks to choose between commercial and investment banking, even though investment banking was a natural outgrowth of their commercial banking activities. Because of the Great Depression and increased bank regulations in the 1930s, banks faced reduced profit opportunities and banks' share of total market capitalization in the United States failed to recover to the level of the 1920s.

III. Data

Data for the project was obtained from Global Financial Data's United States Stock Database. GFD collected the data from contemporary newspapers and magazines. Information on the price of bank stocks was obtained by GFD primarily from *The Commercial and Financial Chronicle*. In April 1895, *The Commercial and Financial Chronicle* began publishing a monthly supplement that included data on the stocks of hundreds of banks that were traded over-the-counter throughout the United States. *The Commercial and Financial Chronicle* had correspondents in each major city in the United States who collected data on the bid and ask price of over 1000 bank stocks each month. Correspondents sent their data to *The Commercial and Financial Chronicle* which published the data. For each bank, the *Chronicle* provided information on the bank's capital, surplus and profits, gross deposits, stock

par value, market bid and ask price. The monthly supplement was followed by *The Bank and Quotation Record* which began publishing in 1928 and continued publication until 1972. The number of banks covered by *The Commercial and Financial Chronicle* fluctuated as the number of banks rose and fell. *The Commercial and Financial Chronicle* covered 1186 banks in 1920, increased coverage to 1627 banks in 1925, declined to 557 banks in 1933 and rose to 709 banks in 1940.

Global Financial Data used *The Manual of Statistics* to obtain extensive data on banks from 1900 until 1922. *The Manual of Statistics* was published annually and provided information on when each bank was established, bank capital, bank surplus and undivided profits, par value of the stock, five years of dividends and the range of prices for each bank during the previous year.

GFD used Moody's and Poor's large volumes that provided even more extensive information on the banks that were publicly traded. Poor's expanded their annual railroad publication in 1926 to include information on banks and insurance companies which provided both current and historical data on hundreds of banks and insurance companies. The volume was retitled *Poor's Railroad and Bank Section.* Unfortunately, Poor's discontinued the inclusion of banks and insurance companies in 1930.

Moody Manual of Investments introduced a volume that focused on Banks, Insurance Companies, Investment Trusts, Real Estate, Finance and Credit Companies in 1928 with information on over 2000 banks and insurance companies. Each bank received a description of any changes in its corporate history, balance

sheet and income data, data on dividends since 1909, changes in the bank's capital from its inception until the date of publication, and information on the officers, directors and other individuals associated with the bank. By combining the information from the *Manual of Statistics* and the *Moody's Manual of Investments* Global Financial Data was able to obtain data on dividends and shares outstanding for each bank listed in *The Commercial and Financial Chronicle*.

Global Financial Data collected data on non-financial firms which was used to create the 17 French-Fama sector indices. Price data was obtained from *The Commercial and Financial Chronicle* Monthly Supplements from 1895 until 1928 and from the *Bank and Quotation Record* from 1928 until 1940. The monthly supplement to *The Commercial and Financial Chronicle* provided the closing price for each stock listed on the New York Stock Exchange and the bid and ask for stocks listed over the counter. *The Bank and Quotation Record* provided the closing monthly value for stocks from the New York Stock Exchange, a dozen regional exchanges as well as the bid and ask for over-the-counter stocks. GFD also obtained data on regional exchanges from the *Investor's Pocket Manual* which provided monthly data on all regional exchanges in the United States and Canada. Data on the dividends paid by each company as well as the shares outstanding was obtained by GFD from the *Moody's Manual of Investments*.

These resources provided Global Financial Data with information on about 2000 securities each month which were listed on the New York Stock Exchange, regional exchanges and stocks that traded over-the-counter. GFD assigned an SIC

code to each company and used the 17 French-Fama sectors to determine what were the 10 largest companies by market cap in January of each year from 1920 to 1939 to calculate 17 sector indices from 1920 to 1939.

Table 1 reports summary statistics for the banking sector from 1920-1939. The sector index is based on the market capitalization of the 10 largest bank stocks that traded on US financial markets from 1920-1939. The index was updated every January by GFD to adjust for changes in the composition of the largest banks in the United States. Table 1 shows that the banking sector increased by 0.69% from 1920-1939. Breaking down the inter-war sample period into the 1920s and post-Great Crash period produces some interest results. From January 1920 until September 1929, the bank stock index increased from a value of 100 to 706.9, an increase of 609.73%. Following the Great Crash, the bank stock index fell from a value of 609.73 to a low of 89.37% in May 1932. The large decline represents more than an 87% decrease in the bank stock index. Banks gradually recovered for the remainder of the sample period. The bank stock index value rose 75%, from a value of 89.37 in May 1932 to 156.8 in December 1939.

[TABLE 1 ABOUT HERE]

A similar story emerges if we look at arithmetic stock returns at the monthly frequency for the banking sector. Table 2 shows that the bank stock index increased an average of 0.47% per month over the sample period. For the Great Bull market period that ended in September 1929, the bank stock index rose 1.82% per month. Following the Great Crash, bank stocks lost 5.2% per month and bottomed out at an

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index value of 89.37 in May 1932, below its value in 1920. For the remainder of the sample period, the bank stock index increased an average of 0.66%.

[TABLE 2 ABOUT HERE]

We also look at the standard deviation of stock returns for the banking index to gain some insight into their risk profile. Stock volatility for financial intermediaries averaged 7.5% per month for the period 1920-1939. The monthly standard deviation of bank stock returns was 4.9% for the bull market runup of the 1920s and then increased to 10.7% during the bear market decline. Stock volatility then fell to 8.4% per month from the sector trough in May 1932 until the end of the sample in December 1939.

We then compare the baseline analysis of the bank stock index with the other 16 Fama-French sectors. **Figure 1** depicts the sector performance of the bull market during the 1920s. The figure shows that the banking sector had the third largest runup during the 1920s among the 17 Fama-French sectors. Utilities had the biggest increase with a 1,387% rise followed by the machinery stock index that rose almost 695%. With respect to the bear market, **Figure 2** shows that the banking sector had the 7th largest decline with a peak to trough fall of more than 87%. The steel (-93.4%), automobiles (-91.56%), transportation (-89.71%), durables (-90.32%), machinery (-88.5%), and chemicals (88.41%) sectors all had larger declines. Finally, the banking sector had the second smallest recovery of all the 17 Fama-French sectors with a 75.45% rise from May 1932 until December 1939. Only the utility sector had a smaller increase which measured about 75%.

We follow-up the baseline analysis by constructing stock price indices for small and large cap bank stocks. The 300 largest bank stocks in the Global Financial Database based on market capitalization were used to construct the small and large cap bank stock indices. The 30 largest bank stocks form the large cap index while the remaining bank stocks makeup the small cap index. The summary statistics for the small and large cap bank stocks are reported in Panels A and B of Table 3. Small cap stocks increased almost 66% during the bull market of 1920s, peaking in January 1929. The bank stock index then declined from a value of 165.93 in January 1929 to a low of 35.75 in December 1933. The fall is more than a 78% drop in small cap bank stocks. Equity returns for small cap banks then increased to an index value of 44.62 by the end of 1939. This represents a 24.74% increase in the small cap bank stock index. Panel B reports the standard deviation of stock returns for the bull and bear markets of the sample. The standard deviation of stock returns was 2.22% for the period 1920-1939. The measure of dispersion fell to .65% during the bull market of the 1920s only to rise to more than 2.74% following the Great Crash and the subsequent bear market. The standard deviation fell to 2.15% from the bottom of the bear market until the end of the sample period.

As for large cap bank stocks, they rose more than 272% between January 1920 and September 1929. From their peak value, the large cap bank stock price index fell 85% and bottomed out in November 1933. For the remainder of the sample, the large cap bank stocks increased 49.41% to a value of 82.82 in December 1939. With respect

to risk, the standard deviation of the large cap bank stock index for the entire sample period from 1920-1939 was 6.45%. During the bull market period, the measure of dispersion averaged 3.48%. The standard deviation of stock returns dramatically increased during the bear market, rising to 10.49%. The risk of large cap bank stocks then fell to an average of 5.83% from the trough to the end of the sample period in 1939 as the United States began to recover from the Great Depression period and prepare for World War II.

Geographically speaking, we also constructed capitalization weighted bank stock indices for each of the 12 Federal Reserve Districts. Table 4 reports bull and bear market summary statistics of bank stock return. **Figure 3** shows the bank stock indices for the 12 Federal Reserve Districts from 1924-1934. The data shows that bank stocks in the New York Federal Reserve District stand out relative to the other districts. Bank stocks in New York City increased nearly 800% during the bull market of the 1920s. San Francisco is second with a 584% increase. This is followed by bank stock indices that increased more than 200% in Boston, Philadelphia, Chicago, and Atlanta. The remaining bank indices rose less than 100% during the 1920s bull market runup. With respect to the bear market, the bank stock indices for New York, Chicago, and Atlanta each experienced more than a 90% decline. Boston, Philadelphia, and San Francisco decreased more than 80%. The bank stock indices for remaining Federal Reserve Districts fell between decreased 50 and 72%.

As for risk, we examine the standard deviation of stock returns for the 12 Federal Reserve Districts. Table 5 reports the data on realized stock volatility for the

bull and bear markets of the 1920s and 1930s. Again, the bank stocks in the New York Federal Reserve District stand out relative to the other Districts. The standard deviation of stock returns for New York banks averaged more than 10% per month for the entire sample period 1920-1939. Stock volatility rose to more than 13% during the bear market following the 1929 crash. Chicago was second with a standard deviation of 8.39% for the sample period. The measure of dispersion rose to more than 12% during the bear market. The volatility of bank stock returns for the Atlanta Fed district averaged 7.63%, rising to more than 13% following the Great Crash in 1929. The remaining bank stock indices had lower stock volatility, although the standard deviation for stock returns increased during the bear market based on a peak-to-trough analysis.

We then estimate the market betas by regressing the bank stock return for each of the 12 Federal Reserve Districts on a constant and the return on the S&P 500. The market betas for the 12 Federal Reserve Districts are reported in **Figure** 4 below. We can see that New York is by far the most cyclical district with a market beta of about .3. After New York, the most cyclical districts are San Francisco and Chicago. We also observe that Dallas and Kansas City are the least cyclical districts with betas close to 0.

[FIGURES 3 AND 4 ABOUT HERE]

IV. Bank Stock Returns and Economic Activity

Many scholars have made the argument that the banking sector played an important role in the severity and duration in the Great Depression. Bank failures and financial disintermediation meant that firms often did not have access to credit which reduced investment and economic activity. This suggests that bank stock returns forecast economic activity. We test this hypothesis using autoregressive models. We first run a national regression using industrial production growth as the dependent variable. Then we estimate an Arellano-Bond dynamic panel regression using the growth of retail sales at the Federal Reserve District level as the dependent variable. Three lags of bank stock returns are included in the models based on the BIC criteria to test the hypothesis that financial intermediaries predict industrial production growth as well as the growth of retail sales from 1924-1934. For the national regression, the three lags of bank stock returns are statistically significant at the 1% level. The sum of the coefficients for lags of industrial production growth were .482 while the sum of the coefficients for the bank index was .079. With respect to the Fed District specification, bank stock returns forecast the growth in retail sales and are a significant explanatory variable at the 1% level. The sum of the coefficients for lagged retail sales growth was -.819 compared to .322 for lagged bank stock returns.

Friedman and Schwartz (1963) argued that many banks were illiquid during the Great Depression. If the Fed had played the role of a lender-of-last resort, then fewer banks would have failed and the Great Depression would have been much

less severe. If liquidity problems in the banking sector played an important role in the Great Depression, then we might expect bank stocks to lead the real sector. Alternatively, if the real sector leads the banking sector, this might suggest that banks were struggling because of economic problems. We test this hypothesis by running a two-variable vector autoregression and conducting Granger-Causality tests. We find that there is bidirectional Granger-Causality between the bank stock returns and industrial production growth. The Granger-Causality was statistically significant at the five percent level. The relationship between the two variables appears to be endogenous which we address in the next section.

V. Bank Stock Prices and Monetary Policy

We estimate vector autoregressions (VARs) to analyze the impact of monetary policy on bank stock indices at each Federal Reserve district. Following Anari, Kolari, and Mason (2005), we include the variables ordered as follows: (1) the log of bank stock index; (2) the log of money supply, measured by the M1 monetary aggregate; (3) inflation, as measured by the wholesale price index; and (4) retail sales index, as a measure of economic activity at the Fed district-level. Our choice of Cholesky ordering follows the previous literature on monetary VARs (Anari, Kolari, and Mason (2005)) and our choice of 2 lags is based on the Bayesian Information Criterion (BIC).

The empirical results of the impulse response analysis are reported in **Figure 5**. The first row shows that a one-standard deviation shock to the money supply increased the bank stock index for Boston, New York, Philadelphia, and Cleveland. An increase in the money supply did not increase the price of bank stocks in the New York District, however. Additional analysis of the second row indicated that an increase in the money supply raised bank stock prices in the Richmond Federal Reserve District. Money shocks did not have a statistically significant effect on bank stock prices in the Atlanta or the St. Louis Federal Reserve District. Bank stock prices in the Chicago Federal Reserve District decreased in response to a shock to the money supply. In the last row, we see that a one-standard deviation shock to the money shocks raised bank stock prices for Minneapolis, Kansas City, Dallas, and the San Francisco Federal Bank. Overall, we find that an increase in the money supply significantly raised bank stock prices for eight of the twelve Federal Reserve Districts.[1]

[FIGURE 5 ABOUT HERE]

We follow-up the analysis of money supply shocks by examining the impact of shocks to failed bank deposits on equity prices for financial intermediaries. Failed bank deposits are a measure of financial distress. The results appear in **Figure 6**. A one-standard deviation shock to failed bank deposits reduced the value of the bank

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[1] We find similar results estimating a national vector autoregression. A one-standard deviation shock to the money supply increases bank stock prices.

stock price indices for 9 out of the 12 Federal Reserve Districts. The effect was only statistically significant for the Kansas City Federal Reserve District.

VI. Conclusion

We examine the performance of bank stocks during the 1920s and the Great Depression. Global Financial Data constructed a new capitalized bank stock price index using data collected from the *Commercial and Financial Chronicle*, one of the leading sources of financial data during this period. We find that bank stocks had one of the largest bull markets runs of any sector during the 1920s; Once the 1929 crash came, the bank stock indices lost nearly 90% of their value.

We then examined the impact of an increase in the money supply on GFD's bank stock indices for the 12 Federal Reserve Districts using vector autoregressions. The empirical analysis shows that a shock to the money supply generally raised the prices of the bank stock indices. This was not true for New York banks, however. This may be explained by the fact that New York banks escaped the Great Depression unscathed compared to other regions of the United States. We also followed up the baseline empirical analysis by incorporating failed bank deposits into the vector autoregressions. The empirical exercise finds that a shock to failed bank deposits, a measure of credit stress, reduced the price indices for bank stocks. The effect was not statistically significant, however. Overall, our results show that the banking sector experienced one of the largest bull markets of any sector during the 1920s. The

finance sector's share of total market capitalization in the United States rose from 15% in 1919 to 18.7% in 1929 and declined to 12% in 1939. The banking sector subsequently declined by more than 87 %. In the future, we plan to explore the role of branch banking laws as a factor in explaining the behavior of bank stock prices.

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Table 1. Bull and Bear Market Stocks Returns for 17 Fama-French Sectors

Sector	Peak Sector Index Value (Jan 1920=100)	Date of Sector Peak Value	% Change (Jan 1920-Peak)	Trough Index Value	Date of Trough Index Value	% Change (Peak to Trough)	End of Sample Index Value (Dec. 1939)	% Change (Trough to End of Sample)
Utilities	1487.64	Jun 1929	1387.64%	219.10	May 1932	-85.27%	335.05	52.92%
Machinery	784.93	Aug 1929	684.93%	89.91	May 1932	-88.5%	398.61	343.34%
Banks	**709.73**	**Sep 1929**	**609.73%**	**89.37**	**May 1932**	**-87.41%**	**156.8**	**75.45%**
Retail	692.14	Aug 1929	592.14%	119.50	May 1932	-82.73%	330.52	176.59%
Other	607.3	Aug 1929	507.3%	141.99	Jun 1932	-76.62%	318.76	124.49%
Automobiles	556.50	Feb 1929	456.50%	46.95	Jun 1932	-91.56%	316.63	574.40%
Construction	473.69	Aug 1929	373.69%	78.64	May 1932	-83.40%	316.16	302.03%
Chemicals	465.66	Feb 1929	365.66%	53.97	Jun 1932	-88.41%	353.43	554.86%
Consumer	387.28	Aug 1929	287.28%	152.04	May 1932	-60.74%	356.88	134.73%
Food	372.16	Aug 1929	272.16%	94.75	Aug 1929	-74.54%	241.08	154.44%
Steel	347.76	Aug 1929	247.76%	22.95	Jun 1932	-93.4%	133.49	481.66%
Oil	321.35	Aug 1929	221.35%	58.92	May 1932	-81.66%	134.98	129.09%
Mining	319.34	Apr 1929	219.34%	52.038	May 1932	-84.01%	194.37	280.83%
Transportation	262.77	Aug 1929	162.77%	27.04	Jun 1932	-89.71%	83.92	210.36%
Durable	225.50	Sep 1929	125.50%	21.83	Jun 1932	-90.32%	83.72	283.56%
Clothes	208.92	May 1928	108.92%	64.84	Jul 1932	-68.96%	64.84	160.21%
Fabricated Products	186.51	Sep 1929	86.51%	30.53	Jun 1932	-83.63%	118.96	289.65%

Table 2. Arithmetic Bull and Bear Market Stocks Returns for 17 Fama-French Sectors

Sector	Average Returns 1920-1939	Standard Deviation 1920-1939	Average Return Bull Market (1920-Sector Peak)	Standard Deviation Bull Market (1920-Sector Peak	Average Return Bear Market (Sector Peak-Sector Trough)	Standard Deviation Bear Market (Sector Peak-Sector Trough)	Average Return (Sector Trough-December 1939)	Standard Deviation (Sector Trough-December 1939)
Utilities	0.90%	8.85%	2.58%	5.73%	-3.93%	12.15%	0.64%	10.36%
Machinery	0.97%	8.89%	1.91%	4.53%	-5.10%	12.36%	1.84%	10.94%
Banks	**0.47%**	**7.50%**	**1.82%**	**4.90%**	**-5.23%**	**10.68%**	**0.66%**	**8.38%**
Retail	0.83%	8.15%	1.87%	6.00%	-4.27%	10.31%	1.19%	9.37%
Other	0.67%	6.11%	1.60%	3.67%	-3.12%	9.26%	0.99%	6.72%
Automobiles	1.23%	12.62%	1.98%	9.08%	-4.99%	12.34%	3.02%	15.31%
Construction	0.83%	8.50%	1.44%	3.89%	-4.41%	10.08%	1.81%	11.36%
Chemicals	0.97%	9.40%	1.61%	6.13%	-4.22%	12.75%	2.49%	10.10%
Consumer	0.75%	6.65%	1.35%	5.71%	-1.67%	7.40%	0.94%	7.30%
Food	0.57%	6.39%	1.21%	3.60%	-3.29%	8.76%	1.24%	7.51%
Steel	0.80%	12.41%	1.22%	5.14%	-6.43%	11.76%	3.08%	17.29%
Oil	0.47%	8.37%	1.16%	5.41%	-3.91%	11.28%	1.22%	9.73%
Mining	0.52%	7.16%	1.16%	4.70%	-4.44%	6.93%	1.84%	8.73%
Transportation	0.35%	9.39%	0.89%	3.25%	-5.51%	9.71%	2.00%	12.99%
Durable	0.39%	9.78%	0.83%	5.09%	-6.02%	9.63%	2.16%	12.95%
Clothes	0.40%	6.17%	0.81%	3.95%	-2.15%	4.45%	1.21%	8.46%
Fabricated Products	0.48%	8.80%	0.82%	7.03%	-4.71%	9.43%	1.89%	9.87%

Table 3. Bull and Bear Market Stock Returns and Stock Volatility for Small and Large Cap Banks

Panel A.

Sector	Peak Index Value (Jan. 1920= 100)	Date of Peak Value	% Change (Jan 1920-Peak)	Trough Index Value	Date of Trough Index Value	% Change (Peak to Trough)	End of Sample Index Value (Dec. 1939)	% Change (Trough to End of Sample)
Small Cap	165.93	Jan. 1929	65.93%	36.77	Dec. 1933	-78.40%	44.62	24.74%
Large Cap	372.32	Sept. 1929	272.32%	55.43	Nov. 1933	-85.11%	82.82	49.41%

Panel B.

Sector	Standard Deviation 1920-1939	Standard Deviation Bull Market (1920-Sector Peak	Standard Deviation Bear Market (Sector Peak-Sector Trough)	Standard Deviation (Trough to End of Sample)
Small Cap	2.22%	0.65%	2.74%	2.15%
Large Cap	6.45%	3.48%	10.49%	5.83%

Table 4. Bull and Bear Market Stock Returns for Banks in the 12 Federal Reserve Districts

Fed District	Peak Index Value (Jan. 1920= 100)	Date of Peak Value	% Change (Jan 1920-Peak)	Trough Index Value	Date of Trough Index Value	% Change (Peak to Trough)	End of Sample Index Value (Dec. 1939)	% Change (Trough to End of Sample)
Boston	350.95	Aug. 1929	250.95%	58.44	Nov. 1934	-83.34%	103.33	76.81%
New York	897.50	Sept. 1929	797.5%	81.98	May 1932	-90.87%	131.57	60.49%
Phil.	309.22	March 1929	209.22%	60.51	Dec. 1933	-80.43%	93.57	54.64%
Cleve.	175.95	Dec. 1928	75.95%	70.63	Nov. 1934	-59.86%	86.18	22.02%
Rich.	207.10	Sept. 1929	107.10%	103.71	Nov. 1933	-49.92%	150.02	44.65%
Atlanta	325.55	April 1929	225.55%	11.98	Nov. 1933	-96.32%	23.31	94.57%
Chicago	348.24	Sept. 1929	248.24%	20.73	Nov. 1933	-94.05%	63.92	208.35%
St. Louis	170.82	Oct. 1929	70.82%	42.68	May 1938	-70.92%	52.27	22.47%
Minn.	175.94	Sept. 1929	75.94%	77.89	June 1932	-55.73%	140.27	80.09%
Kansas City	81.21*	April 1930	47.36%	25.58	Jan. 1934	-68.5%	55.97	118.8%
Dallas	158.66	July 1930	58.66%	44.15	Dec. 1933	-72.17%	111.07	151.57%
San Fran.	684.23	May 1928	584.27%	116.17	Nov. 1933	-83.02%	157.33	68.79%

*Index started in November 1921.

Table 5. Stock Return Volatility for Banks Equity Indices by Federal Reserve District, 1920-1939

| Fed District	Standard Deviation 1920-1939	Date of Peak Value	Standard Deviation Bull Market (1920-District Peak	Date of Trough Index Value	Standard Deviation Bear Market (District Peak-Sector Trough)	Standard Deviation (Trough to End of Sample)
Boston	6.21%	Aug. 1929	6.22%	Nov. 1934	5.90%	4.89%%
New York	10.34%	Sept. 1929	8.41%	May 1932	13.34%	10.52%
Phil.	5.44%	March 1929	2.49%	Dec. 1933	8.95%	4.43%
Cleve.	3.19%	Dec. 1928	1.36%	Nov. 1934	4.73%	2.86%
Rich.	2.50%	Sept. 1929	1.68%	Nov. 1933	3.10%	2.74%
Atlanta	7.63%	April 1929	3.87%	Nov. 1933	13.43%	3.91%
Chicago	8.39%	Sept. 1929	2.84%	Nov. 1933	12.36%	9.72%
St. Louis	3.79%	Oct. 1929	1.87%	May 1938	5.17%	2.36%
Minn.	4.01%	Sept. 1929	1.96%	June 1932	5.39%	4.9%
Kansas City	4.23%	April 1930	3.09%	Jan. 1934	3.95%	4.45%
Dallas	3.54%	July 1930	3.16%	Dec. 1933	4.50%	2.41%
San Fran.	5.8%	May 1928	5.08%	Nov. 1933	7.22%	4.61%
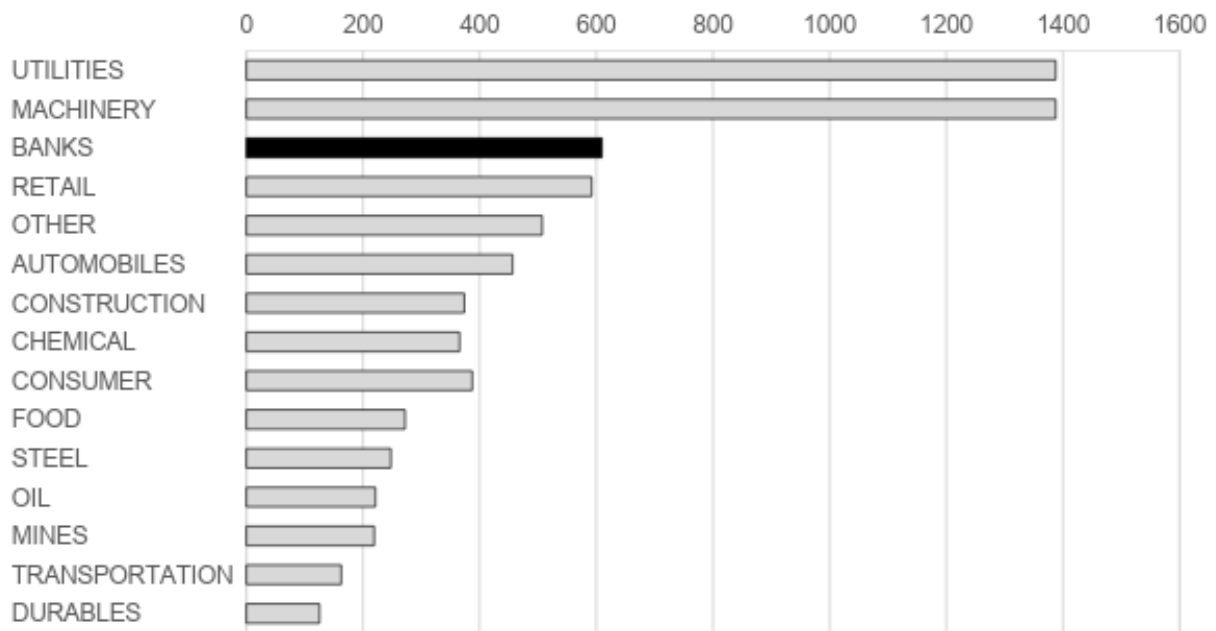
Figure 1. Bull Market Runup: 1920:M1–1929:M1. This figure shows the increase in the stock market index for each Fama-French 17-industry classification between January 1920 and January 1929.
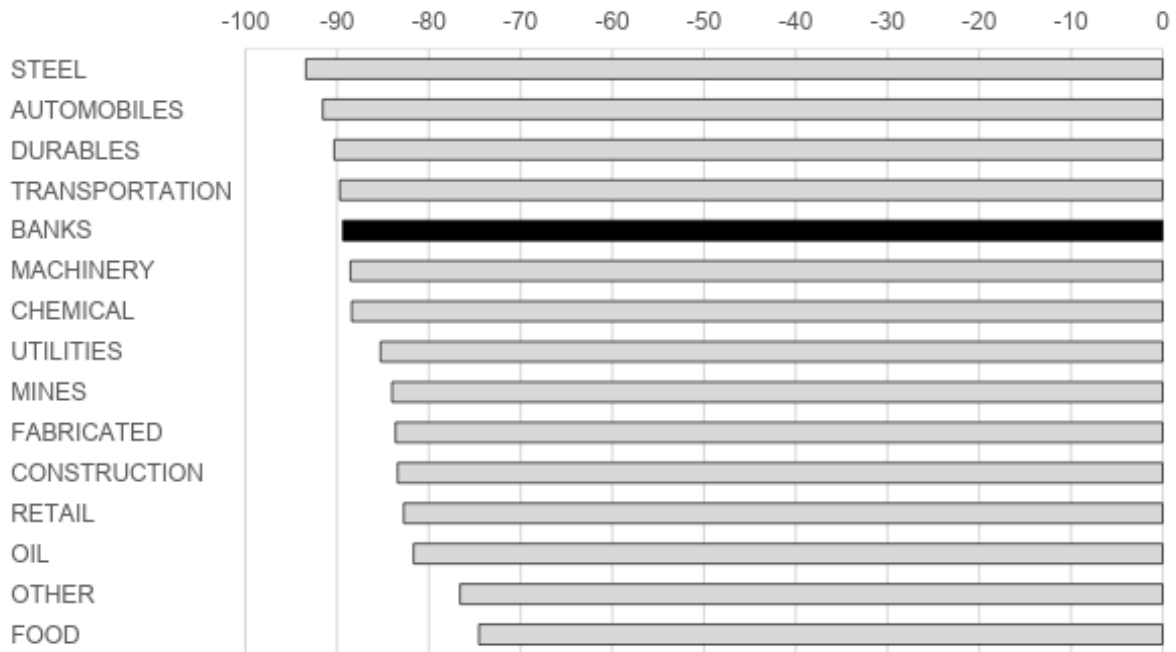
Figure 2. Bear Market Decline: 1929–1932. This figure shows the decrease in the stock market index for each Fama-French 17-industry classification between October 1929 and December 1929.
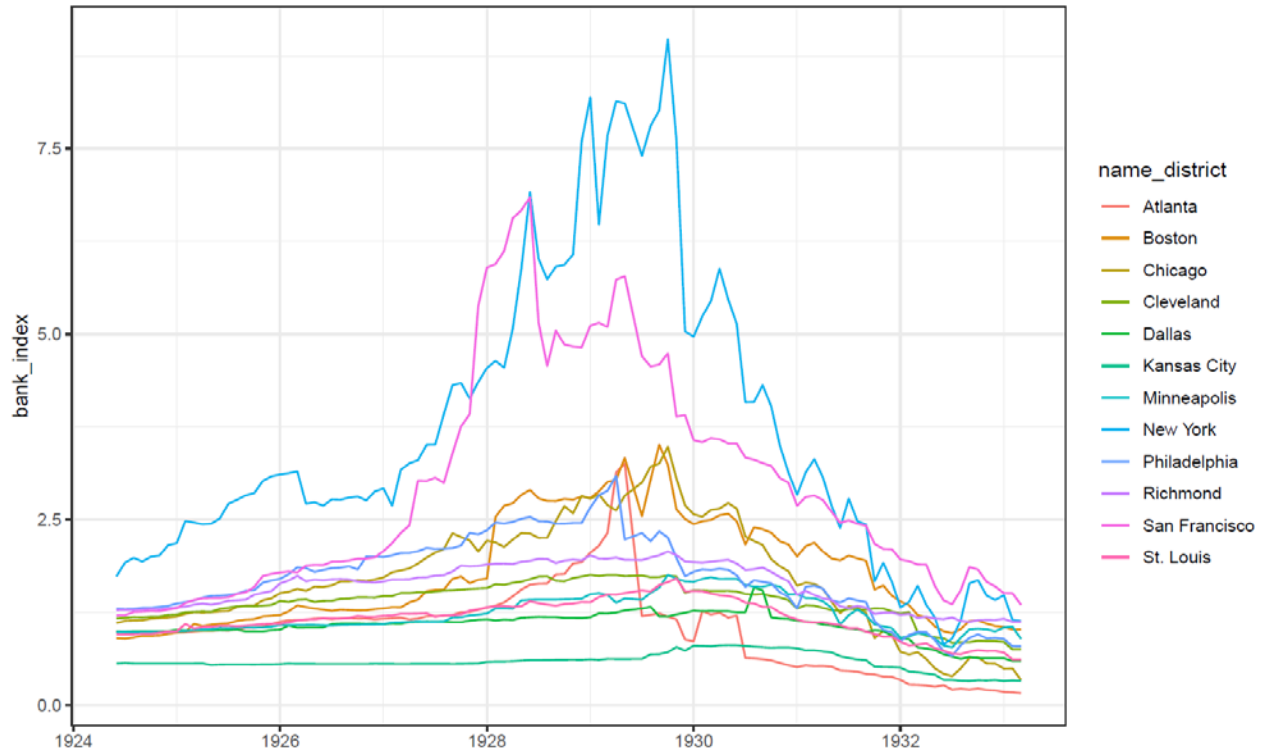
Figure 3. Bank Stock Indices by Federal Reserve District: 1924:M1–1932:M12. This figure shows the bank stock market index for each Federal Reserve District between January 1924 and December 1932.
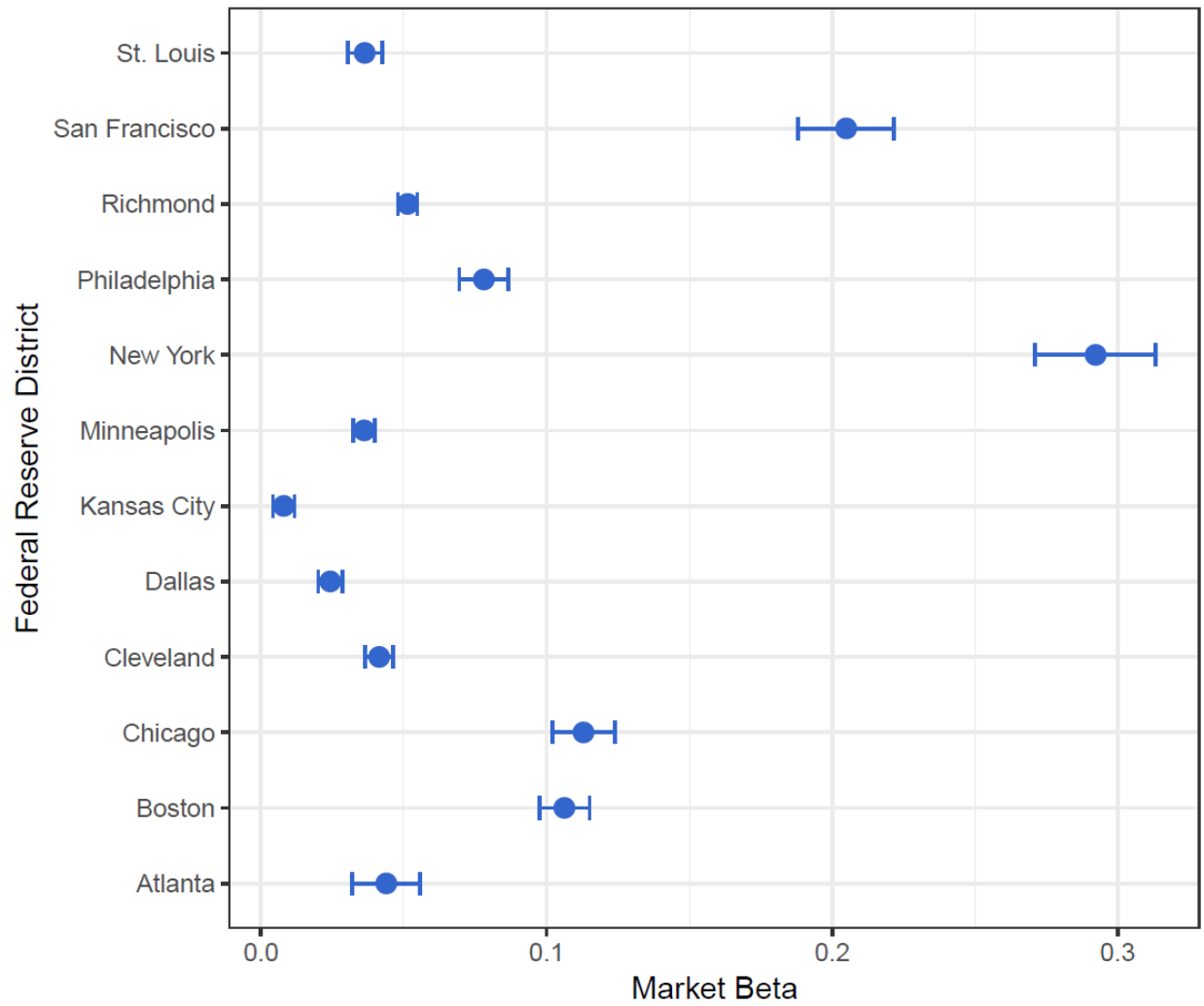
Figure 4. Market Beta Coefficients for each Federal Reserve District. Dots represent the point estimates of the market beta coefficient obtained by regressing returns on the bank stock index over returns on the S&P index. Error bars represent 95% confidence intervals.
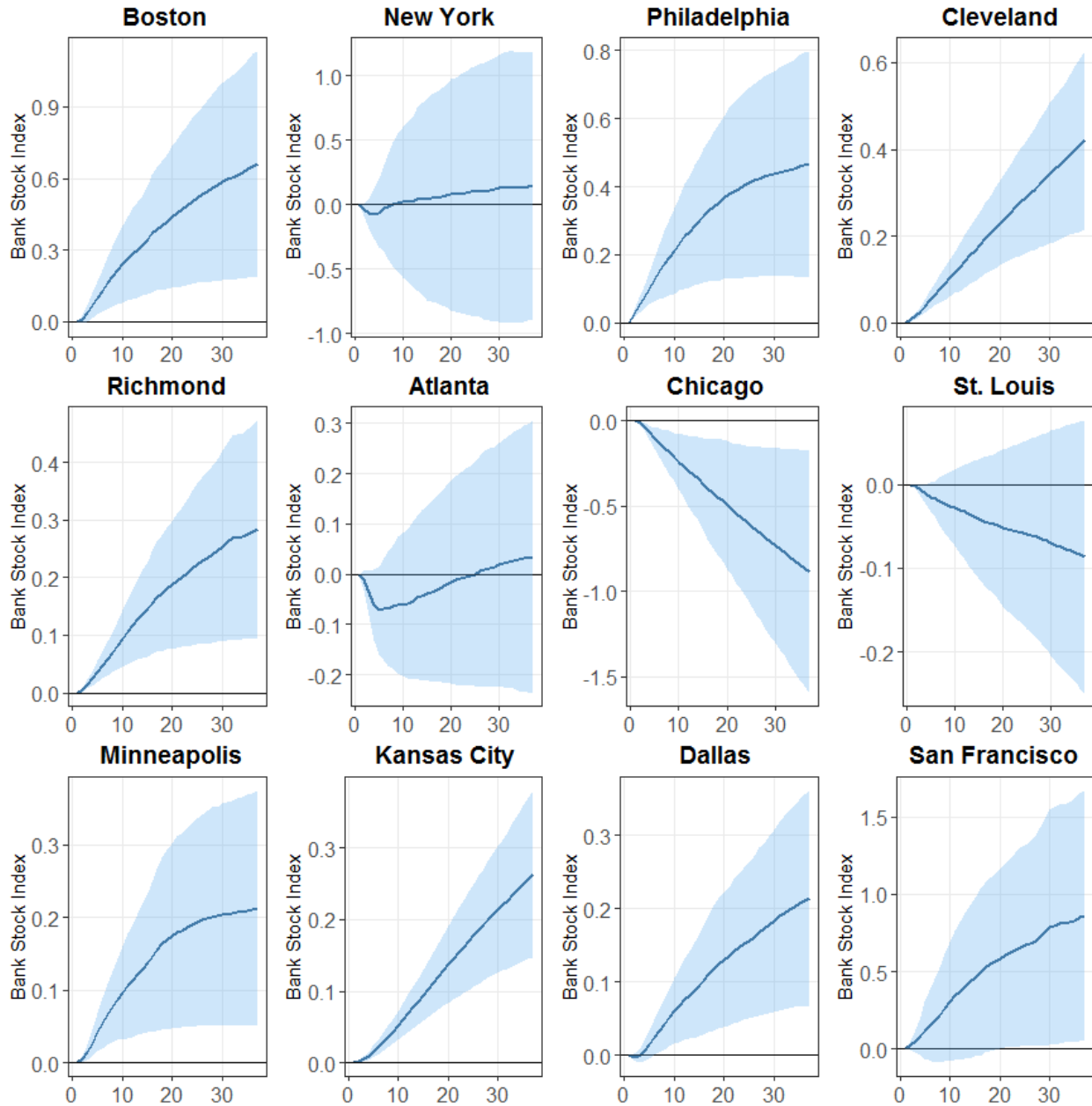
Figure 5. Impulse-Response Functions: Response of Bank Stock Index to a One-Standard Deviation Shock to the Money Supply (M1). Each panel represents one Federal Reserve District. Shaded areas represent bootstrapped 68% confidence intervals.
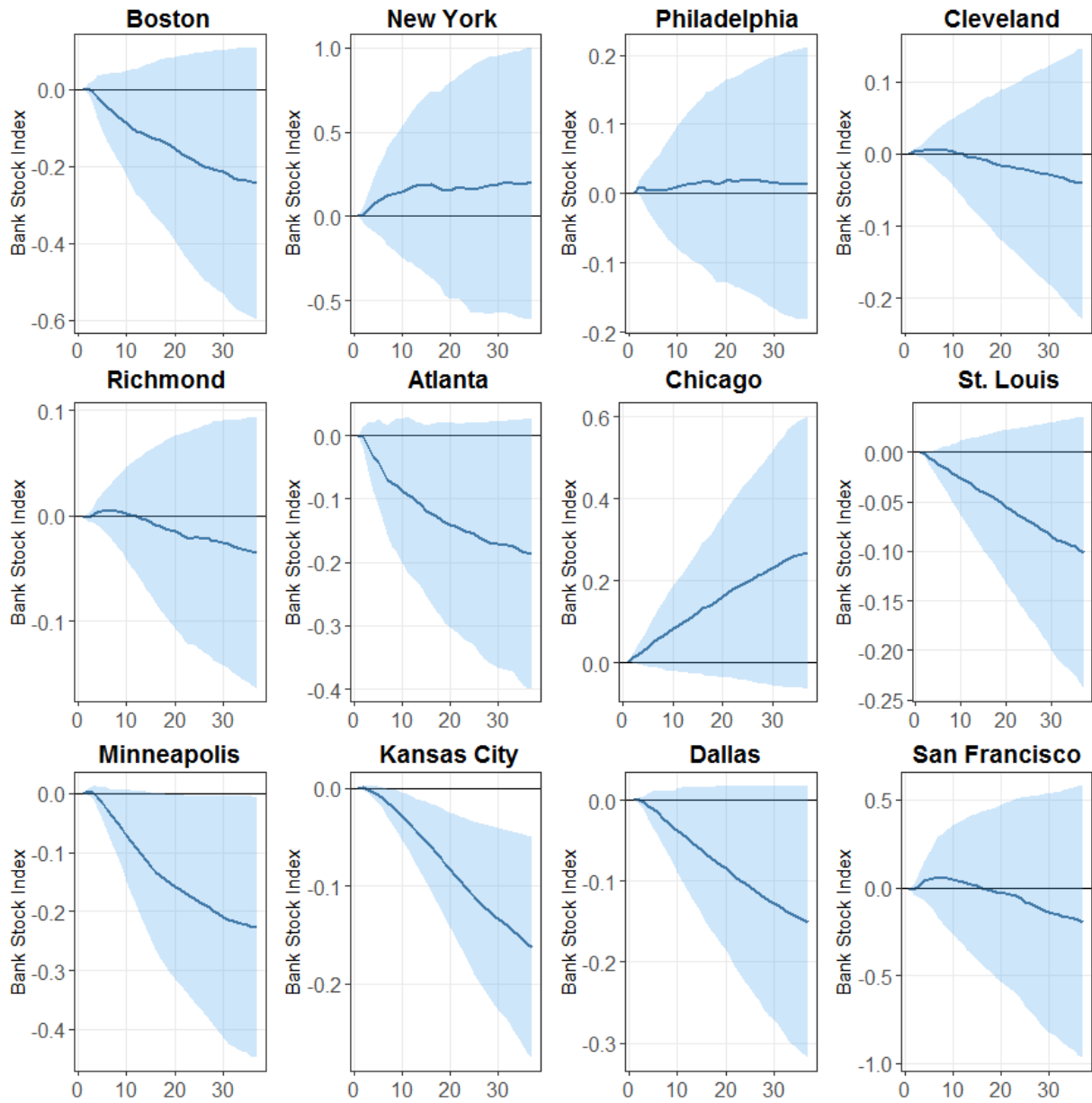
Figure 6. Impulse-Response Functions: Response of Bank Stock Index to a One-Standard Deviation Shock to Bank Failed Deposits. Each panel represents one Federal Reserve District. Shaded areas represent bootstrapped 68% confidence intervals.

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