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# In the Eye of a Storm: Manhattan's Money Center Banks during the International Financial Crisis of 1931

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## Abstract

In 1931, a financial crisis began in Austria, spread to Germany, forced Britain to abandon the gold standard, crossed the Atlantic, and afflicted financial institutions in the United States. This article describes how banks in New York City, the central money market of the United States, reacted to this trans-Atlantic financial disturbance. An array of sources tells a consistent tale. Banks in New York anticipated events in Europe, prepared for them by accumulating substantial reserves, and during the crisis, continued business as usual. New York's leading bankers deliberately and collectively decided on the business-as-usual policy in order to minimize the impact of the panic in the United States.

Keywords: Great Depression, financial crises, balance sheet linkages, financial crisis of 1931, gold standard

JEL Codes: N12, N22, E51, E52, E58, G21, G28

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## 1. Introduction

During the 1920s, a circular flow of funds linked financial institutions in Europe and the United States. The flows originated in New York City, whose financial institutions loaned funds to Germans, who used the funds to pay war reparations to the British and French, who in turn used the funds to repay war debts, which returned the funds to the United States. This flow of funds stopped during the financial crisis of 1931, when difficulties beset banks throughout Europe, forced Germany to shut down its banking system in July, and forced Britain to abandon the gold standard in September. How did the cessation of the circular flow affect banks in New York City, the central money market of the United States? Did stopping the game of musical chairs, as Keynes described the circular flow and other financial markets, transmit the financial crisis from Europe to the United States?

These questions are related to the broader issue of how the financial crisis of 1931 crossed the Atlantic. Explanations of trans-Atlantic transmission fall into two broad classes. A traditional class emphasizes central bankers' golden fetters, a Keynes' coinage. The fetters were beliefs about how a central bank should operate under a gold standard. These beliefs compelled the Federal Reserve to defend their gold reserves by raising interest rates, even at the expense of domestic firms and financial institutions. The Fed acted after the crisis on the continent forced Britain to abandon the gold standard, and fear that the United States might do the same induced investors to shift funds from the United States. To stem this outflow, the Federal Reserve substantially raised discount rates, which depressed consumption and investment, forced hundreds of banks out of business, and deepened the depression (Friedman and Schwartz, 1963; Eichengreen and Sachs, 1981; Eichengreen, 1992; Temin, 1989 and 1993).

The alternative class emphasizes actions of financial institutions, whose behavior might change, when crises in one nation affected financial institutions in another. That links among financial institutions may have spread shocks from Europe to the United States seems plausible for several reasons. First, foreign deposits in New York banks exceeded \$700 million. Acceptances in New York banks on the account of German banks and firms totaled over \$300 million. Ninety-day loans to German municipalities amounted totaled over \$100 million. Long-term German debt originated by New York banks totaled over \$1 billion (Kuczynski, 1932). This debt exceeded the capital of all banks in New York City by an order of magnitude. Second, an intricate system of cross-deposits set up by the Austrian Central Bank covertly directed funds via banks in New York City to the Creditanstalt to compensate it for taking over the bankrupt Bodencreditanstalt (Aguado, 2001, p. 199). Losses on these cross-deposits threatened the solvency of institutions involved in the scheme. Third, German and American macroeconomic aggregates appear correlated, and negative shocks in German time series precede declines in economic activity in the United States. The effect appears particularly pronounced for German banking data. (Morsy, 2002; Ritschl and Sarferaz, 2014). Fourth, bank failures in New York City, the financial center of the United States, peaked during the crisis in Germany and before Britain abandoned the gold standard (Richardson and Van Horn, 2009).

A potential explanation for the simultaneous surge in bank failures in Germany and New York appears to be financial links between German borrowers and New York lenders. In a previous paper, we sought to confirm this conjecture, but we were surprised to find that no banks in New York failed because of links to Germany or due to foreign loan losses of any type (Richardson and Van Horn, 2009). All banks in New York with financial exposure to Germany and other European nations survived the contraction of the early 1930s, and most paid dividends

throughout the downturn. The simultaneity of bank failures in Germany and New York proved to be coincidental. The surge in New York occurred because politicians pressured the superintendent of banks for reasons unrelated to events overseas, and the superintendent responded by increasing the frequency and rigor of bank inspections and closing an inordinate number of banks. When political pressure subsided, so did suspensions of banks. The timing and targets of the superintendent's actions were unrelated to events in Europe (Richardson and Van Horn, 2009).

Despite that finding, it is possible that the European financial crisis leaped across the Atlantic by changing the behavior of banks in New York. A long literature documents the international transmission of financial shocks via banks' balance sheets. Harold James (1984, 1986, 2009) demonstrates that the German crisis manifested itself as a run on German banks, which were structurally weak and fundamentally unsound, due in part to their own actions but also to public policies that generated inflation, weakened banks' balance sheets, and eroded confidence in financial institutions and markets. Isabel Schnabel (2004a, 2004b) finds that "in Germany, the banking problems manifested themselves in a protracted retreat of depositors from the great branch banks.... The intensity of deposit losses was correlated with the banks' liquidity and solvency positions.... Given these banks' large shares of foreign deposits, the deposit withdrawals weakened the Reichsbank's reserve position and exacerbated the currency problems" (Schnabel, 2004b, p. 877). Olivier Accominotti (2012) shows that the crisis on the continent directly shocked Britain's financial system by triggering runs on London merchant banks financially exposed to central Europe, particularly Germany; forcing the merchant banks to liquidate substantial assets to meet creditors' demands; and compelling the Bank of England to react to merchant banks' problems in ways that contributed to the pound's collapse. Haelim Park

(2013) shows that the crisis on the continent altered the way in which London's clearing banks transformed deposits into assets, leading to a reduction in lending to industry.

Based upon these studies, we suspected that the European financial crisis influenced the behavior of banks in New York City, which in turn affected the behavior of banks throughout the United States. Then, like now, Manhattan was the center of the United States financial system. New York City's banks included the largest financial institutions in the United States and collectively held about one-third of our nation's aggregate commercial-bank assets. The money-center banks in New York had correspondent relations with the majority of commercial banks in the United States; substantial direct and indirect links to stock, bond, and commodity markets; branch offices or correspondents in major European cities; and a substantial share of the foreign exposure of all financial firms in the United States. We conjectured that shocks to their foreign liabilities and assets would have induced them to change their behavior, which would have transmitted those shocks to their counterparties, which included most financial institutions and markets in the United States. Their changing behavior should be reflected in changes observable on their balance sheets.

Other scholars have advanced this conjecture. James (2009), for example, argues that

“the European bank failures of the summer of 1931 in turn translated into a new shock for the U.S. economy, and some of the major money-center banks became vulnerable to investor and depositor panics. Relatively few accounts of the American depression fully take into account the role that the European collapse played in fanning financial uncertainty, in leading banks to call in loans – in short, in pushing the U.S. economy into the Great Depression.”

Scholars have found that domestic financial shocks affected the behavior of banks in New York. For example, Calomiris and Wilson (2004) showed that banks in New York City reduced lending in response to negative asset shocks and increases in solvency risk. Kris Mitchener and Gary Richardson (2013, 2016) document the transmission of domestic financial shocks through the

interbank network to the balance sheets of banks in the central reserve cities of New York and Chicago. It seems plausible that similar dynamics could have transmitted the German crisis via New York to the U.S. financial system.

Our empirical work cannot confirm this hypothesis. Instead, we find that in the summer and fall of 1931, commercial banks in New York with substantial exposure to the European financial crisis reacted little, if at all, to the financial crisis in Germany. They did not respond because they predicted the crisis, prepared for it, and when it occurred, continued business as usual. New York's leading bankers deliberately and collectively decided on this approach in order to minimize the impact of the central European financial crisis on the United States. Depositors in New York City banks also appear to have responded little, if at all, to events in Germany. Their passivity was a goal of New York bankers' keep-calm-and-carry-on strategy. New York bankers also carried on business as usual as part of the standstill agreement on German loans that followed the inter-governmental conference in London in July 1931. Commercial and central bankers from numerous nations participated in the agreement because they believed that international attempts to recall credits from Germany would "probably fail and could precipitate a rash of moratoriums spreading across central Europe (Forbes, 1987, p. 574)."

The remainder of this essay corroborates our claims. Section 2 analyzes data on individual institutions in the money center of Manhattan and shows that the behavior of banks with substantial foreign exposure remained stable during the international financial crisis while the behavior of banks with little or no foreign exposure changed to a greater degree. The balance sheets of banks with foreign exposure, in other words, do not appear to have been the conduits by which the European crisis crossed the Atlantic. Section 3 examines aggregate evidence that enables us to compare the behavior of Manhattan's money-center banks with banks in cities

throughout the United States. This examination shows that the behavior of banks outside of Manhattan, which on average had less foreign exposure, changed more during the German and English financial crises than the behavior of banks in Manhattan, which had more exposure to financial events in Europe. In response to the Federal Reserve's decision in October to raise discount rates and prevent gold outflows, however, the behavior of banks in New York City changed swiftly, substantially, and to a greater degree than banks in the rest of the United States. Section 4 examines qualitative evidence about the policies pursued by money-center banks and the logic underlying those policies. Section 5 discusses the implications of our analysis and reconciles our findings with those of other scholars. An appendix establishes the foundation for our answers by describing the extant evidence.

## **2. Analysis of Microdata from the Money Center of Manhattan**

This section analyzes how individual banks in the money center of Manhattan reacted to the European financial crisis in the summer and fall of 1931. To determine the impact of international events, we compare the behavior of banks with substantial exposure to foreign financial shocks to the behavior of banks with little (or no) foreign exposure. We find no correlation between changes in banks' balance sheets during the European financial crisis and the extent of banks' foreign financial exposure.

We measure foreign financial exposure along seven dimensions: (i) balances payable in dollars due from foreign branches of American banks, (ii) due from banks in foreign countries, (iii) due to banks in foreign countries, (iv) time deposits of other banks and trust companies in foreign countries, (v) foreign government bonds owned, (vi) other foreign securities owned,

including bonds of foreign municipalities, and (vii) number of foreign branches.<sup>1</sup> Sources of this data are described in the appendix. Table 1 indicates the values of these variables for each bank in our data set that had foreign exposure. The table highlights the concentration of foreign exposure among the largest banks in Manhattan, which were also the largest banks in the United States. As the table indicates, banks that scored highly on one of these seven dimensions of foreign financial exposure often scored highly on most or all of them, raising the issue of multicollinearity. To address this issue, we can create an index of foreign exposure from the first principal component of the seven measures of foreign financial exposure. The first component is the linear transformation of the variables that explains the greatest possible variance in these vectors. Banks for which the value of the index is highest have the most foreign financial exposure. Banks for which the value of the index is lowest have the least foreign financial exposure. Our index of foreign exposure appears in the last column of Table 1.

Figures 1 through 3 compare our index of foreign exposure to changes in bank balance sheets during the crisis on the continent. In each figure, the horizontal axis indicates the level of foreign financial exposure. The vertical axis indicates the change in a balance sheet variable between the call date in March 1931 and the call date in September 1931. The March figures come a month and a half before the failure of the Creditanstalt on May 4. September figures come a month and a half after the German crisis peaked and a month before the Federal Reserve raised discount rates to defend the gold standard.

Figure 1 examines the percentage change in deposits. The largest losses in deposits occurred in banks with the lowest levels of foreign exposure. Banks with substantial foreign

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<sup>1</sup> Balances Payable in Dollars Due from Foreign Branches of U.S Banks is the amount due from foreign branches of other U.S. banks. Due from Banks in Foreign Countries is the balance due from foreign-owned banks operating in foreign countries.

exposure lost deposits at a below average rate. Banks with less foreign exposure, on average, lost a larger percentage of deposits than banks with more foreign exposure, although outcomes varied greatly for banks lacking foreign exposure.

Figure 2 examines the percentage change in highly liquid assets, including cash and due from banks. Again, the change appears uncorrelated with foreign exposure. Banks with substantial foreign exposure finished the crisis with a quantity of liquid assets similar to that which they possessed at the beginning. Some banks with little foreign exposure stockpiled liquid assets. Other banks with little foreign exposure lost liquid assets.

Figure 3 examines the percentage change in surplus and profit. These two categories constitute banks' retained earnings. An increase in surplus occurred when a board of directors decided to reinvest earnings in the business. An increase in undivided profits occurred when the bank earned profits and prior to paying dividends. A decrease in either category indicated that expenses exceeded revenues, which typically occurred when banks wrote off investment losses. The data indicate a positive relationship between exposure and retained earnings. Surplus and profits changed little in banks with high levels of foreign exposure, despite the fact that the largest banks transferred large sums to loan loss reserves. Surplus and profits fell sharply in many banks with little (or no) foreign exposure.

Table 2 tests the statistical significance of the patterns apparent in Figures 1 through 3. The table's three columns report regressions in which the dependent variables are retained earnings, deposits, and liquid assets, respectively. In each regression, the key explanatory variable is our index of foreign exposure. The control variables include bank size (measured as log of assets), the cash-to-deposit ratio, the capital-to-asset ratio, and whether the bank had a national or state charter. For each regression, we cannot reject the null hypothesis of no

relationship between the outcome and foreign exposure. The coefficients on foreign exposure, in other words, did not significantly differ from zero. These regressions are robust to reasonable permutations. We continue to reject the null hypothesis when we include other control variables, drop all control variables, include each individual component of our index of foreign exposure, or include the second, third, and fourth principal components of our index.

Together, Table's 1 and 2 and Figures 1 through 3 tell a consistent tale. Foreign exposure had little (or no) relationship to changes in bank balance sheets between March and September 1931. This pattern suggests the financial crisis on the continent had little (or no) direct impact on banks in New York City. The crisis in Germany does not appear to have altered the balance sheets or behavior with substantial exposure to foreign financial risks. If anything, banks with foreign financial exposure performed better than other institutions during the global financial crisis of 1931. This pattern is the opposite of what one would expect if linkages conveyed financial shocks across the Atlantic via commercial banks at the center of the United States financial system.

### **3. Analysis of Aggregate Data**

The database analyzed in the previous section exists only for selected dates and only for banks in New York City. We cannot use it to compare the behavior of banks in New York to the behavior of banks in other cities or to distinguish reactions to events that occurred within short spans of time (such as Britain's abandonment of gold and the Fed's reaction a month later). To accomplish these tasks, we must examine data with broader geographic coverage and higher time frequency. The only extant information with these characteristics is the weekly reporting data for banks inside New York City and banks in 100 cities outside of New York. We supplement this information with aggregate data from two additional sources: aggregate data on foreign exposure

of banks in different cities in the United States, and aggregate data from the call reports of banks in New York and other cities.

The Comptroller of Currency's Annual Report for 1931 reports the foreign exposure of all banks in the United States aggregated at the state and city level. Data are reported at the end of June, a few weeks before the financial crisis began in Germany. At that time, New York banks possessed seven European branches, while banks in Chicago, Boston, and elsewhere in the United States possessed none. Banks in Chicago, Boston, and a few other cities had branches overseas, but all of these were located in the Caribbean, Latin America, and Asia. The OCC reports a series of financial statistics related to foreign exposure, which we summarize in Table 3. The table shows that 81 percent of all deposits in the United States due to banks in foreign countries were held by banks in New York City. Fifty-three percent all of deposits from United States banks due from banks in foreign countries were deposits of banks in New York City. Roughly a quarter of all loans payable in foreign countries and a sixth of all foreign bonds were held by New York City banks. In sum, banks in New York City possessed far more foreign exposure than most banks in the United States. The only close comparisons were the cities of Boston and Chicago, but most of Boston's foreign exposure lay in the Caribbean and Latin America. Chicago's limited foreign exposure appears to have been diversified across Latin America, Asia, and Europe.

Weekly reporting data enables us to examine the aggregate behavior of banks in New York City and compare it to banks operating elsewhere. This high-frequency data enables us to examine reactions to events discussed at length by contemporary observers and retrospective researchers. The first event is the stock market crash on October 24, 1929, which contemporaries saw as a harbinger of the economic contraction and which researchers believe contributed to the

contraction. The second event is the banking panic that began with the collapse of Caldwell and Company on November 7, 1930. Caldwell's collapse triggered a wave of bank failures that peaked with the closure of the Bank of United States in December 1930. The Bank of United States was located in New York City and was one of the largest banks to fail during the Depression. Friedman and Schwartz named this wave of failures the First Banking Panic. The third event is the closure of the largest bank in Austria, the Creditanstalt, on May 11, 1931. The Creditanstalt's collapse triggered the crisis that spread throughout Europe. The fourth event is the German Banking Holiday on July 14, 1931, which marked the peak of the panic in that nation. The fifth event is Britain's abandonment of the gold standard on September 19, 1931 and the New York Fed's decision to raise its discount rate three weeks later.

Figure 4 examines weekly reporting data on deposits in New York City. Time deposits increased gradually until panics beset the U.S. banking system in the fall of 1930 and gradually declined thereafter. Demand and interbank deposits exhibited higher frequency fluctuations. During the stock market crash in the fall of 1929, demand and interbank deposits rose rapidly, as investors pulled funds from equity markets and placed them in convenient and safe commercial banks. After a few months, demand and interbank deposits returned to their old level and then trended upward until banking panics beset the U.S. banking system in the fall of 1930. Demand and interbank deposits declined thereafter. The decline accelerated after Britain abandoned the gold standard. The decline ended in early 1932, during the Fed's expansionary open-market purchase program.

Figure 5 examines loans and investments of weekly reporting banks from 1929 to 1933. Changes in trends and levels occur but appear unrelated to events in Austria and Germany. Events on the continent appear (at most) to have been correlated with temporary fluctuations on

banks' balance sheets. Bigger changes in patterns occur after the stock market crash, the collapse of Caldwell and Company, the Fed's decision to dramatically raise interest rates in October 1931 following Britain's abandonment of the gold standard, and early 1932, when the Fed began implementing expansionary open market operations.

Since the exact timing of the change in weekly reporting data may be difficult to determine from graphs, we turn to statistical tests for breaks in time series. For each weekly reporting data series, we test for breaks in levels, rates of change, and trends. We test for changes in levels by regressing each weekly reporting variable on a constant. We test for changes in rates of change by calculating the weekly rate of change for each series and regressing that rate on a constant. We test for changes in trends by regressing the weekly reporting variables on a constant and a time trend. We then use the method of Bai Perron to determine the number and significance of the structural breaks in the coefficients of these regressions. We conduct these calculations on weekly reporting data spanning the years 1919 through 1934.

Table 4 reports break dates found in the years 1929 through 1932 (note that many breaks occur outside of this interval, although we do not report them). For the weekly reporting banks in New York, the levels of most series have breaks near or in the months following the peak of the business cycle in 1929 and another break near the Fed's open market purchase campaign in 1932. Breaks appear for total loans and investments near the end of November 1931, about a month after the NY Fed raised interest rates to defend the gold standard. Breaks appear for loans on securities and time deposits during the weeks in October when the NY Fed raised rates. The only series that breaks around the time of the German crisis is balances with domestic banks. For all of these series, the rates of change exhibit fewer significant shifts in the years 1929 through 1932 and no breaks near the crises in Germany.

Similar patterns arise when testing for breaks of trends over time. Trends of aggregate lending changed in 1929 and 1932. The trend for investments in government securities changed when banking panics began to beset commercial banks in the fall of 1930. The trend of investments in other types of securities changed near the peak of the business cycle in 1929 and changed again soon after the Federal Reserve Bank of New York raise its discount rate in October 1929. The trend of demand deposits changed a month later.

Outside of New York, we see similar patterns. The levels and trends of most series break in late 1929 or early 1930 near or following the business cycle peak and stock market crash. The levels and trends of lending and investment variables exhibit another break during the spring or summer of 1932, coinciding with the Fed's open market purchase campaign. Trends for all deposit variables change in mid-September 1931; for demand and interbank deposit, the break coincides with England's abandonment of the gold standard. For time deposits, the break occurs two weeks later.

Overall, we run 54 Bai-Perron unknown structural break tests. These tests reveal numerous breaks coinciding with major events, such as the stock market crash in 1929 and Britain's abandonment of the gold standard in September 1931, as well as changes in Federal Reserve policies, particularly the increase in the discount rate in October 1931 and the expansionary open market campaign of 1932. These tests reveal only two breaks coinciding with the financial crisis in Germany; both breaks are for the series for the balances with domestic banks. Given the number of tests that we run, the small number of break dates associated with the German crisis could be attributed to random chance.

Bai-Perron tests help to detect large and persistent changes in time series. Short-run responses to particular events are better illuminated by event studies. We present a series of these

in Figures 6 through 8. Figure 6 illustrates the response of demand deposits in and outside New York to the crisis in Germany. The vertical axis indicates the change in demand deposits (in hundreds of millions of dollars) since the last reporting date before the beginning of the crisis (week zero). The horizontal axis indicates the weeks since the crisis began. The graphs end with the onset of the next crisis, when England departs gold. The graph shows that in New York City, demand deposits increased slightly in the weeks following the German crisis and remained above the pre-crisis level for five weeks. Outside of New York, however, demand deposits fell rapidly and continued to fall for the next seven weeks.<sup>2</sup>

Figure 7 indicates how the movement of demand deposits differed between New York and other cities in response to three crises. The middle line indicates the differential response to the German crisis; it is calculated by subtracting the outside New York from the inside New York lines in Figure 6. The top line indicates the differential response to Britain's departure from the gold standard in September 1931. The bottom line indicates the differential response after the NY Fed raised its discount rate in October 1931. Subtracting the series outside of New York from the series inside of New York controls for trends common across the series. Each of the lines in this figure, in other words, indicates how the response of banks in New York differed from the response of banks outside New York, after controlling for common trends. The figure's message seems clear. After the crises in Germany and Britain, demand deposits rose in New York relative to deposits in banks in cities outside of New York. After the New York Fed raised its discount rate, demand deposits in New York initially fell relative to the rest of the nation, but

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<sup>2</sup> A similar pattern appears when examining data detrended either with an HP filter or after subtracting the linear trend from the two months prior to the European crisis. These tests reveal that in the months prior to the European crisis, the weekly reporting series of interest in and outside New York exhibited common trends, which the Figures 7 and 8 control for by subtracting the latter from the former.

over the next month, after Federal Reserve districts raised their discount rates toward those in New York, the changes in New York and the rest of the nation came to resemble each other.

Figure 8 illustrates similar event studies for the change in total loans and investments. Following the German and British crises, the results resemble those for demand deposits. Loans and investments of New York banks rose relative to those of banks outside of New York. Following the Fed's decision to increase discount rates, however, the behavior of New York banks diverges from banks in the rest of the nation. Loans and investments at New York banks decline relative to other reporting banks, as banks in New York begin to hold more reserves (of cash and deposits at the Fed) as a fraction of their liabilities. Mitchener and Richardson (2013, 2016) also discuss this divergence and demonstrate that it persists until the Banking Holiday.

The results of Figures 6 through 8 should be summarized in comparative context. During and after the financial crises in Germany and Britain, the balance sheets of banks in New York City changed less than balance sheets of banks in other reporting cities. Yet, banks in New York collectively had much more exposure to foreign financial shocks, particularly from Germany and England, than banks elsewhere in the United States. The minimal reaction of New York balance sheets makes it unlikely that changes in balance sheets and behavior of Manhattan's money-center banks transmitted shocks from Europe to rest of the nation. A transmission may have occurred. A chronological correlation is clear. Outside of New York, bank balance sheets did change during and immediately after the crises in Germany and England. These changes, however, were minimal in banks and cities with substantial exposure to European financial shocks, making it unlikely that crisis was transmitted through the financial networks radiating from the money-center banks in Manhattan. Banks in Manhattan, however, did respond rapidly and substantially to the increase in discount rates in October 1931. Their responses were larger

than those of reporting banks outside of New York, and this difference persisted for the remainder of the contraction.

The picture painted by data on weekly reporting banks can be sharpened by data collected during call reports. Call reports contain a full description of banks' balance sheets at four points in time during the years 1929, 1930, and 1931. A call occurred on October 4, 1929, three weeks before the stock market crash; on March 25, 1931, 6 weeks before the Creditanstalt collapsed; on June 30, 1931, two weeks before the German bank holiday; and September 29, 1931, less than two weeks after Britain abandoned gold and a few weeks before the Fed increased discount rates to defend the gold standard.

For banks in New York City, Figure 9 plots total assets at each call date from 1919 through 1935. During the recession in 1920 and 1921, total assets fell. During the boom that followed, total assets rose, nearly doubling between the trough in 1922 and the peak in 1930. Growth ceased between the stock market crash and collapse of Caldwell. After the post-Caldwell panic, assets declined gradually. The downward trend continued during the European financial crises in 1931. The descent accelerated after the New York Fed raised the discount rate to defend the gold standard in 1931. The largest drop in the entire series occurred between the call in late September 1931 (a few weeks after Britain departed gold and just before the Fed raised rates) and December 1931 (the first call after the Fed's rate increase), when assets fell by nearly 10 percent, from \$8.25 billion to \$7.46 billion. During the next call interval, between December 1931 and June 1932, assets fell another 10 percent, to a nadir of \$6.72 billion.

Figure 10 depicts portfolio allocations from 1919 to 1935. From 1919 to 1929, the composition appeared stable. Banks invested half of their assets in loans and about a tenth of their assets in government securities, corporate securities, reserves with the Federal Reserve, and

cash (and near-cash items such as bankers balances). The pattern changed when financial panics began in the United States. After the stock market crash, banks began investing a lower fraction in loans. The largest drop in the lending share occurred after the Fed raised interest rates in the fall of 1931. The share of bank portfolios invested in government bonds began to increase after the collapse of Caldwell and Company triggered panics among banks in the United States. By the summer of 1934, bank portfolios contained more government securities than commercial loans. Together, government securities and reserves with the Fed comprised half of bank investments. Reserves with the Fed began to rise after the Fed raised discount rates in October 1931. The banking crises in Austria, Germany, and England do not appear to be associated with extreme movements in balance sheet ratios or break points in trends. The pattern of investments did not change noticeably after either event.

A quick summary of our analysis of aggregate data may be useful. During the 1930s, changes in the balance sheets of New York City's banks appear to have coincided with financial crises in the United States, and to a lesser extent, with Britain's abandonment of the gold standard. They appear to have had little correlation with events in Austria and Germany. Banks in New York had more exposure to European financial shocks than banks outside New York. Yet, New York banks reacted less to events in Austria, Germany, and Britain. New York banks' balance sheets did, however, respond substantially to the Federal Reserve's increase in interest rates in October 1931. In sum, on most measures, New York banks reacted little to the European crisis until foreign gold flows forced the Federal Reserve to raise interest rates to defend the gold standard.

#### **4. Qualitative Evidence of Policies of New York's Money-Center Banks**

The previous sections demonstrated that the balance sheets of New York City's money-center banks changed little during the financial crises in Europe. This section explains why. New York's money-center banks were able to ride out the storm because they had been building capital buffers for several years. Information from an array of sources helps us understand the motivations underlying these patterns, how New York's leading bankers reacted to the German crisis, and what they believed were the reasons for the reactions of others, particularly their depositors.

The narrative record reveals that events in Germany worried bankers in New York, who responded to the crisis by organizing aid for German counterparties and coordinating actions with the Federal Reserve. New York's bankers worried about the financial fallout from the German crisis. Documents from the archives of the Federal Reserve Bank of New York illuminate their concerns. The nature of these records summaries of private discussions among financiers and policymakers makes them particularly informative. The documents come from the Office Correspondence files of Governor Harrison. The governor constantly communicated with the leaders of commercial banks, who communicated with each other and with subordinates overseas. The governor also hosted meetings between bank presidents and leaders of the Federal Reserve.

The records reveal that after troubles beset banks in Austria, New York bankers expected the crisis to spread to Germany. A confidential cable sent in May, from F.F. Beer, an agent in Germany, to George Davison, president of Central Hanover Bank and Trust Company, indicated that Austrian problems would have dire consequences for German banks. One week after the Credinstalt failed, Beer wrote that

”when I was in Vienna, I was able to get a clear picture of the extent of these losses and of the impossibility to open the bank again. It was immediately then that I cabled you that I expect again a very serious crisis for Germany and recommended to withhold from doing any new business” (Harrison Collection, Office Memoranda, 1928-1931).

The remainder of the cable described the culmination of the Austrian crisis, ties between Austrian and German banks, and how links between Germany and the United States could transmit the crisis across the Atlantic.

In June 1931, as tensions grew in Germany, New York bankers discussed how to handle their German accounts. On July 3, ten commercial bank presidents told Governor Harrison that they would not restrict withdrawals of German clients. All German accounts would remain open for business. Credit lines would be maintained at least in their present position and in some cases unused lines would be reopened.<sup>3</sup> George Davison’s name was on that list, even though Central Hanover’s agents had warned him of the depth of German problems and advised him not to conduct new business with German clients.

On July 15, when the German crisis crescendoed, eleven presidents of New York commercial banks met with Governor Harrison to discuss the situation. The bankers agreed to honor all checks and cable orders to the extent of available credit limits. They also agreed to maintain acceptance lines and accept new bills within existing lines. Finally, they agreed to maintain all deposits in, advances to, and loans for German banks.

On this same day, a front-page story in the *New York Times* described the New York Fed’s extension of its credit line to the Reichsbank. The credit line of \$100 million, originally established on June 25, was extended because depleted resources made it impossible for Germany to repay a huge central bank credit within a short space of time.<sup>4</sup> Articles on the

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<sup>3</sup> Harrison Collection, Office Memoranda, 1928-1931.

<sup>4</sup> American Loan Renewed *New York Times*, July 15, 1931, p. 1.

German crisis and links between the German and United States financial systems frequently appeared in newspapers. The articles indicate that the public knew of New York's exposure to the German crisis. The public could have reacted to that information by withdrawing deposits from endangered institutions. The public, however, did not do that.

On July 22, the same committee of eleven bank presidents met again and formally requested that the New York Federal Reserve handle all German acceptance credits, deposits, and etcetera. Governor Harrison "indicated that this was impossible."<sup>5</sup> The next day, Governor Harrison briefed the Hoover Administration on New York banks' agreement to repay German deposits and maintain credit lines. The administration concluded that there was no need for it to take action. This indicates that banks in New York City bore the brunt of the crisis in Germany. The Federal Reserve System and the Hoover Administration did not step in to save the financial system.

On July 30, a group of German bankers submitted a proposal concerning German acceptance credits in New York. An expanded committee of seventeen New York bank presidents approved the terms of the proposal. The proposal indicated that

"present acceptance credits may be renewed as they fall due. The German firms or merchants for whom the original credits were established will be required to meet their obligations as they come due by paying marks to the Reichsbank; but the proceeds will not be required to be remitted to this side but may be utilized for further credits here for import purposes" (Wall Street Journal, August 6, 1931).

The New York banks communicated their plan to leading banks throughout the United States and received confirmation that they would conform to its conditions.

While some New York banks lost deposits during the German crisis, contemporaries attributed these losses to domestic events, rather than to events overseas. This conclusion appears

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<sup>5</sup> Harrison Collection, Office Memoranda, 1928-1931

clearly in the records of a meeting at the New York Federal Reserve on September 11, 1931. A committee of eleven presidents of the largest banks in the city discussed recent events with the New York Fed's governors. New York banks lost a total of \$200 million in deposits in the previous year, most during the month of August 1931. The presidents attributed the withdrawals to loss of confidence following the failure of nine banks. The superintendent of banks seized these institutions after raising regulatory standards in the wake of the failure of the Bank of United States, which led to accusations of laxness by the superintendent. The minutes of the meeting report a consensus that recent bank failures have had their effect upon the psychology of small depositors in banks. The withdrawals in August stemmed from fear among domestic depositors who were reacting to the superintendent's sudden seizure of banks previously perceived to be safe. The minutes mention neither the German crisis nor foreign deposits when discussing the decline in deposits during August.

In testimony to Congress in February 1933, Winthrop Aldrich, chairman and CEO of Chase National Bank of New York, also never mentioned the crises in Germany or Austria or concerns that these events might have altered operations within or changed perceptions of his bank or other money-center institutions with substantial European exposure. Instead, he attributed banking problems that occurred in the fall of 1931 to general fears for the value of the dollar.

“The worst of our whole trouble come from the end of September, 1931, into the middle of June, 1932. England's abandonment of the gold standard caused a great scare regarding the standard of value itself. Creditors and investors everywhere called loans, refused new credits and sold investments.... Whatever else we do, we must not invite a repetition of this panic regarding the standard of value itself.”

That quote represents the general thrust of Aldrich's testimony, which emphasizes the economic impact of expectations for inflation, deflation, and the stability of the exchange rate; those

expectations depended, in turn, upon international events – like England’s abandonment of the gold standard – and domestic policies – like raising interest rates and balancing the budget deficit – that determined the stability of the gold standard.

A clear description of New York banks’ capital policies appears in articles in the *New York Times* published in early July 1931. These articles describe money-center banks’ accumulation of loan loss reserves and efforts to strengthen their balance sheets. In the spring of 1931, National City Bank transferred \$20 million from surplus to loan loss reserves. The Chase National Bank set aside \$35 million to write down bonds and other securities to market values and to provide reserves against contingencies. Irving Trust, Central Hanover, and Bank of Manhattan Trust transferred to reserves \$10 million, \$5 million, and \$3.5 million respectively. Banks took these actions (and announced them publicly) in order to “maintain themselves in an impregnable position while financial conditions are depressed and uncertain (*New York Times*, July 5, 1931).” The *Times* noted that “by conserving their strength during the present depression the banks expect to reap their reward in the period of rising business activity to follow. Apart from the benefits to themselves, they expect to be able to assist the revival in business by liberal extension of credit” (*New York Times*, July 5, 1931, p. 27).

## **5. Discussion**

This essay examines how banks at the center of the United States financial system in New York City reacted to the financial crisis in Europe during the summer and fall of 1931. Given New York City banks’ substantial exposure to European financial markets, one might

have expected the crisis in Europe to have had a substantial impact on the performance and behavior of banks in the money center of the United States. Scholars have speculated about such linkages. When we began our research, we expected to document them. Our research, however, overturned our expectations. The behavior of New York's biggest banks changed little, if at all, during and in reaction to the financial crisis in Central Europe. The event that appears to have had the biggest influence on the behavior of banks in New York City was the Federal Reserve Bank of New York's decision to raise interests by 2 percentage points in two weeks during October 1931.

Why did New York's money-center banks react little, if at all, to the crisis in Europe? Their response was muted because they had expected the crisis to occur and had prepared for it. They had accumulated reserves that enabled them to absorb losses on German assets and had accumulated liquidity in case they experienced outflows of European deposits. New York's money-center banks had also prepared for a domestic financial crisis, which they feared would follow the economic and financial boom of the Roaring Twenties. These preparations began in 1928 and continued for the next three years. We discuss evidence for this pro-cyclical accumulation of capital and compare it to the behavior of modern money-center banks in a companion essay (Koch, Richardson, and Van Horn, 2015). Preparing during a boom for the bust to follow enabled the commercial banks at the heart of New York's money market to survive the contraction of the early 1930s, and during the German crisis, to ride out the shock and continue operating without altering their behavior. The accumulation of reserves during good times was a symptom of conservative financial philosophies that dominated commercial banking during the first half of the twentieth century.

The timing of these events distinguishes the behavior of New York bankers' from the standstill agreements negotiated among German creditors in 1931. New York banks began building capital buffers and reducing German exposure in the late 1920s, years before the German crisis, and years before Germany's creditors negotiated their collective standstill policy. New York banks entered into these negotiations with their preparations complete. While they agreed to a common standstill policy toward Germany, in the absence of such an agreement, their behavior may have been no different. Their principal clients were banks, firms, and investors in the United States. Minimizing domestic fallout from the international financial clients advanced the interests of their clients and themselves.

The results of our research should be compared to conclusions of scholars writing about events in England. A series of studies including Capie, Mills, and Wood (1986), Billings and Capie (2011), Feinsten, Temin, and Toniolo (1997), and Grossman (1994) demonstrate the stability of London's clearing banks, whose losses from the crisis in Central Europe neither threatened their solvency nor triggered runs by depositors. Park (2013) shows, however, that the crisis did alter the way in which London's clearing banks transformed deposits into assets, leading to a reduction in loans to industry. Park's result resembles our finding that the deposit/asset ratio of banks in New York shifted substantially after the New York Fed raised interest rates in October 1931.

Unlike London's clearing banks, English accepting banks, particularly merchant banks in the city's financial center, suffered large asset losses and substantial deposit withdrawals as a consequence of the financial crisis in Central Europe. Accominotti's recent research (2015) explains why London's merchant banks suffered severely during the crisis while New York's money-center banks did not. The merchant banks in London that suffered the most were those

that specialized in financing trade in German, Austria, Central Europe, and the Baltic. Those banks had the majority of their branch offices, correspondent linkages, and loan exposure in Germany and Austria. New York's money-center banks, in contrast, had only a small fraction of their overseas branches, correspondents, and loan exposure in nations caught up in the crisis.

Accominotti's observation complements our explanation of financial stability in New York. The exposure of New York's money center banks to the European crisis was small relative to the size of their entire balance sheet. This made it possible for New York banks to build adequate capital buffers by increasing the rate at which they retained earnings for a few years or even a few quarters. London's merchant banks could not do this. They could not diversify, like New York's money-center banks, because their profitability stemmed from specialized human capital (both knowledge and relationships), which they developed by focusing their resources in particular regions, such as Germany, Austria, the Baltic, and Central Europe. They could not build capital buffers sufficient to safeguard their firms from a shock that destroyed the one basket in which they had invested all of their assets.

Our findings also shed light on the broader debate about trans-Atlantic contagion that initially inspired our research, particularly the time-series studies such as Morsy (2002) and Ritschl and Sarferaz (2014). Their conclusions may remain correct, with the caveat that the channels transmitting shocks from Germany to the United States did not run through the links of deposit, debt, and lending between New York's money-center banks and Germany. Other potential channels remain. Possibilities include the effects of the German crisis on U.S. equity and debt markets, or on exports from the United States to Central Europe, or on expectations or confidence of U.S. investors and consumers. The latter seems like a promising possibility. It could explain the pattern revealed in this essay and in Mitchener and Richardson (2013 and

2016). During the German Crisis, deposits flowed out of banks around the United States, but not out of banks in New York. The latter had built capital buffers that made them, in the words of the *New York Times*, “impregnable” to financial shocks like events in Europe. Banks in the rest of the United States did not build such large capital buffers and may have done less to advertise their strength to their depositors.

Our findings also shed light on traditional theories about the international transmission of financial shocks during the late 1920s and early 1930s. Peter Temin (1993) describes three channels by which the financial crises of 1931 could have crossed the Atlantic. The first is the bank balance sheet channel. The second is a contagion of fear across national boundaries. The third is the impact of capital flows on central bank policies, particularly in nations on the gold standard, which must raise interest rates to defend gold reserves. Our research indicates that the bank balance sheet channel probably did not transmit the European crisis to the United States in 1931. A crisis of confidence may have been part of the transmission, but this psychological channel did afflict the banks at the center of the U.S. financial system or their depositors. Thus the third hypothesis, commonly called golden fetters, remains a leading explanation for the international transmission of the financial crisis in the summer of 1931.

## Appendix: Sources of Data

The extant data on New York's commercial banks for the 1930s consists of periodic snapshots of financial institutions gathered by various authorities, at varying frequencies, at different points in time, and filtered via various methods. This appendix describes each of those data sets.

The first snapshot contains information aggregated from call reports of Federal Reserve member banks operating in New York City. The data begins in 1919. The number of variables expands in 1928. Calls occurred periodically. Early in the 1920s, the calls occurred three times per year. The time between call dates varied considerably. One of the calls almost always occurred at the end of the calendar year. The others occurred at intervals of one to ten months. Later in the 1920s and throughout the 1930s, the calls occurred four times each year on regular schedule, with the time between calls varying from two to four months.

The second snapshot contains data aggregated from weekly reporting banks in New York City. The Federal Reserve did not disclose the identity of weekly reporting banks, but did indicate that this set of sixteen banks contained more than 75% of the deposits of all member banks in New York City (Federal Reserve 1947 pp. 145-8). All of these banks also contributed to data set number one.

The third snapshot contains information aggregated from the call reports of all nationally chartered banks operating in New York City. These calls occurred from three to six times each year. After 1923, the schedule became standardized with one call in between late February and mid April (typically mid March), one call on the last business day of June, one call between mid September and mid October, and one call on the last business day of December. The extant series extends back to the 1869.

The fourth snapshot contains information aggregated from the balance sheets of banks chartered by the state of New York. These calls occurred four times each year, on a regular schedule, similar to that of the Office of the Comptroller of the Currency (OCC). The extant series extends back to the 1890s.

Each of these aggregate snapshots has strengths and weaknesses. The first and second cover roughly the same set of Federal Reserve member banks, but the information has been processed via different filters. The first filter provides more detail on a larger set of banks over a longer time period but fewer times per year with varying lengths of time between observations. The second filter provides high frequency and regularly spaced observations but with less detail on a smaller set of banks over a shorter period of time. The third snapshot provides the longest data series with the broadest set of balance sheet information, typically 18 categories on the asset side of the balance sheet and 24 variables on the liability side of the balance sheet, but the information exists only for nationally chartered banks. The fourth data set covers a different set of banks (state chartered) over a long period. Some overlap exists between the first and third snapshots (national banks) and the first and fourth snapshots (state chartered banks that joined the Federal Reserve System). All four aggregate data sets cover a longer period at a higher frequency than the micro data available from individual banks.

Data on the balance sheets of individual banks comes from several sources. The Superintendent of Banks of the State of New York published the balance sheets of state chartered banks and trust companies at four dates during the year (described above). Details include the composition of assets (e.g. loans by type of collateral, stocks, bonds, discounts, cash, and deposits in other banks) and the composition of liabilities (e.g. time deposits, demand deposits, borrowings from banks, capital, surplus, and undivided profits).

The OCC published balance sheets for banks with national charters. The balance sheets reported five categories of assets and seven categories of liabilities. The balance sheets appeared once each year, for the fall call through 1927 and for the December call thereafter. The OCC did not publish the remaining call reports, and they have not been found in the OCCs archives. The OCC also published call reports aggregated at the reserve city, state, and Federal Reserve district levels. These aggregated balance sheets appeared more frequently and contained more information than the individually published reports.

The Federal Reserve did not publish call reports from individual banks. The Fed retained microfilm copies of some of its original records. For state-chartered member banks, balance sheets and income statements survive for the December and June calls for 1929 through 1933. For national banks, balance sheets survive from the December 1929, 1931, and 1933 calls. Income statements survive from the December 1929, June 1931, and December 1931, and December 1933 calls. The balance sheets provide detailed data about banks foreign exposure. Schedule G indicates holdings of foreign government bonds and other foreign securities. Schedule I indicates balances due in dollars and foreign currencies from foreign banks and foreign branches of U.S. banks. Schedule J indicates balances due to banks in foreign countries. Schedule L indicates time deposits of foreign banks and trust companies. Schedule D indicates the number of branches in foreign countries. A balance sheet also exists for each foreign branch, which provides additional information about overseas operations. The microfilmed call reports also contained examiners comments on the financial health of each institution. These assessments indicated the extent of each banks losses on investments (both past and predicted) and recommendations as to whether the bank should remain in operations, increase its reserves, consolidate with another institution, or cease operations.

The Senate Hearings on the Sale of Foreign Bonds or Securities in the United States report loans to Germany arranged by banks in New York and outstanding when the banking crisis ignited on the continent. The hearings also describe the exposure of these banks to other forms of foreign financial risk. Rand McNally Bankers Directory provided information about balance sheets; foreign branches; correspondent networks; and services provided to depositors, such as trust accounts, brokerage accounts, and assistance with international transactions. Rand McNally published data biennially from the June and December call dates. Rand McNally covered both national and state chartered banks. Rand McNally standardized balance sheet information, aggregating assets into four categories and liabilities into four categories.

Polk's Bankers Encyclopedia provided information similar to that in Rand McNally. The principal difference was the publication date, in March and September (rather than July and January), and the date of the data, which was gathered from spring and fall call reports (rather than end of June and end of December). The dates of the fall and spring call reports varied from jurisdiction to jurisdiction and year to year, complicating efforts to attribute Polk's data to specific days (or even months).

Newspapers also published financial information about individual banks. The New York Times and Wall Street Journal published balance-sheet data for banks operating in New York City. Banks supplied copies of their call reports to the newspapers. The newspapers published information from the largest banks at most call dates, but information for mid-range banks less frequently, and information for smaller banks about once per year. Banks also purchased advertisements that listed data from their latest call reports. Some of the larger banks advertised their financial condition more frequently.

These micro data sources enable us construct a panel indicating the financial condition of all banks in New York City during 1931. The panel contains information for state-chartered institutions at all call dates, and for nationally-chartered banks at least twice each year, and more frequently, when the data is available.

An additional source provides high-frequency information about the financial condition of individual banks. The report originated at the New York City Clearing House. It indicated demand, time, and foreign-branch deposits for all clearinghouse members. It contained a few other balance sheet items for each bank. The New York Times published the report in a column entitled New York Weekly Bank Statements. The column included similar information about sizeable banks that did not belong to the clearinghouse.

A source of information about the strategies and logic of New York City's money-center banks survives in the archives of the Federal Reserve Bank of New York. During the 1920s and 1930s, leaders of the New York Federal Reserve frequently spoke to and corresponded with directors of money-center banks in New York City. These conversations often included the Governor of the New York Fed, George Harrison. Harrison wrote detailed memos concerning his conversations and kept copious amounts of correspondence, both incoming and outgoing. When he retired, he left his office records with the Federal Reserve Bank of New York. We examined Harrison's notes and correspondence concerning the financial situation in the spring, summer, and fall of 1931. His correspondence dwelled at length on the financial crisis in Germany and Austria, its potential effects on banks in New York City, and the steps that money-center banks had taken and were taking to prepare for likely contingencies.

Harrison's information was likely to be accurate, since he had years of experience working in the financial sector, a dense network of business contacts, and frequent interactions

with financiers (professionally and socially) that enabled him to crosscheck and verify the veracity of the information that he received. Harrison also endeavored to ensure that information he received from financiers remained private. Harrison designated much of this notes and correspondence as confidential and retained the records in his own office to ensure control of the flow of information from his source. We believe that we are the first scholars to have access to Harrison's records. Harrison's materials illuminate strategies pursued by banks in New York City and the rationales behind those policies.

Another source substantiates information gleaned from Harrison's records. During the 1920s and 1930s, the principal financial periodicals including the New York Times, Wall Street Journal, Bradstreet's Weekly, Duns Review, Commercial and Financial Chronicle, and Bankers Magazine periodically published articles describing policies pursued by money-center banks and the logic underlying those strategies. The reporters who wrote these articles attributed their information to discussions with leaders of large banks, although the seldom disclosed their sources, preventing us from directly verifying their accounts. The congruence of information published by competing periodicals adds credence to common claims, as does their agreement with information gathered from Governor Harrison's memoranda.

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## Tables

**Table 1: Foreign Exposure of Banks in Manhattan, June 1931**

Bank Name	Paid-up Capital	Balances Payable in Dollars Due from Foreign Branches of U.S Banks	Due from Banks in Foreign Countries	Due to Banks in Foreign Countries	Time Deposits of other Banks and Trusts in Foreign Countries	Foreign Government Bonds Owned	Other Foreign Securities Owned, Including Municipal Bonds	Foreign Branches	Index of Foreign Exposure
	\$ Mil	\$ 1,000	\$ Mil	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000		
Chase National Bank	148.0	3,849.0	2.2	52,644	30,293	19,795	-	5	11.97
Guaranty Trust Co. of New York	90.0	4.6	6.3	76,300	12,100	4,674	4,533	8	11.384
Irving Trust	50.0	-	9.4	50,100	13,500	12,000	3,195	-	9.280
National City Bank of New York	110.0	-	12.6	94,300	20,200	4	-	74	9.042
Bank of America	36.8	0.4	6.4	19,300	-	3,779	4,154	-	4.398
New York Trust	12.5	-	1.4	16,900	7,400	10,200	200	-	3.575
Public National Bk & Trust	8.3	-	0.1	619	-	3,662	4,238	-	1.942
First National Bk	10.0	-	-	17,100	-	2,571	2,074	-	1.380
Bank of Manhattan Trust	22.3	-	-	2,218	-	5,046	124	-	0.518
Marine Midland & Trust	10.0	-	1.7	1,512	250	366	1,206	-	0.509
Bank of New York & Trust	6.0	-	1.3	3,111	11	736	725	-	0.297
Corn Exchange Bk & Trust	15.0	-	0.5	677	-	1,484	1,013	-	0.288
Commercial National Bk. & Tr.	7.0	-	1.6	2,963	100	-	700	-	0.224
Chatham Phenix National Bk & Tr.	16.2	-	0.7	1,927	-	316	1,084	-	0.184
Manufacturers Trust	27.5	-	0.7	2,702	-	618	257	-	-0.085
Grace National Bank	1.5	-	0.2	2,369	832	113	470	-	-0.099
Brooklyn Trust	8.2	-	0.5	570	-	474	192	-	-0.267
Federation Bank & Trust	0.8	-	-	4	-	475	372	-	-0.327
Liberty National Bank	3.0	-	-	47	-	76	491	-	-0.343

Bank of Europe Trust	1.0	-	0.1	36	-	388	84	-	-0.444
Amalgamated Bank	0.7	-	-	48	-	56	255	-	-0.448
Harbor State Bank	0.2	-	-	28	-	58	175	-	-0.480
Harriman National Bk, & Tr.	2.0	-	0.1	140	-	112	98	-	-0.487
Fulton Trust Co. of New York	2.0	-	-	-	-	241	75	-	-0.497
Fifth Avenue Bank of New York	0.5	-	-	159	-	14	50	-	-0.505
Continental Bank & Trust	6.0	-	-	-	-	35	72	-	-0.534
International Trust	3.2	-	0.1	63	-	-	37	-	-0.535
Pennsylvania Exchange Bank	1.0	-	-	-	-	177	-	-	-0.536
American Union Bank	2.0	-	-	32	-	36	49	-	-0.536
Bank of Yorktown	1.5	-	-	-	-	15	55	-	-0.537
Globe Bank & Trust	1.5	-	-	-	-	22	65	-	-0.543
J. Henry Schroder Trust	0.7	-	-	-	-	12	64	-	-0.545
Merchants Bank of New York	0.4	-	-	7	-	50	17	-	-0.555
Midwood Trust	1.0	-	-	-	-	36	18	-	-0.560
Clinton Trust	0.5	-	-	-	-	29	20	-	-0.560
Times Square Trust	2.0	-	-	4	-	-	20	-	-0.564
All Other Banks		-	-	-	-	-	-	-	-0.574

**Table 2: Effects of Foreign Exposure on Retained Earnings, Total Deposits, and Liquid Assets**

	(1)	(2)	(3)
	Percent Change in Surplus and Undivided Profits	Percent Change in Total Deposits	Percent Change in Liquid Assets
Index of Foreign Exposure	0.001	-0.004	-0.019
	0.011	0.021	0.039
Cash to Deposits	-0.022	0.109	0.086
	0.045	0.086	0.159
National Bank	0.013	-0.190	-0.369
	0.120	0.231	0.426
Capital to Assets	0.422	-0.717	-0.819
	0.272	0.526	0.968
Log Assets	0.013	0.006	0.019
	0.016	0.031	0.057
Observations	50	50	50
F-statistic	0.450	0.760	0.450
R-squared	0.050	0.081	0.050

Source: Authors' calculations.

**Table 3: Foreign Exposure of Banks in Leading Cities, June 1931**

Reserve City	Due to Banks in Foreign Countries	Due from Banks in Foreign Countries	Earnings, Foreign Exchange Department	Loans Payable in Foreign Countries	Foreign Securities - Government Bonds	Foreign Securities - Municipalities and Other	Total Bonds and Securities	Total Loans and Discounts
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	\$1,000s							
New York	228,017	63,587	10,916	13,702	41,098	39,860	1,249,774	2,522,210
Chicago	7,708	2,920	784	13,939	2,019	2,022	178,685	444,327
Boston	16,215	27,001	369	14,409	8,387	7,930	250,654	605,119
United States Total	278,594	120,064	15,262	51,861	230,979	245,469	7,674,837	13,177,485
	Percent of United States Total							
New York	81.8	53.0	71.5	26.4	17.8	16.2	16.3	19.1
Chicago	2.8	2.4	5.1	26.9	0.9	0.8	2.3	3.4
Boston	5.8	22.5	2.4	27.8	3.6	3.2	3.3	4.6
	Percent of Cities Earning Assets							
New York	6.05	1.69	0.29	0.36	1.09	1.06		
Chicago	1.24	0.47	0.13	2.24	0.32	0.32		
Boston	1.89	3.16	0.04	1.68	0.98	0.93		

Sources: All data from the Annual Report of the Comptroller of the Currency for 1931 (OCC 1932). Column (1), Table 53, pp. 646-650; Column (2), Table 53, pp. 646-650; column (3), OCC 1931, pp. 67-70; column (4), OCC 1931 pp. 46-49; column (5), OCC 1931 pp. 54-7; column (6), OCC 1931 pp. 54-7; column (7), OCC 1931 pp. 46-49, column (8), OCC 1931 pp. 46-49.

**Table 4: Bai-Perron Break Dates for Balance Sheet Information on Weekly Reporting Banks**

<b>Reporting Banks Inside New York City</b>						
	<u>Level of ...</u>		<u>Percentage change in ...</u>		<u>Trend Over Time in ...</u>	
Loans and Investment, Total	7/22/1929	11/23/1931			9/9/1929	1/11/1932
Loans, on securities	7/1/1929	10/12/1931			3/31/1930	6/13/1932
Loans, other	4/7/1930	6/20/1932			7/8/1929	6/13/1932
Investments, US government securities	12/30/1929	5/02/1932				11/10/1930
Investments, other	12/23/1929	5/02/1932			6/24/1929	10/26/1931
Balances with Domestic Banks	5/6/1929	7/27/1931				7/20/1931
Net Demand Deposits	9/2/1929	1/04/1932				12/14/1931
Time Deposits	6/17/1929	10/19/1931		10/27/1930		9/21/1931
Interbank Deposits	5/19/1930	7/11/1932	7/08/1929	2/29/1932		10/7/1929
<b>Reporting Banks Outside New York City</b>						
	<u>Level of ...</u>		<u>Percentage change in ...</u>		<u>Trend Over Time in ...</u>	
Loans and Investment, Total	11/25/1929	3/28/1932	11/11/1929	5/02/1932	9/23/1929	4/25/1932
Loans, on securities	4/7/1930	6/20/1932			3/31/1930	6/13/1932
Loans, other	4/7/1930	6/20/1932	9/09/1929	11/23/1931	8/26/1929	5/9/1932
Investments, US government securities	12/30/1929	5/02/1932			9/30/1929	3/28/1932
Investments, other	12/30/1929	5/02/1932		5/04/1931	6/24/1929	10/26/1931
Balances with Domestic Banks	5/19/1930	7/11/1932			5/13/1929	8/17/1931
Net Demand Deposits	5/13/1929	10/19/1931				9/14/1931
Time Deposits	5/7/1928	1/04/1932	12/02/1929	4/18/1932	3/11/1929	9/28/1931
Interbank Deposits	8/5/1929	9/28/1931		2/29/1932	4/1/1929	9/14/1931

Note: Reported break dates are the last week of the old pattern. The new pattern begins in the subsequent week.

## Figures

Figure 1: Percent Change in Total Deposits, March 31, 1931 to September 27, 1931

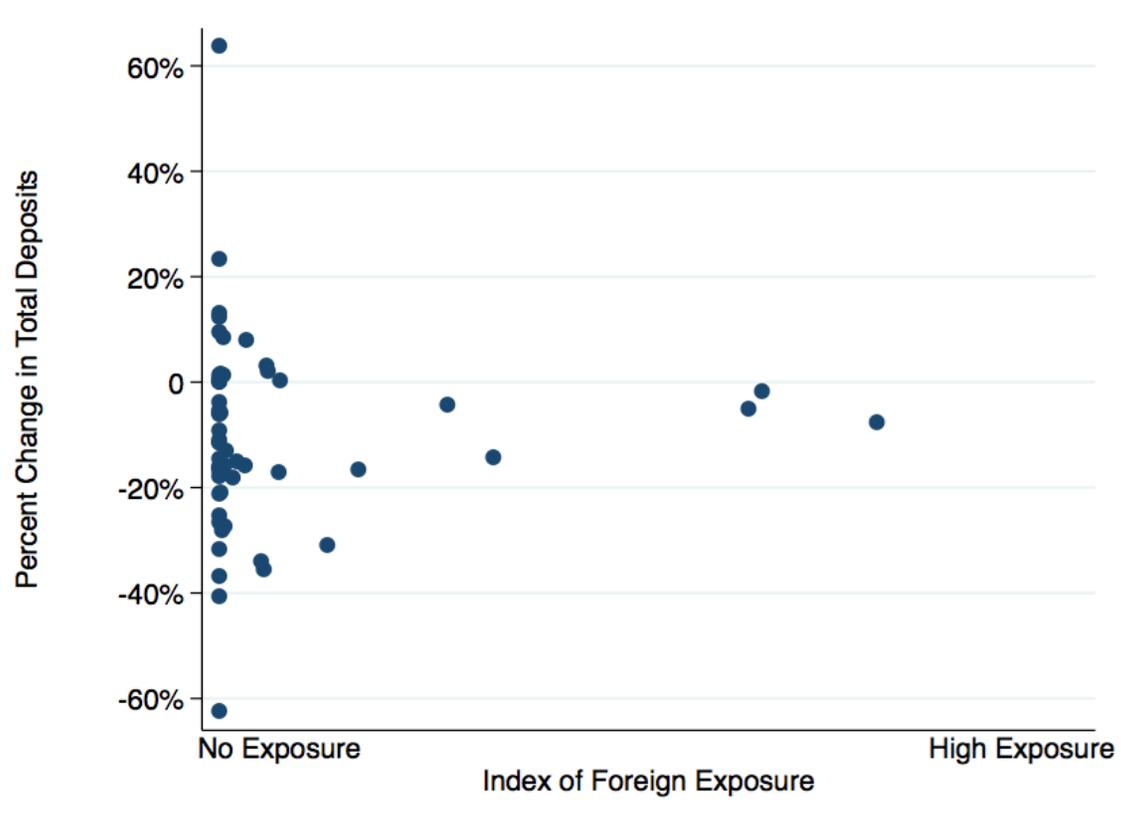


Figure 2: Percent Change in Cash and Due from Banks, March 31, 1931 to September 27, 1931

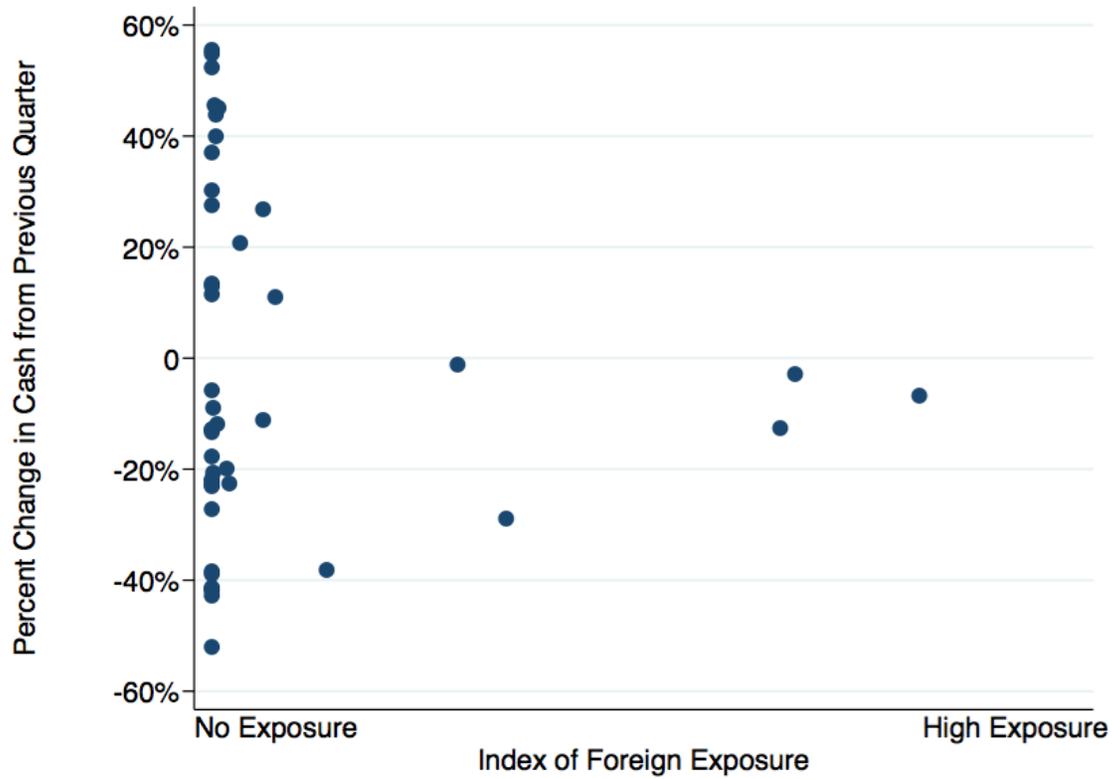




Figure 4: Deposits of Weekly Reporting Banks in New York City, 1929-1933

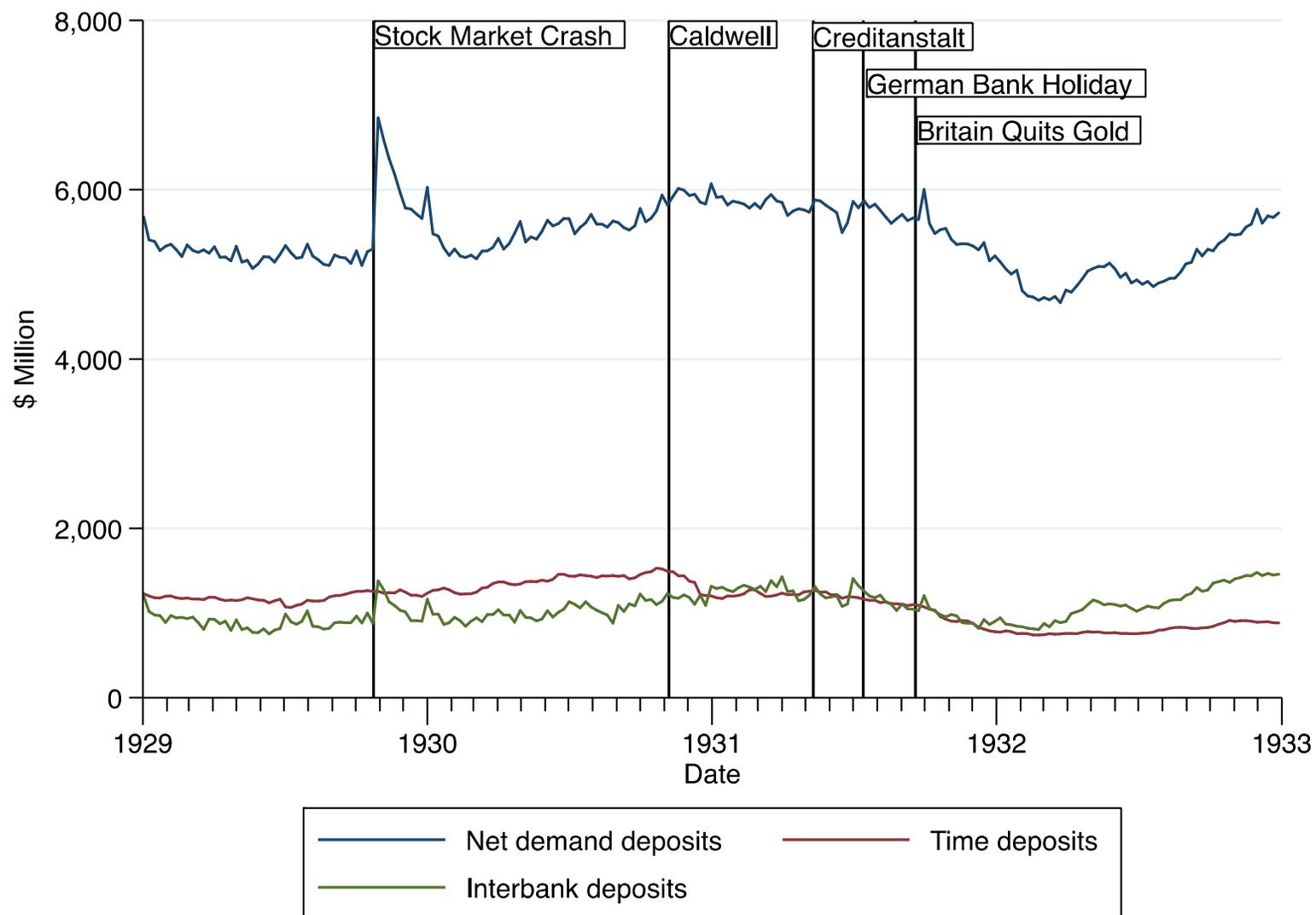


Figure 5: Loans and Investments of Weekly Reporting Banks in New York City, 1929-1933

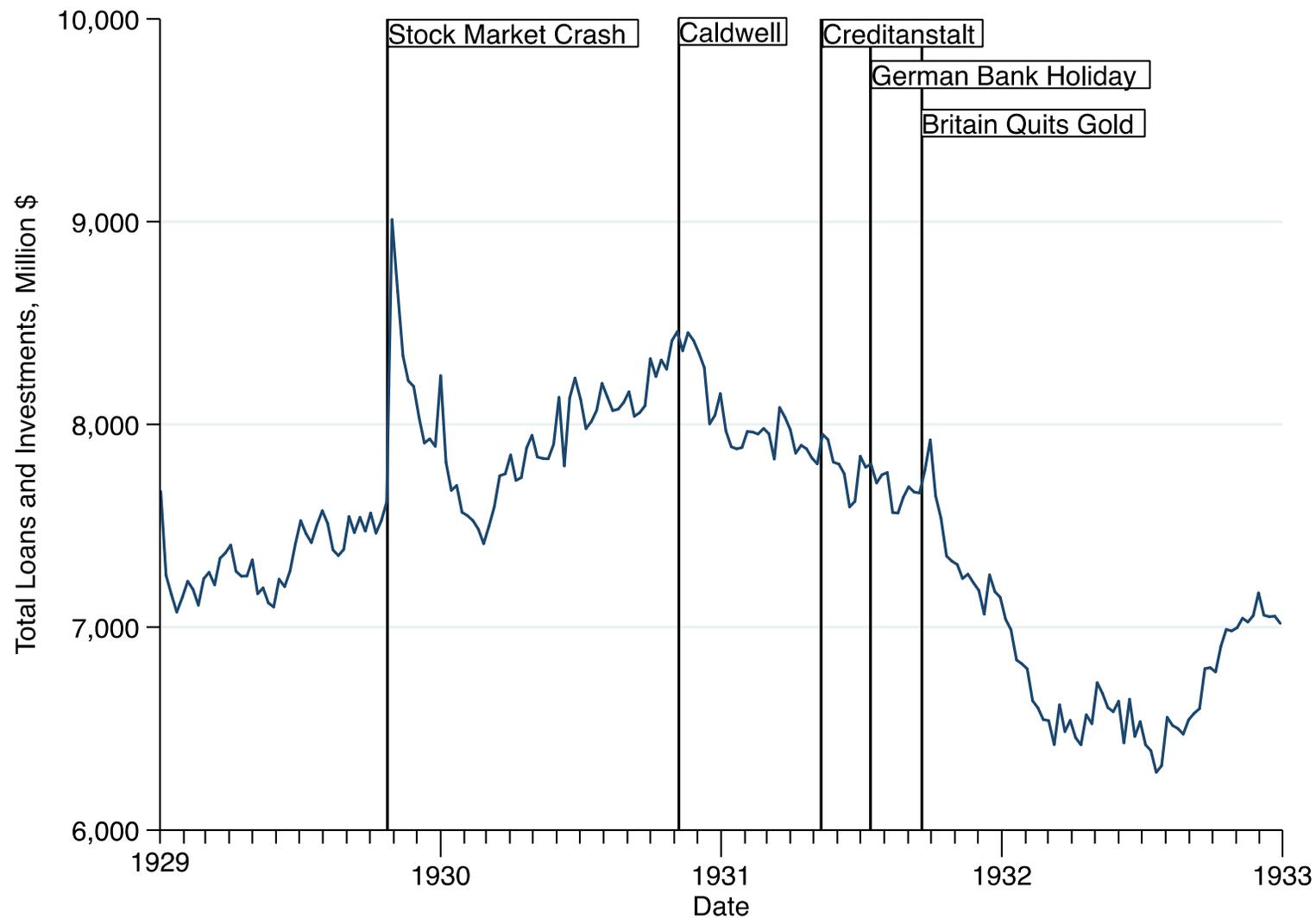


Figure 6: Demand Deposits at Weekly Reporting Banks during the German Crisis

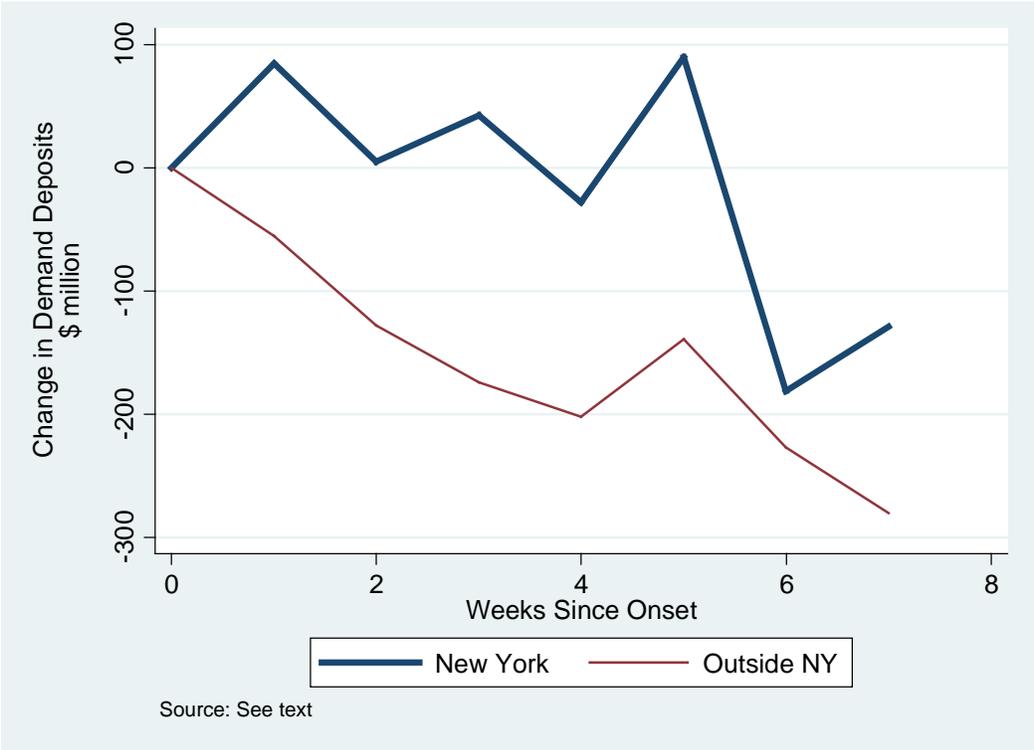


Figure 7: Changes in Demand Deposits in in Weekly Reporting Banks in New York Relative to Outside of New York during Three Financial Crises.

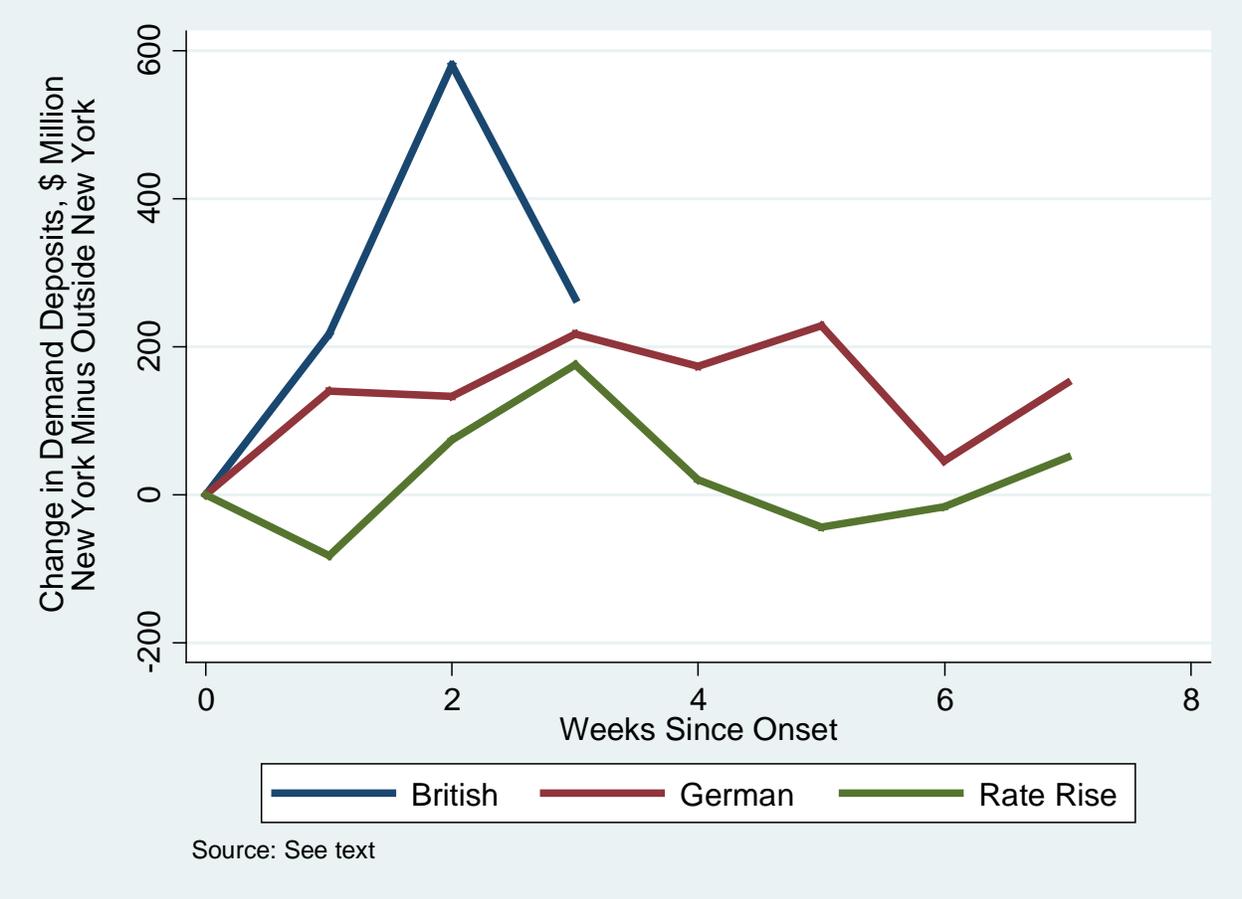


Figure 8: Changes in Loans and Investments in Weekly Reporting Banks in New York Relative to Outside of New York during Three Financial Crises.

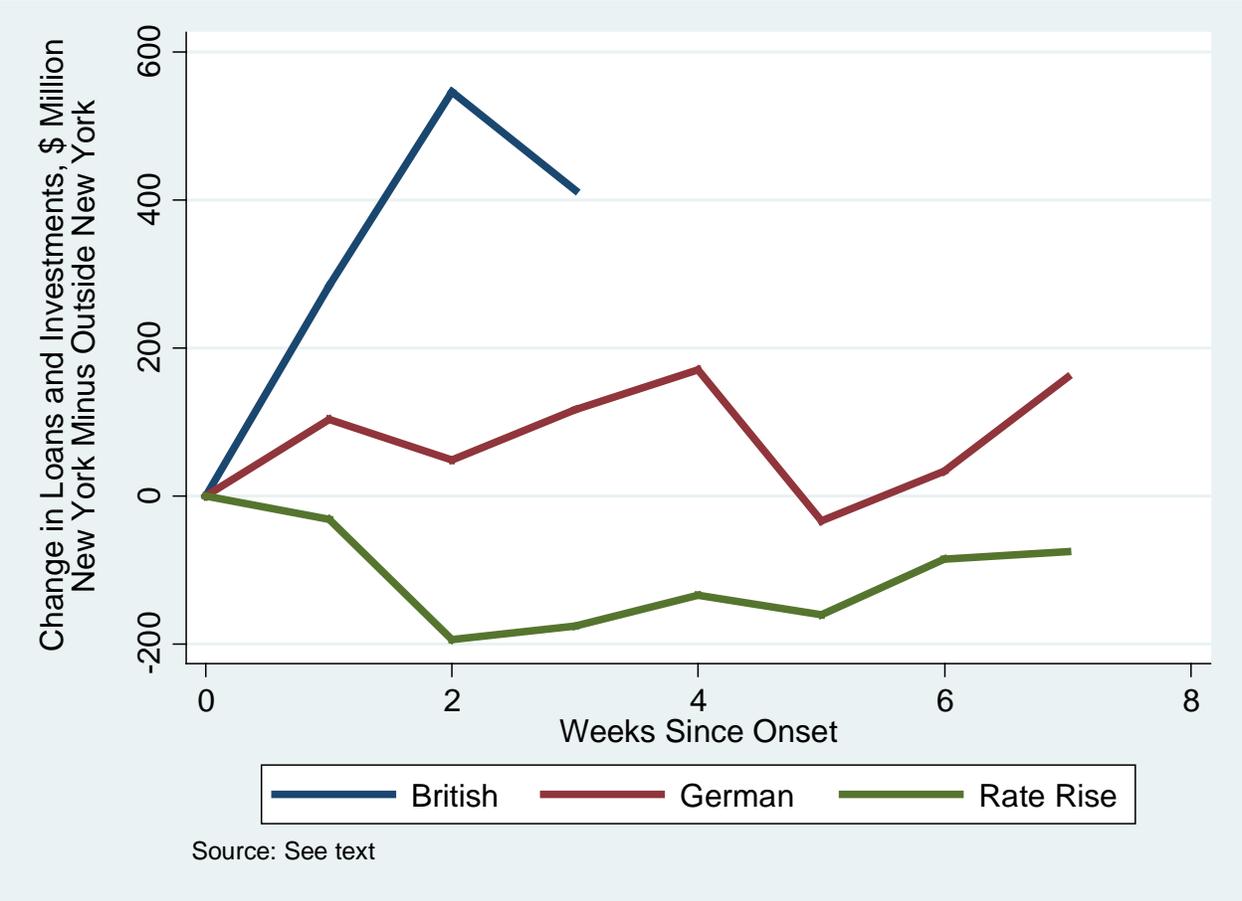


Figure 9: Assets of New York City Fed Member Banks at Call Dates, 1919-1935



Figure 10: Composition of Assets, New York City Fed Member Banks at Call Dates, 1919-1935

