

Global Banking and the International Transmission of the 1931 Financial Crisis*

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Abstract

This paper explores the impact of the Central European crisis of the summer of 1931 on US and British banks. Using archival bank-level data, I document US and British banks' asset side exposure to Germany, Austria and Hungary in 1931. The freeze of Central European assets left few US banks insolvent but endangered many British financial institutions. In Britain, Central European frozen credits were mostly held by small and poorly diversified banks with little capital to absorb losses in the region. In the United States, Central European credits were mostly held by large and diversified banks which were better able to cushion the shock of the German crisis. Differences in the organization of foreign banking between the two creditor countries explain why the Central European crisis transmitted to London but not New York in 1931.

Keywords: 1931 financial crisis; international contagion; cross-border banking

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1. Introduction

In 1931, the world economy experienced one of the most severe financial crises of history. From May to July, a series of financial panics shook Central Europe and brought down the currencies and banking systems of Austria, Hungary and Germany. In order to thwart capital outflows, Central European governments suspended foreign exchange payments, leading all borrowers from the region to default on their short-term foreign debts (Harris, 1935, Ellis, 1941, Ritschl, 2002). The second half of 1931 was then marked by global financial instability. Troubles in the European periphery soon spread to the center of the international financial system. A speculative attack on the pound sterling pushed the United Kingdom off the gold standard in September, while the United States witnessed a severe banking panic in the summer.

How did the 1931 financial crisis propagate internationally? A first hypothesis is that the German crisis acted as a wake-up call for investors, triggering a scramble for liquidity in the global financial system and a wave of bank runs and speculative currency attacks (Kindleberger, 1973, Capie et al., 1986, Temin, 1993).¹ Scholars have also argued that direct cross-border banking linkages facilitated the transmission of the crisis (James, 2001, 2009, Borio, James and Shin, 2014, Ritschl and Sarferaz, 2014).² On this account, US and British banks' asset side exposure to Central Europe contributed to propagate the troubles from the debtor countries to the London and New York financial centers.³

Recent empirical research has however provided mixed results on the latter hypothesis. On the one hand, Accominotti (2012) shows that the Central European crisis of July 1931 resulted in serious disruptions in the London money market due to the British merchant banks' exposure to the crisis region and this situation partly contributed to the sterling crisis of September. On the

¹ See Banerjee, 1992, Calvo and Mendoza (2000), and Ahnert and Bertsch (2015) for theoretical models of herd behavior and wake-up call contagion.

² See Allen and Gale (2000) for a theoretical model of contagion through cross-border bank lending.

³ This narrative shares similarities with accounts of the 2007-2009 financial crisis emphasizing the density of linkages within the global banking system as a factor of international shock propagation (Cetorelli and Goldberg, 2011, 2012, Hale et al., 2013).

other hand, Richardson and van Horn (2009, 2011) argue that the Central Europe troubles did not directly impair New York City banks' balance sheets in the summer of 1931 and that their situation only deteriorated after the Federal Reserve raised interest rates in October, following Britain's departure from the gold standard.

Accounts of the episode by contemporary observers corroborate these findings. For example, in his classic study of the British banking system during the interwar period, Roger Truhtil (1936, p. 290) was adamant that the Central European crisis endangered the London City in 1931: "The heavy liabilities assumed by the City in Central Europe (...) increased considerably the risks of bank failures. (...) The German crisis with its suspension of payments burst upon the City in July. (...) The situation became serious."⁴ In a letter addressed to the Bank of England's Governor on 30 November 1931, the Chairmen of the British Bankers Association (J.B. Beaumont Pease) and of the Accepting Houses Committee (W.H.N. Goschen) also noted that the German crisis "produced a situation in the London Money Market unprecedented in time of peace".⁵ By contrast, US bankers did not seem much alarmed by the German crisis. For example, just two weeks after Germany banned foreign exchange payments (4 August 1931), the Berlin representative of the *Central Hanover Bank* of New York downplayed the potential repercussions of this decision on US financial stability: "When the actual crisis was imminent, [US banks] felt that their German commitments were still very considerable, but probably with very few exceptions so large that they could endanger the position of the credit givers."⁶ Responding to the questions of the US Senate's Committee on Finance in December 1931, Thomas Lamont of JP Morgan also argued that "short-term German credits do not constitute, in their volume, a danger to the American banking situation today."⁷

⁴ Truhtil (1936), p. 290.

⁵ Archives, Royal Bank of Scotland, WES 1174/185.

⁶ Archives, Federal Reserve Bank of New York, Harrison papers, file No. 2550.4.

⁷ Hearings Before the Committee of Finance, United States Senate, 72nd Congress, First Session, S. Res. 19, 18 December 1931, p. 33. Similarly, when informing the US President Herbert Hoover about the American banks'

Why did the Central European crisis transmit to the City of London but not New York in the summer 1931? The purpose of this paper is to answer this question. I rely on new bank-level data and describe for the first time the nature and extent of US and British banks' exposure to Germany, Austria and Hungary in 1931. Using data culled from various archival records and published sources, I quantify the Central European exposure of 1. twenty-four British banks (accounting for eighty-two per cent of the British banking system's aggregate exposure to Germany); and 2. eighteen US banks (accounting for seventy-four per cent of the US banking system's aggregate exposure to Germany) in 1931. I also complement this information with a newly collected dataset documenting the geographical location of New York and London banks' foreign correspondents at the beginning of the 1930s. These data allow me to describe US and British banks' cross-border activities in detail and assess their exposure to the crisis region.

I argue that the severe repercussions of the Central European crisis on the London money market were a consequence of the specific organization of foreign banking in Britain. In London, there was a strong separation between those banks which engaged in domestic lending and those which engaged in foreign lending. Cross-border banking was mainly the activity of small and highly specialized institutions, the London merchant banks, which concentrated on lending to specific countries. In 1931, most of the Central European credits granted by British creditors were therefore held by small and poorly diversified banks, whose exposure to the region was high relative to their capital and total balance sheet. The freeze of Central European assets directly threatened these houses' solvency. Since the merchant banks' acceptances constituted the cornerstone of the London money market, the risk of multiple failures among these institutions triggered a liquidity crisis in the City in the summer of 1931.

involvement in Germany in May 1931, the Chairman of the Federal Reserve Board Eugene Meyer reassured him by noting that "our system could handle the shock."

⁸ Public Papers of Herbert Hoover, vol. 2: 1931, p. 660, 20-22 May 1931. I thank Tobias Straumann for pointing me towards this citation.

In the United States by contrast, foreign lending was mainly the activity of the largest commercial banks: the big national banks and trust companies of New York City and other central reserve cities. Most of the Central European credits granted by US banking creditors were therefore held by the country's largest banks, whose exposure to the region remained low relative to their capital and total assets. Because of their large size and high level of diversification, these banks were better able to cushion a default from German borrowers and the Central European crisis did not directly threaten their solvency. This result echoes the qualitative evidence reported above and explains why the German crisis did not alarm New York bankers in the summer of 1931.

In order to understand these differences in the organization of foreign banking between the two creditor countries, I use insights from corporate finance theory and models of financial intermediation with *learning-by-lending* (Dell'Ariccia, 1998, Dell'Ariccia et al., 1999, Tirole, 2005, Pavanini and Schivardi, 2013). Engaging in short-term lending to foreign customers required US and British banks to have 1. information on the borrowers and 2. capital in order to cushion potential defaults. In London, the small merchant banks had engaged in foreign lending since the mid-19th century and, over time, they had accumulated extensive information on borrowers abroad. They therefore enjoyed a comparative advantage over the large commercial banks (the joint-stock clearing banks) in foreign markets where they specialized. Asymmetric information between banks created barriers to entry in these markets. Despite their lower size and capital, the “incumbent” merchant banks could maintain their position relative to the “entrant” commercial banks in the interwar period because they were better informed and could screen borrowers more efficiently. The expertise and information accumulated by the merchant banks allowed them to provide foreign credits on a narrow capital base, which probably made the British banking system very efficient in quiet times.⁹ However, the system was also highly vulnerable to systemic shocks abroad

⁹ Comparing the efficiency of the British and US banks in foreign lending in quiet times would require comparing their profits and losses abroad. Unfortunately, I have been unable to locate systematic information in the archives on the

such as the Central European crisis because foreign credits were concentrated among small and poorly diversified institutions.

By contrast, New York had only recently emerged as an international financial center in the early 1930s and foreign lending was still a new activity for American banks (Eichengreen and Flandreau, 2012). When New York City emerged as a large center for international trade finance in the 1920s, there were few US banks, which already enjoyed an informational advantage in foreign markets. Moreover, the Federal Reserve Act of 1913 linked the member banks' granting of foreign commercial credits to their (absolute) level of capital and reserves. Therefore, large Federal Reserve member banks (in terms of capital) had an advantage over small ones and the biggest US financial institutions captured the largest market shares in foreign lending. This explains why Central European frozen credits were concentrated among large and diversified banks in 1931.

New data on the geographical distribution of New York and London banks' foreign correspondents on the eve of the global financial crisis support this argument. First, I find that small banks had less diversified portfolios of correspondents than large ones and specialized in countries where they had an informational advantage (usually the countries of origin of the banks' founders). Second, small London banks with long-time connections to Germany and Central Europe were the market leaders in these countries and several of them had more correspondents in the region than the largest British commercial banks. In the United States by contrast, the largest commercial banks were also the market leaders in Germany, Austria and Hungary.

The remainder of the paper is organized as follows. Section 2 presents a short narrative of the Central European financial crisis of 1931. Section 3 presents the archival sources and data used in the paper. Section 4 describes the exposure of individual US and British banks to Central European credits in 1931 and the distribution of German exposure across banks. Section 5

default rates faced by the British and US banks in foreign countries or on the actual profits of their foreign lending activities.

provides an explanation for why Central European credits were distributed differently across banks in Britain and the United States. Section 6 concludes.

2. The Central European Crisis

During the second half of the 1920s, Germany, Austria and Hungary imported large amounts of capital from abroad (Ritschl, 2002, 2012, Accominotti and Eichengreen, 2015). Foreign borrowing consisted in long-term bonds floated by governments, municipalities and corporations in the main international financial centers, and short-term commercial debts, mostly bankers' acceptances granted by leading financial houses in the same centers. Net capital inflows to Austria, Germany and Hungary increased dramatically following the stabilization of these countries' currencies in 1923-1924 and peaked in 1928 when they reached 4.9% of their collective GDP (Accominotti and Eichengreen, 2015). Starting 1929 however, the influx of foreign capital to Central Europe slowed down significantly before reversing totally in 1931. In that year, Austria, Germany and Hungary experienced net capital outflows as foreign investors repatriated their capital. This triggered a wave of banking and currency crises in the region (Schubert, 1991, Ferguson and Temin, 2003, James, 2001, 2009, Schnabel, 2004, 2009).

In an attempt to thwart capital outflows, Central European governments introduced foreign exchange restrictions. The new legislations adopted in the summer and fall 1931 prohibited all foreign exchange payments except under certain strict conditions (Ellis, 1941). Capital controls prevented currency depreciation and halted deposit withdrawals from the banks but they passed the buckle to foreign creditors. Central European debtors needed foreign exchange in order to reimburse their short-term foreign currency debts. Since purchases of foreign currencies were now prohibited, they had no other option than to default on these debts.

At the London Conference of July 1931, foreign creditors agreed to reschedule all short-term credits to Central European customers and maintain existing credit lines. This resulted in the freeze

of all Central European assets for an indefinite period. The rescheduling of German debts was formalized through the Standstill agreements of September 1931, negotiated between the big creditor banks and the German debtors. The agreements initially covered a six-month period but were then renewed repeatedly until WW2. Over this period, it remained unclear whether “frozen debts” would eventually be reimbursed. For example, in its March 1933 Report on the Continental Illinois National Bank, the Office of the Comptroller of the Currency’s Examiner noted that it was “almost impossible to ascertain the ultimate loss or recovery [from German credits] if any.”¹⁰

Starting 1933, the Standstill agreements allowed creditors to obtain reimbursement of their frozen credits in the form of blocked mark accounts (also called registered marks) with the Reichsbank (Harris, 1935). Blocked marks could only be spent on travel expenses or long-term investments in Germany but could also be traded on the London and Zurich markets against other foreign currencies at a substantial discount relative to the official parity. This allowed creditor banks ready to liquidate their Standstill assets at a loss to write them off and progressively reduce their exposure. The Standstill agreements were then suspended during WW2 and all German debtors were forced to default on the remaining credits. After the war, a comprehensive settlement of the German private debts with their foreign banking creditors was not reached until the London Debt Agreement of 1953 (Diaper, 1986, Guinnane, 2004).

US and British banks were among the largest providers of capital to Central Europe in the second half of the 1920s. In particular, most of the short-term foreign credits granted to German debtors consisted in *bankers’ acceptances*, granted by financial houses in London and New York City. (Harris, 1935, p. 19, Accominotti, 2012). Several authors have therefore advanced the hypothesis that US and British banks’ exposure to Central European frozen credits contributed to transmit financial instability from Germany to London and New York in 1931 (James, 2001, Accominotti, 2012, Ritschl and Sarferaz, 2015).

¹⁰ Archives of the Office of the Comptroller of the Currency, *Examiner’s Report of the Condition of Continental Illinois National Bank and Trust Co.*, Chicago, Illinois.

Table 1 provides information on the aggregate amount of New York City and London banks' German short-term assets at the end of July 1931, in millions of US dollars and as a proportion of the creditor countries' 1930 GDP and of the banks' total assets and aggregate capital and reserves. New York banks held the largest share of German short-term debts in 1931. The banks' German claims were small relative to both creditor countries' GDP and the banks' total assets but quite substantial when compared to their aggregate capital. German short-term credits amounted to, respectively, 26% and 33% of the New York City banks' and London joint-stock and merchant banks' equity.

[Table 1 about here]

Assessing the impact of the Central European shock on overall financial stability in the creditor countries however also requires looking at *how exposure was distributed across banks*. For example, the total amount of US banks' mortgage losses in 2008 remained modest relative to the size of the US banking system; yet, the burst of the housing bubble triggered a severe liquidity crisis, as a few highly interconnected institutions turned insolvent (Gorton, 2009, Brunnermeier, 2009). Recent scholars have also stressed the importance of bank-level data for identifying of how financial shocks propagate internationally (Peek and Rosengren, 2000, Cetorelli and Goldberg, 2011, 2014).

Billings and Capie (2011) and Accominotti (2012) explore the impact of the Central European crisis of 1931 on the British banking system using data on individual banks' exposure to Germany, Austria and Hungary. However, the US banks' Central European exposure has never been documented systematically at the bank level. Ritschl and Sarferaz (2015) explore the channels of financial crisis transmission between Germany and the United States in the 1920s and 1930s using a factor-augmented vector autoregressive model based on monthly macroeconomic series for both

countries. They find evidence of crisis transmission from Germany to the United States after 1931 but only after a substantial lag. Richardson and Van Horn (2009, 2011) also explore the importance of transatlantic contagion in the New York banking panic of 1931 using aggregate balance sheet data for the main commercial banks and an index of foreign exposure for individual institutions. They however do not specifically explore the effect of the German and Central European crisis and do not distinguish between exposure to Central Europe and exposure to other countries. One contribution of this paper is therefore to present a new dataset documenting individual US banks' asset side exposure to Germany, Austria and Hungary in 1931.

3. Data

I rely on two separate datasets: first, a dataset documenting individual British and US financial institutions' exposure to Central European frozen credits; and second, a dataset of London and New York City banks' foreign correspondents.

The main international banks in Britain and the United States did not publish the geographical breakdown of their assets and obtaining data on their German and Central European commitments requires digging into archival records. Data on British banks are from previous archival work by Billings and Capie (2011) and Accominotti (2012). These authors report the amount of German and Central European frozen credits held, respectively, by the large British commercial banks (the "Big Five" clearing banks, *Barclays*, *Lloyds*, *Midland*, *National Provincial* and *Westminster*) and the smaller London merchant banks. Data on frozen assets are available for twenty-four British financial houses. This sample accounts for 90 per cent of the British banking system's total assets and for 82 per cent of the aggregate amount of German short-term debts owed to British banks in 1931.¹¹

¹¹ The aggregate amount of German debts owed to British banks in July 1931 is available in Archives, Bank of England, ADM33/21.

Data on individual US banks' exposure to Germany, Austria and Hungary at the time of the crisis were hand-collected in various archival and published sources including the US National Archives, the German Bundesarchiv, and monographs published on individual institutions. Combining these sources allowed me to reconstruct the amount of Central European frozen credits of eighteen US banks in total. The sample includes ten national banks or trust companies of New York City (*Bankers Trust Company, Chase National Bank, Chatham Phenix National Bank and Trust Company, Commercial National Bank and Trust Company, Grace National Bank, Guaranty Trust Company, Irving Trust Company, Manufacturers Trust Company, National City Bank, Public National Bank and Trust Company*), five national banks of other central reserve cities (*Continental Illinois National Bank and Trust Company, First National Bank of Boston, First National Bank of Chicago, National Shawmut Bank, Philadelphia National Bank*), and three non-member banks (*International Acceptance Bank, Schroders Banking Corporation* also called *Schrobanco, Brown Brothers Harriman*). This sample accounts for approximately 25 per cent of the US banking system's total assets in 1931. It also includes the largest US banks of the time which, as I argue here, were the most heavily engaged in foreign lending. The eighteen institutions in the sample account for 74 per cent of the German short-term credits held by US banks in 1931.¹²

These data cover all short-term credits which were frozen in 1931 when Central European governments introduced foreign exchange restrictions. They include acceptance credits and other direct short-term credits to banks and firms located in Germany, Austria and Hungary.¹³ They also include short-term loans to public authorities such as the USD 125 million loan granted by twenty-two US banks to the German government in October 1930 under the heading of Lee, Higginson and Company.¹⁴ In 1924-1931, German public authorities also issued large amounts of long-term bonds in New York and London with the underwriting of the main American banks. The service

¹² The aggregate amount of German short-term debts owed to US banks in July 1931 is given by Harris (1935, p. 18).

¹³ For a full description of acceptance credits, see Accominotti (2012) and Eichengreen and Flandreau (2013). Acceptance credits constituted the majority of US and British banks' German short-term credits in 1931.

¹⁴ See Bennett (1962), pp. 17-20.

of these bonds was not suspended until July 1933 but their prices collapsed on the secondary market following the German crisis. However, long-term German bonds floated abroad were for their most part sold to the public and were therefore held by individuals rather than banks (Schuker, 1988, Guinane, 2004). A detailed note, found in the German federal archives on the country's foreign indebtedness in September 1932 confirms that US and British banks held, respectively, only 6.2 and 5.7 per cent of the German long-term debts owed to all US and British creditors at that date. Long-term debts also only accounted for, respectively, 12.1 and 6.1 per cent of the US and British banks' total exposure to Germany.¹⁵ As US Senator Connolly remarked to the Chairman of the *National City Bank* during the hearings of the US Senate's Committee on Finance in December 1931: "With reference to foreign bonds, you are like the saloon keeper who never drank. His whiskey was made to sell, not to drink."¹⁶

I also complement the balance sheet information with a new dataset of London and New York banks' foreign correspondents. When granting short-term credits to foreign customers, British and US banks usually relied on correspondents in the debtors' countries. Correspondents were financial institutions, which acted as agents of the US and British banks in foreign countries, "furnishing information on local credit conditions, handling documents and making collections" on their behalf (Phelbs, 1927, pp. 20-21). They were in direct contact with the ultimate borrowers and often guaranteed their debts. The network of US and British banks' foreign correspondents provides invaluable insights into the markets in which they operated. I reconstructed the portfolio of London and New York banks' foreign correspondents using the *Bankers' Almanac*, a British directory providing practical information to City bankers on the principal foreign financial institutions. The 1930/31 issue of the *Almanac* gives a list of 3,352 foreign banks located in 86 countries and contains such information as their mailing and telegraphic addresses, list of partners and, sometimes, balance sheet items. The *Almanac* also reports the list of each bank's

¹⁵ Bundesarchiv, Koblenz, record N1138/27.

¹⁶ Hearings Before the Committee of Finance, United States Senate, 72nd Congress, First Session, S. Res. 19, 18 December 1931, p. 81.

correspondents in New York and London, which I used to infer each London and New York bank's portfolio of foreign correspondents. The data on foreign correspondents of course have limitations. In particular, correspondents are not weighted by size and the data do not correct for potential selection biases in the *Almanac*. Yet, a quick look at the data for the twenty-four London banks for which information is available reveals that the cross-sectional correlation between the amount of their Central European credits in 1931 and the number of their correspondents in Central Europe is 0.79. The number of correspondents a bank had in a given country therefore seems to be a fair indicator of its market position in this country.

[Figure 1 about here]

[Table 2 about here]

Figure 1 and **table 2** display the geographical distribution of all London and New York City banks' foreign correspondents. The vast majority of correspondents were located in Europe, which accounted for, respectively, 83.9% and 78.6% of the New York and London banks' correspondents listed in the source. Germany was the main market followed by the Scandinavian countries, France and the Netherlands. London financial institutions had a large number of correspondents in the United States while banks in both financial centers were also present in Latin America.

4. US and British Banks' Exposure to Central Europe

4.1. Individual banks' exposure

I first document the US and British banks' exposure to German and Central European credits in 1931. For each bank in the sample, **figures 2** and **3** display the ratios of its 1931 (frozen) Central European credits to, respectively, the value of its 1930 paid-up capital and reserves and of its 1930

total assets (excluding acceptances).¹⁷ The figure distinguishes between 1. commercial banks, which engaged in a variety of activities including the extension of credits to domestic industrial and commercial firms, securities investment and foreign banking (light-gray bars) and 2. private banks and acceptance houses whose primary activity was to engage in foreign lending (dark-gray bars). The former category includes the largest banks of both Britain and the United States (in terms of asset size or capital): the Big Five British commercial banks and other London clearing banks as well as the large national banks and trust companies of New York City and other central reserve cities. The latter includes the private London merchant banks (or acceptance houses) and two US banks founded in the 1920s with the explicit purpose of mimicking the London acceptance houses' business model (*International Acceptance Bank* and *Schrobanco*) as well as the reputed private bank *Brown Brothers Harriman*. These houses were much smaller on average.

Evidently, commercial banks dominate the US sample but constitute the minority of the British sample. These differences in sample composition do not simply reflect issues of data availability but mostly arise from differences in market structures between the two creditor countries and, in particular, the fact that very few small banks engaged in foreign lending in the United States in the 1920s, in comparison to Britain.

[Figure 2 about here]

[Figure 3 about here]

It would appear that the main British and US commercial banks in the sample were only mildly affected by the Central European crisis. The ratio of frozen credits to, respectively, total assets and capital averaged 0.79 per cent and 10 per cent for the Big Five London clearing banks, indicating that potential losses in Central Europe were very small compared to these institutions'

¹⁷ Acceptances were credit guarantees granted by the banks, which were reported on both the asset and liability sides of their balance sheets. I prefer to compare the value of frozen credits to total assets excluding assets that were just the result of a credit guarantee.

overall size. US commercial banks in the sample were more exposed than the Big Five British commercial banks. Their frozen credits amounted to 4 per cent of their total assets and to 29 per cent of their capital and reserves on average. The US commercial banks' exposure was therefore not negligible but most probably not sufficient to make any of these institutions insolvent or cause them any serious difficulties. Only *Grace National Bank* (a small, previously private bank which was nationally chartered in 1924) had more than half of its capital frozen in Central Europe. By contrast, the five largest US banks of the time (*Chase*: 24%, *Guaranty Trust*: 15%, *National City*: 24%, *Irving Trust*: 29%, and *Continental Illinois*: 29%) all appear to have had enough capital to cover potential losses in Central Europe.

The impact of the Central European crisis was, however, much more severe for small banks specialized in foreign lending. Twelve out of the eighteen London merchant banks in the British sample had frozen assets amounting to more than 20 per cent of their total assets and ten had frozen credits exceeding the value of their capital and reserves in 1931. These banks were therefore potentially insolvent when Germany, Austria and Hungary suspended foreign exchange payments, as the value of potential losses exceeded their equity. Similarly, two of the three "small" banks in the US sample (*International Acceptance Bank* and *Schrobanco*) also had very large amounts of frozen assets relative to both their total assets and capital and the crisis in Central Europe directly imperiled their solvency.

4.2. The distribution of frozen credits across banks

Combining the bank-level data with information on the *aggregate* amount of German debts owed to British and US banking creditors in July 1931 allows describing how frozen credits were distributed across banks in both countries. **Figures 4** and **5** display the distribution of US and British banks' German short-term credits by bank size proxied by their capital and reserves (figure

4) and total assets (figure 5).¹⁸ For each creditor country, the graph reports the share of the German short-term debts owed to banks with different levels of equity and total assets. The share of German debts owed to banks which are not in the sample is reported in the “Not in Sample” category.

[Figure 4 about here]

[Figure 5 about here]

The figure reveals a clear difference between the United States and Britain in how frozen credits were distributed across banks in 1931. The share of small banks in German lending was much higher in Britain than in the United States. In Britain, most German credits were concentrated on small banks' balance sheets. The financial institutions in the sample with less than 5 million pounds of capital and reserves accounted for 47 per cent of the British banking system's aggregate exposure to Germany. By contrast, the three largest British clearing banks (*Midland, Barclays and Lloyds*), whose capital amounted to more than 20 million pounds, only held 15 per cent of the British banking system's aggregate frozen credits. This finding reflects the great specialization of the British banking system in the interwar period and the important role played by the merchant banks in foreign lending.

The distribution of German exposure was very different in the United States, where the largest banks accounted for the lion's share of short-term lending to Germany. The five largest US banks (by capital) in the sample (*Chase, Guaranty Trust, National City, Irving Trust and Continental Illinois*) already accounted for 50 per cent of the US banking system's aggregate exposure to German short-term credits in 1931. Smaller financial institutions, by contrast, only held a small share of the total

¹⁸ This sub-section concentrates on German credits only, information on the total Austrian and Hungarian debts owed to the US and British banks system being unavailable. Note, however, that Austrian and Hungarian credits constituted a very small share of the US and British bank's overall Central European credits only.

German credits owed to US banks. Exposure to Germany was therefore concentrated among a small group of large banks in the United States and among a larger group of small banks in Britain.

The British and US samples described above account for respectively 82 and 74 per cent of the German credits owed to banks in these two countries. There is no information about the distribution of the remaining share across banks. However, it is unlikely that the undocumented share was mostly held by large banks in Britain and by small banks in the United States. Although the US sample misses a few (small) private banks with known links to Germany (*Lee Higginson, Ladenburg Thalmann, Hallgarten*), it also excludes several large New York City banks, such as *Bank of America* and *New York Trust*, which also probably had significant German exposure. By contrast, the British sample already includes all large British commercial banks of the time while it misses a few smaller merchant banks engaged in acceptance credits on account of foreign customers.

4.3. Implications for financial stability

The fact that small and weakly diversified institutions accounted for the largest share of German short-term lending in Britain had important implications for the transmission of the Central European crisis to the London money market. The suspension of foreign exchange payments and Standstill agreements raised serious worries among these institutions as they had little capital or liquid assets to cushion the Central European freeze of assets. This triggered a run on this segment of the market and many of the London merchant banks were on the brink of failure. Although small, the merchant banks were also highly interconnected with the rest of the British banking system. Acceptances carrying their signature constituted the bulk of the bills circulating on the London money market and the failure of one of these banks would have immediately transmitted the problem to other financial institutions, especially the large commercial banks. Therefore, the concentration of frozen credits among small and highly connected

institutions entailed serious disruptions in the London money market, contributing to the sterling crisis of September 1931.¹⁹

In the United States, by contrast, frozen credits were mostly concentrated among big and diversified banks with much more capital available to cushion the German default. The US commercial banks' exposure to German credits was not negligible but the freeze of their Central European assets did not directly threaten their solvency. Therefore, while a whole segment of the British financial system was directly imperiled, only a handful of US financial institutions (*International Acceptance Bank*, *Schrobanco*) were seriously affected in the summer of 1931. The banks with severe exposure to Central Europe managed to weather the storm by borrowing from other institutions. *International Acceptance Bank* received immediate support from a group of five large commercial banks, and could count on the backing of its holding company (the *Manhattan Company*), which also held the large *Bank of Manhattan Trust*.²⁰ *Schrobanco* obtained short-term loans from *Chase* and *National City*, which agreed to repurchase its acceptances in the summer of 1931 in order to allow the firm to obtain cash so as to meet deposit withdrawals (Roberts, 1992, p. 241). Besides these few exceptions however, the German crisis did not directly threaten the US banks' solvency.

These results therefore help to better understand the contrasting views, reported above, of Roger Truption (1936), who argued that the Central European crisis “increased considerably the risk of banks failures” in Britain, and Thomas Lamont who felt that “short-term German credits [did] not constitute (...) a danger to the American banking situation.”

¹⁹ See Accominotti (2012) for a study of how the merchant banks' problems contributed to the crisis of the pound sterling. Since Standstill acceptances were made eligible for rediscount, the Bank of England rediscounted large amounts of them, although they represented frozen assets and carried the signature of potentially insolvent institutions.

²⁰ The *Bank of Manhattan Trust* absorbed *International Acceptance Bank* a few years later.

5. Explaining the Results

5.1. The role of capital and information in foreign lending

In this section, I propose to explain why German and Central European frozen credits were distributed differently in the British and US banking systems using insights from corporate finance theory.

Understanding the differences in market structures between the two creditor countries first requires describing the instruments used by international banks in order to extend foreign credits. Most of the British and US banks' exposure to Germany and Central Europe consisted in short-term commercial loans to firms and banks in these countries. These loans were either direct short-term credits granted to the debtors or credit guarantees conceded by the banks. In particular, one well-known instrument used by international banks was the *bankers' acceptance*, a type of bill of exchange, which allowed a financial institution in the United States (Britain) to guarantee a firm's short-term debt (in exchange for a fee) in order to allow it to borrow on the New York (London) money market.

Granting short-term credits to foreign borrowers required the creditor banks to have capital in order to cushion potential defaults. Foreign lending was a risky activity and foreign borrowers sometimes defaulted on their debts. Banks with too little capital would not have been in a position to absorb such losses arising from individual debtors' defaults. They would also not have been regarded as credible acceptors and bills carrying their signature would not have circulated easily on the discount market. As Robert Kindersley, the Chairman of the London merchant bank *Lazards*, put it in 1930: "if you are going to do (...) an acceptance business then the world must know that you have considerable means at your back, and as you increase your business you must have the capital".²¹ The Radcliffe Committee of 1959 on the Working of the Monetary System also later insisted on the fact that banks undertaking an acceptance activity needed to have "adequate capital

²¹ Committee on Finance and Industry, *Minutes of evidence*, vol. 1, p. 72, par.1163.

and adequate liquidity” in order to maintain their reputation.²² *Ceteris paribus*, large banks with high levels of equity enjoyed an advantage over small banks in lending to foreign customers because of their greater capacity to withstand defaults.

The banks’ ability to engage in foreign lending also depended on the information they held on borrowers abroad. A well-informed bank could select “better” borrower, thus minimizing losses. The information required to assess a foreign firm could not always be summarized in hard indicators such as balance sheet ratios but also consisted in tacit knowledge about the borrower. Such soft information was not easily transferable across creditors and could only be acquired through time and repeated transactions – a phenomenon known in corporate finance as *learning-by-lending* (Dell’Ariccia, 1998, Dell’ Ariccia et al., 1999, Tirole, 2005). Creditor banks present on foreign markets for a very long time therefore had an obvious advantage in intermediating credit there because they had accumulated information on borrowers and had developed expertise in processing it. They could, for example, rely on a wider network of correspondents, which allowed them to remain informed about the firms’ position. In the presence of informational asymmetries between banks, institutions entering a new foreign market where several banks were already established faced adverse selection in their borrowers.²³ This created barriers to entry in this market and the “incumbent” banks enjoyed a comparative advantage over the “entrant” banks.

5.1. The structure of capital and information in the British banking system

The organization of foreign banking in Britain was a legacy of the past. The City of London had been a large center for international trade finance since the mid-nineteenth century and, in the 1920s, several British banks already had a long record of lending to foreign customers. In particular, the small London merchant banks had been the first to engage in the financing of international trade through acceptances. Many of these institutions were originally founded by

²² Cited in Ellis (1960, p. 154).

²³ This phenomenon, also known as the “Winner’s Curse” in banking, has been described in several theoretical models including Dell’Ariccia (1998), Dell’Ariccia et al. (1999), and Winton (1999).

emigrants to Britain who exploited their connections with their home country in order to extend their activities and give their foreign customers access to the London discount market. Over time, these banks had accumulated extensive information on foreign markets where they specialized and had established long-time relationships with correspondents, which they could trust and rely on in order to screen borrowers. As stressed by the editor of the *Investor's Chronicle*, David Sachs (1949), merchant banks “ma[de] it [their] business to know all about the standing of [their] customer[s]”. Moving into new markets required acquiring new knowledge and expertise as well as establishing new correspondent relationships and this took time and effort. This fixed cost of entry into foreign markets therefore gave the merchant banks an incentive to specialize in countries where they had an initial comparative advantage.

In the late nineteenth century, a process of amalgamation in English banking led to the emergence of five large commercial banks: the so-called Big Five clearing banks. These banks mostly specialized in lending to the domestic industry. In the 1920s however, the Big Five also extended their foreign lending activities in order to respond to the increased demand of credit from German and Central European firms. These banks enjoyed an advantage over the smaller merchant banks as their larger size allowed them to engage in a wider range of activities. However, they also faced adverse selection in foreign markets where merchant banks were already established. The merchant banks’ informational advantage in these markets allowed them to compete with the commercial banks, despite their lower size and capital.

Figures 6 and 7 illustrate the pattern of foreign lending specialization across different British banks. The figures use the data collected in the *Bankers' Almanac* to map the European correspondents of, respectively, two merchant banks, *Hambros* and *Schroders*, and two of the Big Five banks, *Westminster* and *Midland*. *Hambros* was well-known in the London City for its close connections with Scandinavia. The bank had been founded in 1839 by Carl Joachim Hambro, the son of a Copenhagen merchant and banker (Hambros Bank, 1939, p. 4). According to Truutil

(1936, p. 140), “C. J. Hambro represented Scandinavian interests in London”. Schrodgers, by contrast, “was founded in London in 1804 by John Henry von Schroder (a German baron who became an English baronet) and his brother” (Truptil, 1936, p. 147). The bank had kept close connections with Germany and its chairman “preserved his German nationality until 1914.” It appears clearly in figure 4 that the two houses remained highly specialized in the markets where they had an initial informational advantage. Most of *Hambros’* European correspondents in the early 1930s were concentrated in Scandinavian countries while almost all of Schrodgers’ correspondents were in Central Europe. By contrast, *Midland’s* and *Westminster’s* correspondents were distributed much more evenly across Europe (figure 5).

[Figure 6 about here]

[Figure 7 about here]

In order to measure the concentration in the banks’ portfolios of foreign correspondents, I follow Paravisini et al. (2014) and construct a *Relative Concentration Index* for each London bank in the *Almanac*. The index, originally constructed by Krugman (1991) to assess the degree of an industry’s agglomeration, measures the extent to which each bank’s portfolio of correspondents departs from the average portfolio. Let $i = 1, \dots, I$ be the London creditor bank and $c = 1, \dots, C$ the correspondent’s country. The share of country c in bank i ’s portfolio of correspondents is given by:

$$S_{ic} = \frac{N_{ic}}{\sum_{c=1}^C N_{ic}} \quad (1)$$

The *Relative Concentration Index* compares bank i ’s portfolio of correspondents with the average portfolio of all London banks and is defined as follows:

$$C_i = \sum_{c=1}^C |S_{ic} - \overline{S_{ic}}| \quad (2)$$

Table 3 presents this statistic for all London banks which had at least fifteen correspondents abroad. The index takes value zero when the country shares in the bank’s portfolio of correspondents are exactly equal to the country shares in the average portfolio (across all London banks). By contrast, the index’s maximum value of $2(C - 1)/C$ is reached when the bank’s correspondents are all located in one single country.²⁴ Table 3’s last column also identifies whether the banks’ portfolios of correspondents were skewed towards certain countries. A given bank i is said to be “specialized” in a given country c if the share of its correspondents in this country, S_{ic} , is above the 75th percentile of the distribution of the variable $\{S_{ic}\}$ across all banks, and at least equal to 20 per cent. The table distinguishes between different types of banks: the Big Five London clearing banks (panel A), the London merchant banks (panel B), the London branches of foreign banks (panel C), and, finally, the smaller English and Scottish commercial banks (panel D).

[Table 3 about here]

It would appear that the London merchant banks and foreign banks had much less diversified portfolios of correspondents than the Big Five clearing banks. These banks specialized in countries where they had an informational advantage. For example, *Brown Shipley* was the partner of the US private bank *Brown Brothers* and had been established in 1810 by the fourth son of the US house’s founder (Ellis, 1960). Unsurprisingly, 72 per cent of Brown Shipley’s correspondents were located in the United States. More than one quarter of *Ruffers’* correspondents was located in France,

²⁴ I excluded all countries with less than ten correspondents from the analysis and there are therefore 45 countries included. I used the *Correlates of War* classification in order to harmonize country names.

where the firm originated (Truptil, 1936, p. 155). *Hambros*, as mentioned above, was heavily involved in Scandinavia and 45 per cent of its correspondents were located in Denmark and Norway. In a globalized financial system, foreign banks also had the opportunity to open branches in the main international financial centers in order to export their informational advantage and act as a gateway for their customers willing to have access to the London and/or New York discount markets. The foreign banks obviously exhibited strong country specialization. *Credito Italiano* and *Banca Commerciale* (Italy), *Societe Generale* (France), *Banque Belge Pour l'Etranger* (Belgium), *National City*, *Guaranty Trust* and *Bankers Trust* (USA) and the *Swiss Banking Corporation* (Switzerland) all had portfolios highly skewed towards their home country.

Finally, table 3 identifies the merchant banks with close connections to Germany. *Schroders*, *Japhets*, *London Merchant Bank*, *Guinness Mahon*, *Higginson*, and *Kleinworts* all specialized in German lending. Many of these banks had long-time German connections: For example, *Kleinworts* had been founded by a German citizen in 1792, *Japhets'* list of directors included several German-sounding names, and *London Merchant Bank* is known to have had close connections with the German *Commerz und Privatbank*.²⁵

These banks' informational advantage allowed them to compete with the Big Five clearing banks on the German and Central European loans markets. **Figure 8** plots the total number of Central European correspondents (Germany, Austria, Hungary) of the various London merchant and clearing banks, an indicator of their market position in the region.

[Figure 8 about here]

The market leaders in Central Europe according to this indicator (the banks with the largest number of correspondents) were not the five biggest commercial banks but two small acceptance

²⁵ See Truptil (1936, pp. 137-156). Truptil gives information on the origins and activities of the main merchant banks. Japhets' list of directors includes names such as Gottfried Loewenstein, Max Fontheim and P. Lindenberg.

houses (*Japhets* and *Schroders*) and several other merchant banks also ranked high on the list. These institutions' wide network of correspondents provided them with a significant advantage in Central European lending, explaining how they could account for such a large share of the British banks' overall exposure to Germany in 1931.

5.1. The structure of information in the US banking system

While London had been a large market for international trade finance since the mid-nineteenth century, New York only emerged as an international financial center in the 1920s. Until the Federal Reserve Act of 1913, member banks were not allowed to accept bills on account of foreign customers and to establish foreign branches (Phelbs, 1927). Only in the 1920s did the New York acceptance market develop and start competing with the London market for the financing of international trade (Ferderer, 2003, Eichengreen and Flandreau, 2012). The Federal Reserve undertook substantial efforts to develop a market for acceptances in New York in an attempt to increase the position of the US dollar as an international currency (Eichengreen and Flandreau, 2012).

US banks were therefore new to foreign lending in the interwar period. When New York finally emerged as a large center for international trade finance in the 1920s, the first banks to enter the foreign lending business were the largest ones. In contrast to the Big Five clearing banks in Britain, the biggest US banks of the time did not face adverse selection and barriers to entry in foreign markets as there were few institutions which already enjoyed country-specific informational advantages. Moreover, small Federal Reserve member banks were limited in their ability to extend foreign credits. Under the Federal Reserve Act, member banks had to keep the ratio of their outstanding acceptances to the value of their capital below 100 per cent. The fact that banking regulation linked the granting of acceptances to the absolute level of the banks' capital constrained

the ability of institutions with a small capital base to extend foreign lending and gave an additional advantage to the largest banks.²⁶

[Table 4 about here]

[Figure 9 about here]

Table 4 and **figure 9** reproduce the analysis of foreign lending specialization and Central European market position for banks established in New York. The data reveal that several small New York banks had portfolios of correspondents skewed towards Germany (in table 4: *Lee Higginson, Schrobanco, Hallgarten, Harriman Brothers, International Acceptance Bank*). However, in contrast to the British case, small banks did not enjoy a leading market position in Central Europe. Figure 9 shows that the market leaders in Austria, Germany and Hungary were the three largest US banks of the time: *Chase, National City* and *Guaranty Trust* and smaller institutions were much behind. The only two “small” houses which competed with the large US commercial banks on these markets were the two acceptance banks included in the sample of figures 2 and 3: *International Acceptance Bank* and *Schrobanco*. *International Acceptance Bank* relied on the connections of its founder, the German banker Paul Warburg, in order to extend short-term credits through acceptances to German merchants and firms. *Schrobanco* was closely associated with the London merchant bank *Schroders* mentioned above. *Schroders*, as a leading merchant bank in London specialized in German lending, decided to open a branch in the United States in the 1920s in order to export its informational advantage and expertise and lend to German customers via the New York market. However, *International Acceptance Bank* and *Schrobanco* stood as exceptions on the New York market and Central European lending remained mostly the preserve of the large American commercial banks.

²⁶ Eichengreen and Flandreau (2012) present regression results showing a strong link between the volume of bankers’ acceptances granted by US commercial banks and their level of capital.

6. Conclusion

This paper has presented new evidence on the channels of transmission of the 1931 global financial crisis. Based on new bank-level data and archival material, I argued that the freeze of Central European assets of July 1931 gravely impaired the position of a large number of British banks but that few US banks were severely affected. In Britain, small and weakly diversified institutions enjoying an informational advantage in Central European lending accounted for the largest share of frozen credits. In the United States by contrast, most of the Central European credits were concentrated on the balance sheets of the largest commercial banks, which were more diversified and better able to withstand a general freeze of these assets. These differences in the organization of foreign banking between the two creditor countries were a legacy of the history of the London and New York international financial centers. They explain why the German crisis directly propagated to London but not New York in the summer of 1931.

This episode illustrates the importance of the banking structure in countries' ability to absorb financial shocks imported from abroad. When confronted with a shock such as the German crisis, the merchant banks' high degree of specialization (low diversification) revealed a serious issue for the British banking system.

The specialized structure of the London money market had attracted much praise from its contemporaries. For example, according to the Macmillan Report of 1930, the City of London was "the most highly organized international market for money in the world. (...) Its Accepting Houses and Discount Houses provide unequalled facilities for the financing of national and international commerce."²⁷ In quiet times, the extensive information held by the London merchant banks on debtors abroad and their expertise in foreign lending probably made them very efficient in intermediating foreign credit. Interestingly, the US National Monetary Commission also admired the efficient organization of the City of London and US monetary authorities considered it with

²⁷ Quoted in Gillett Brothers (1953, p. 8)

envy when trying to develop a large acceptance market in the 1920s in order to strengthen the position of New York as an international financial center. Yet, this highly specialized structure of the London money market turned out to be a big weakness when Central European borrowers found themselves unable to reimburse their foreign debts in the summer of 1931. The US banking system by contrast, appears to have been in a better position to cushion the shock of the German crisis.

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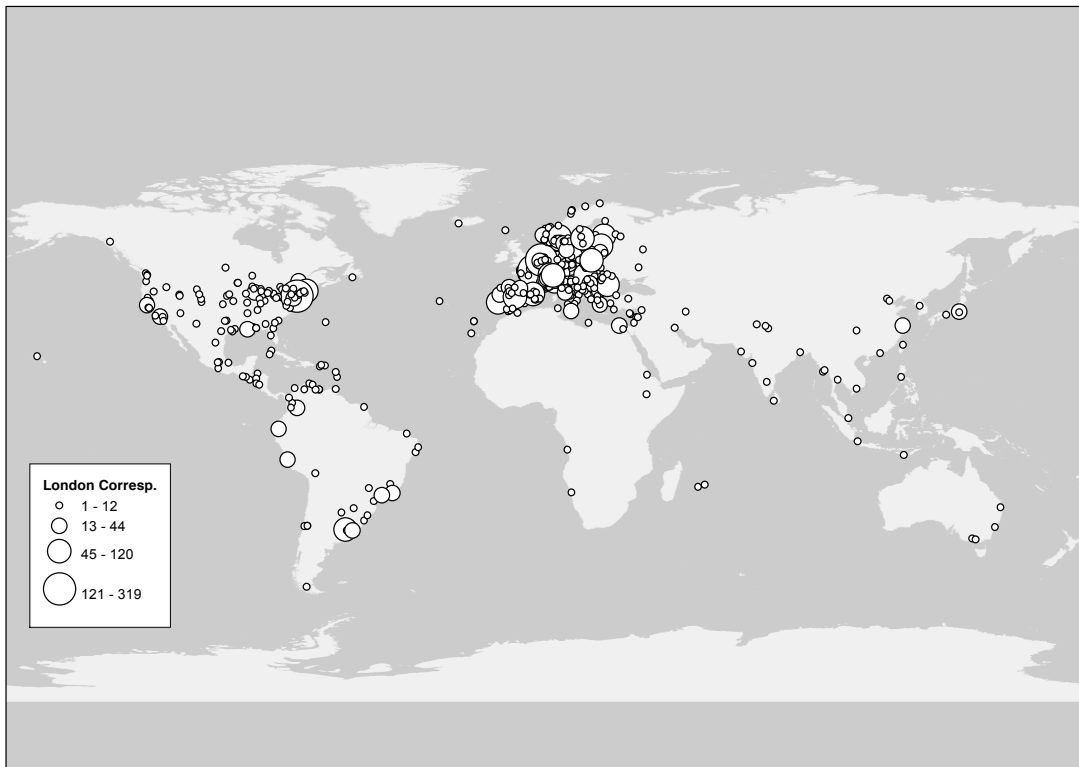
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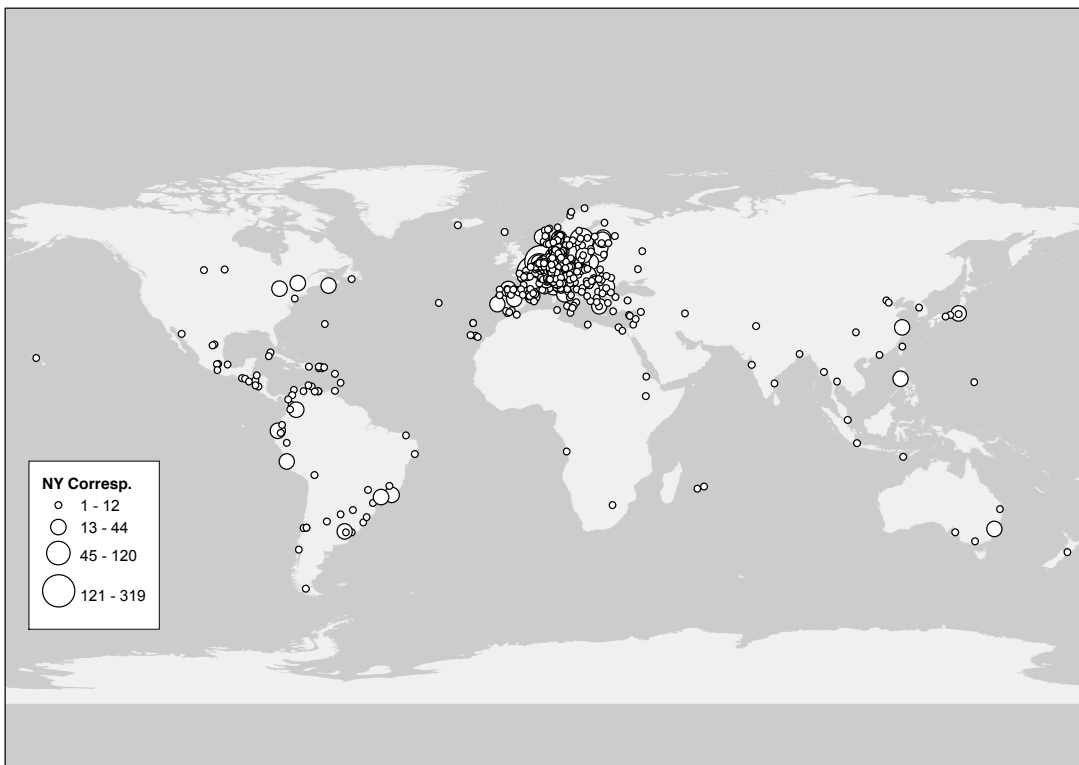
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Figure 1. London and NYC Banks' Correspondents Abroad, 1930

A. London Banks



B. NYC Banks



Source: Author's computations based on the *Bankers' Almanac* (see text).

Figure 2. Ratio of 1931 Central European Frozen Credits to 1930 Paid-Up Capital and Reserves

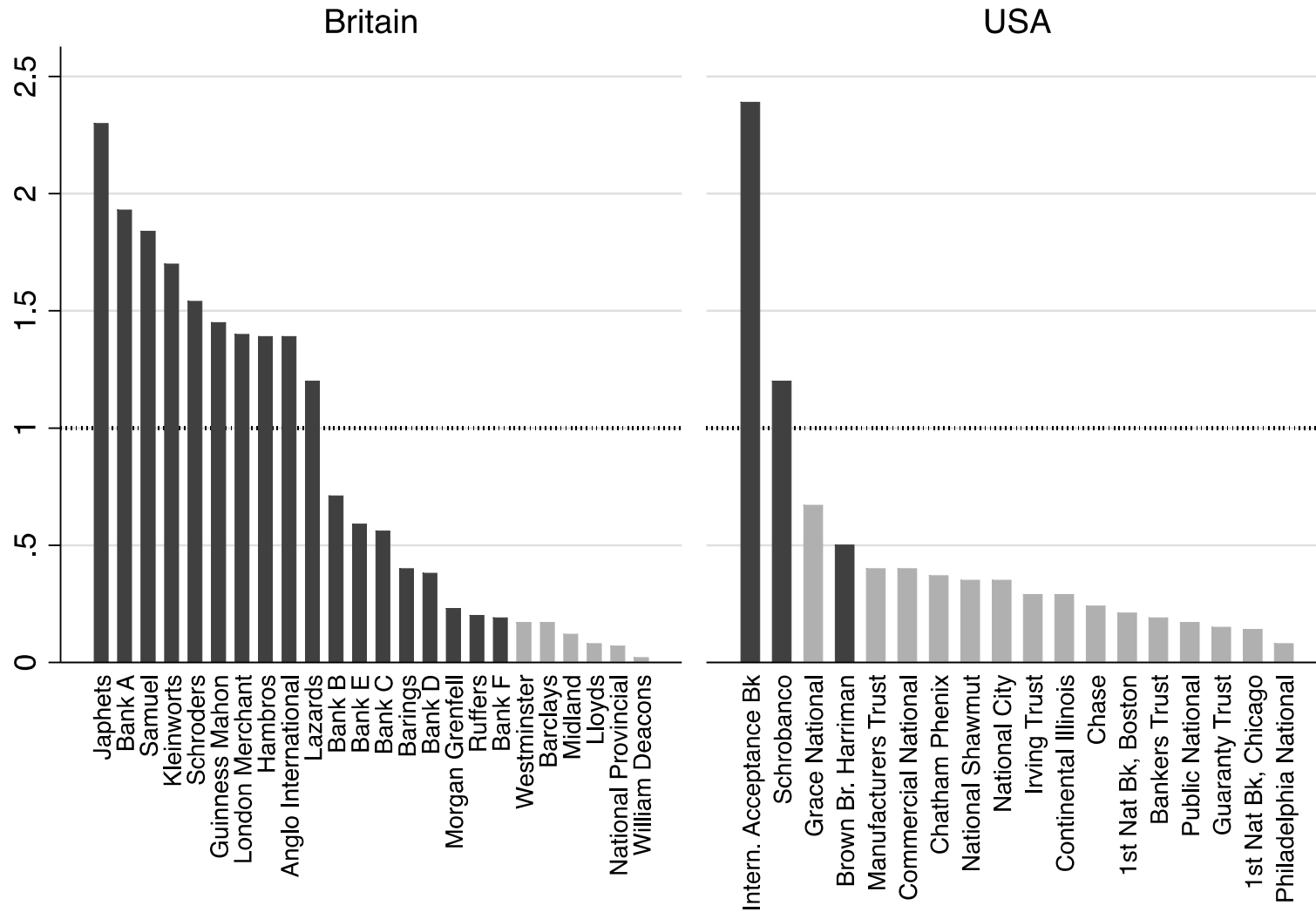
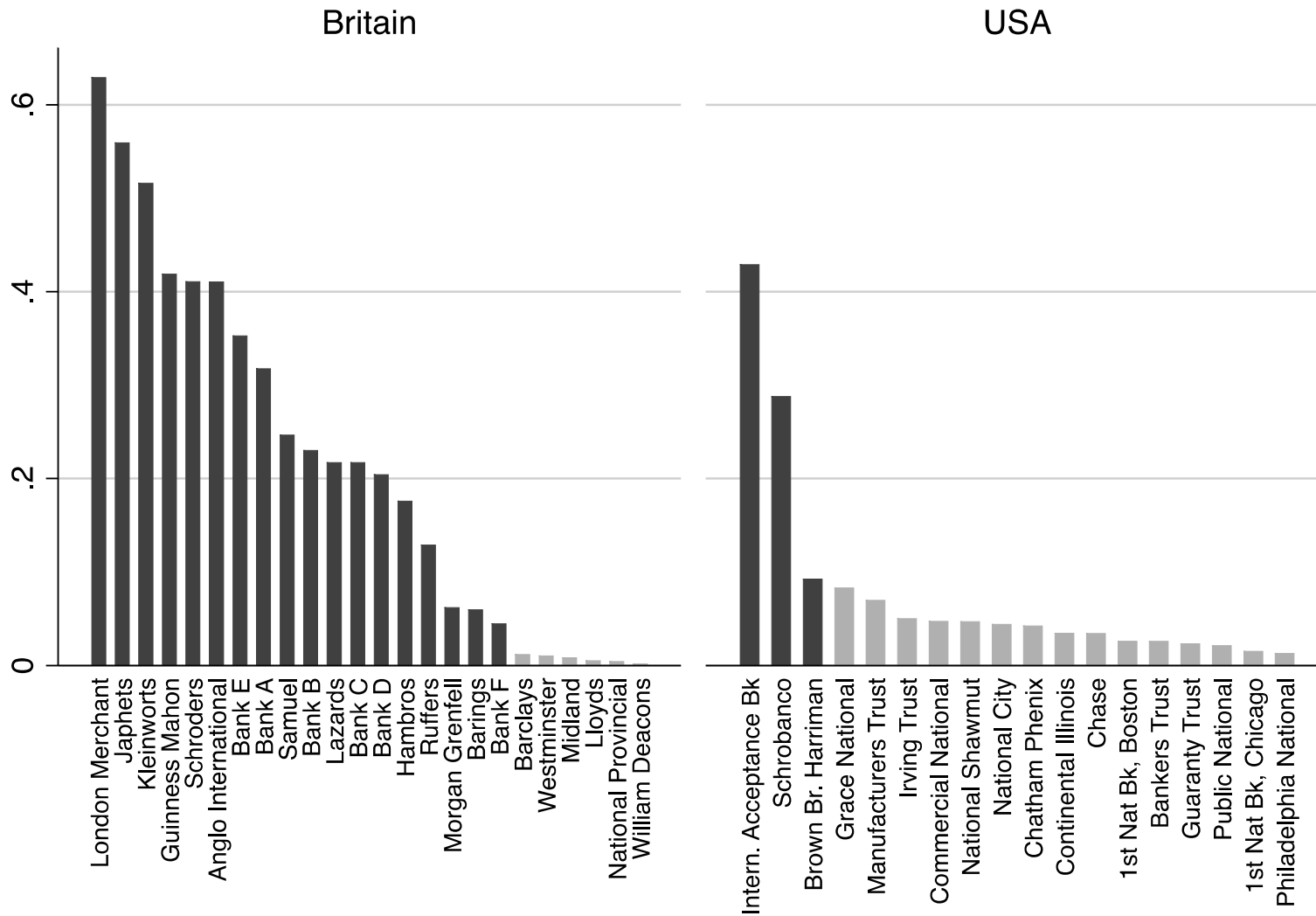
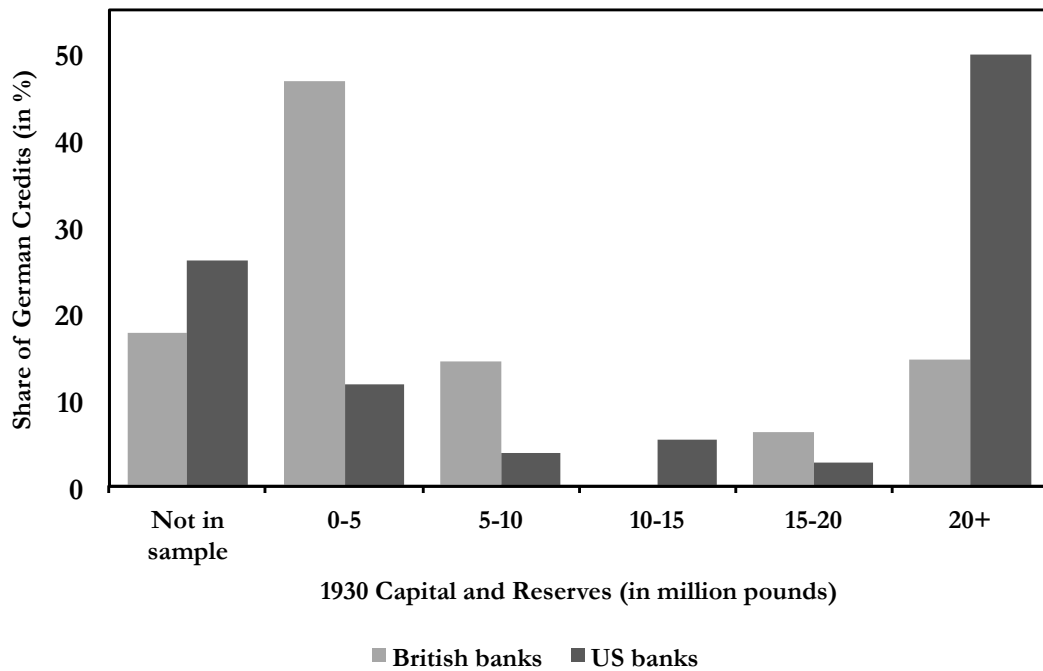


Figure 3. Ratio of 1931 Central European Frozen Credits to 1930 Total Assets (excluding acceptances)

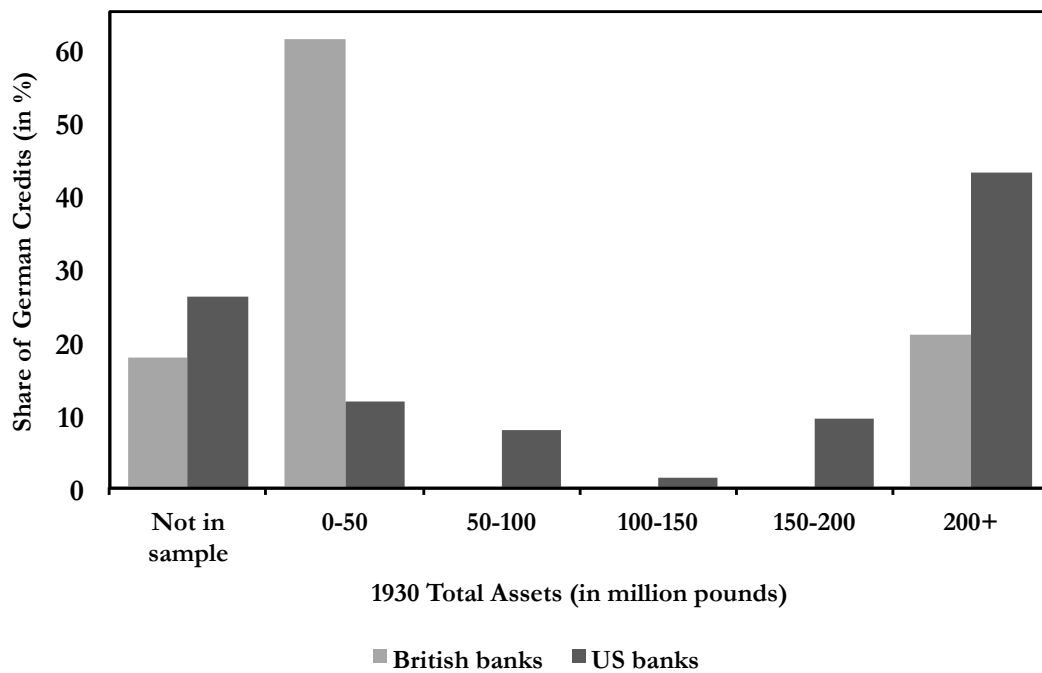


**Figure 4. Distribution of German frozen credits across banks, by Capital and Reserves
British vs. US banks**



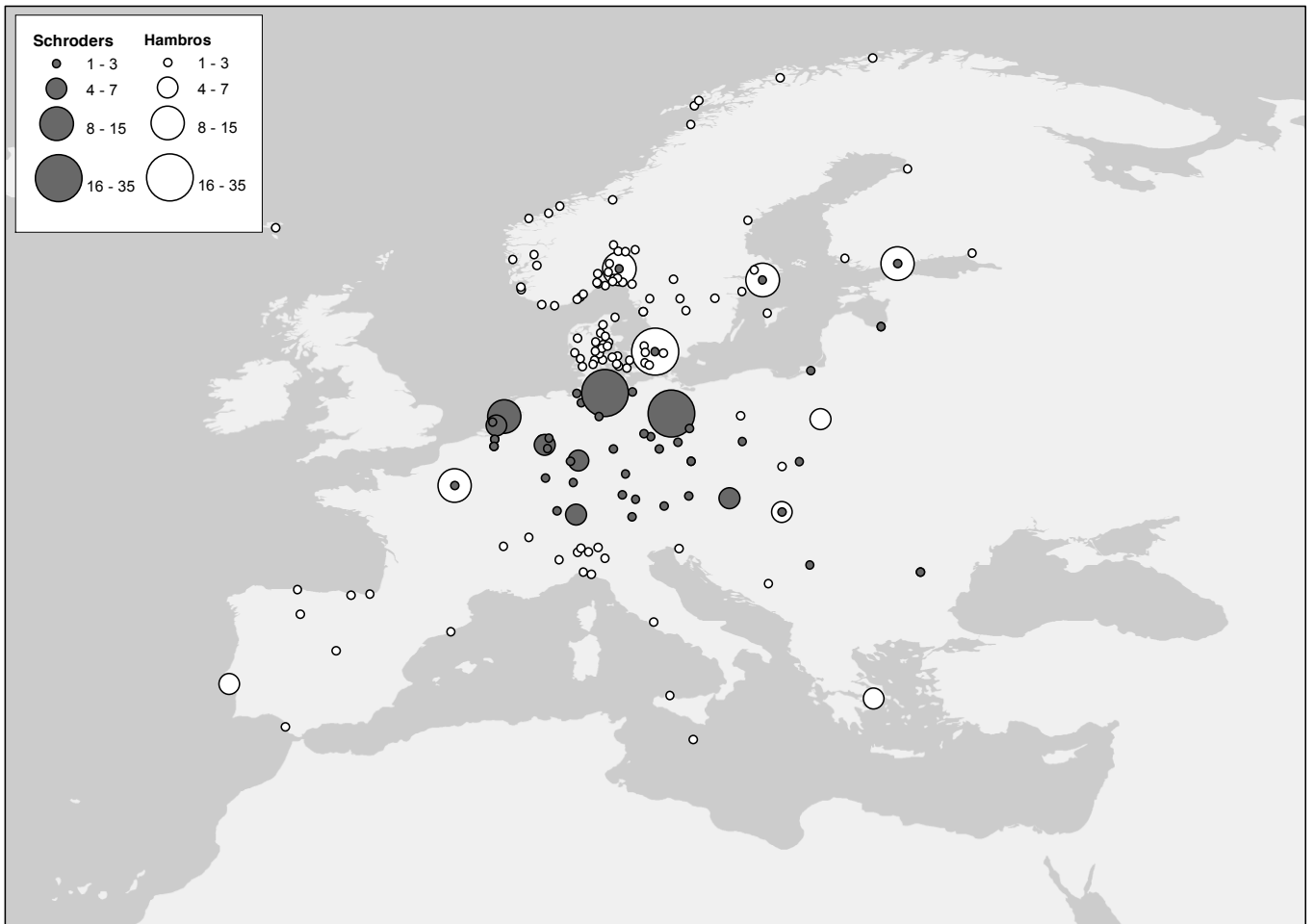
Source: Author's computations (see text).

**Figure 5. Distribution of German frozen credits across banks, by Total Assets
British vs. US banks**



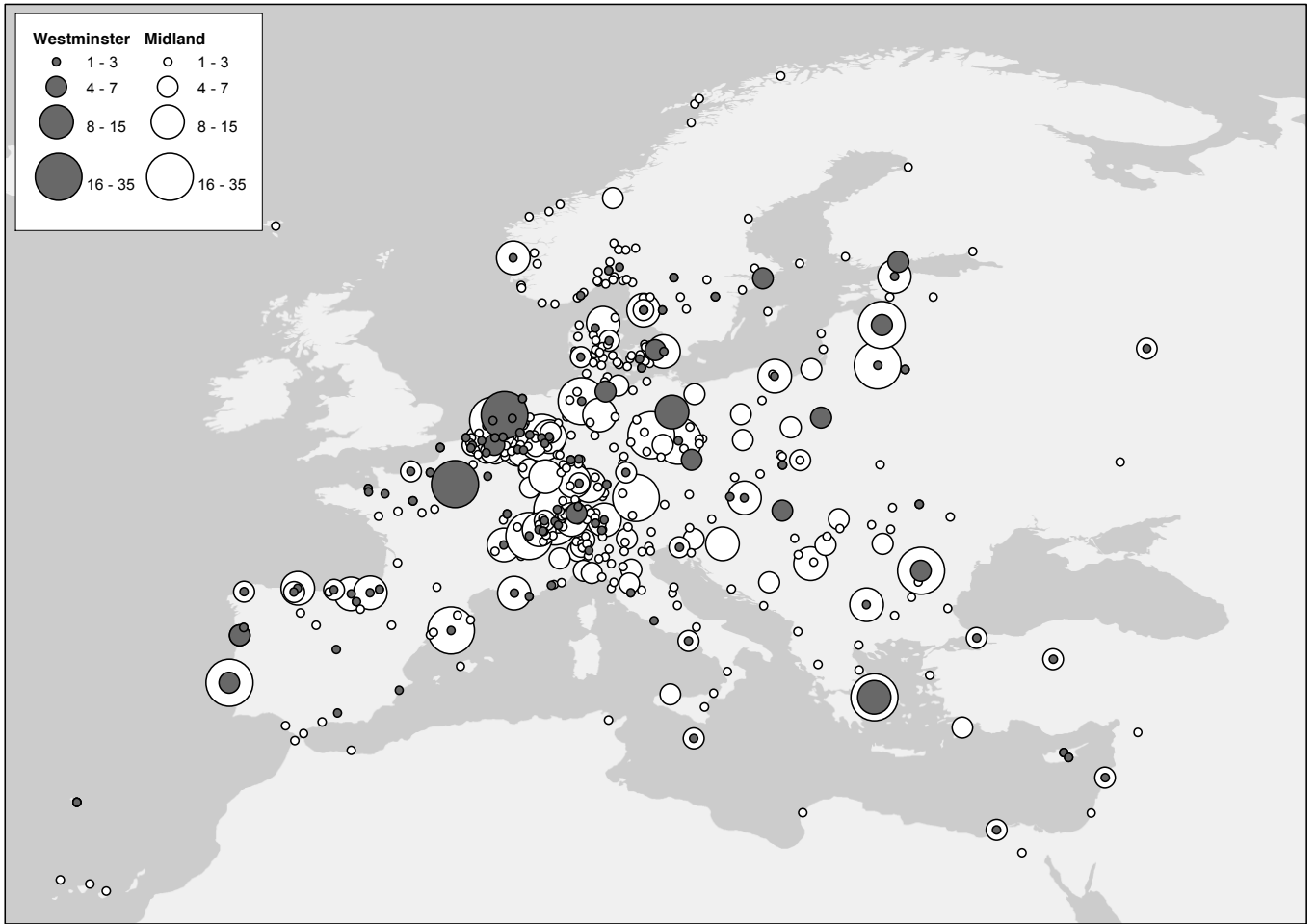
Source: Author's computations (see text).

Figure 6. Schroders' and Hambros' European correspondents



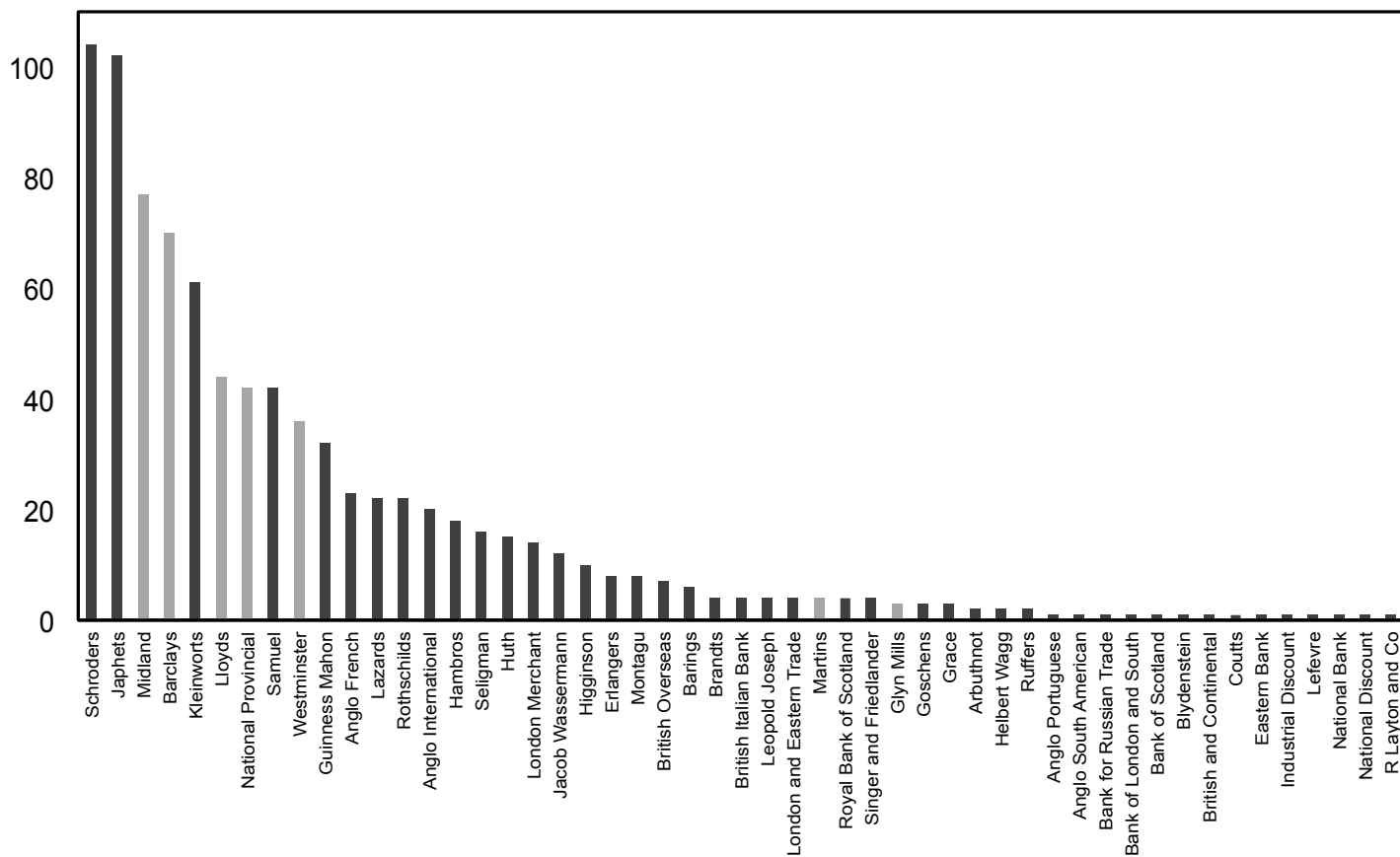
Source: Author's computations based on the *Bankers' Almanac* (see text).

Figure 7. Westminster's and Midland's European correspondents



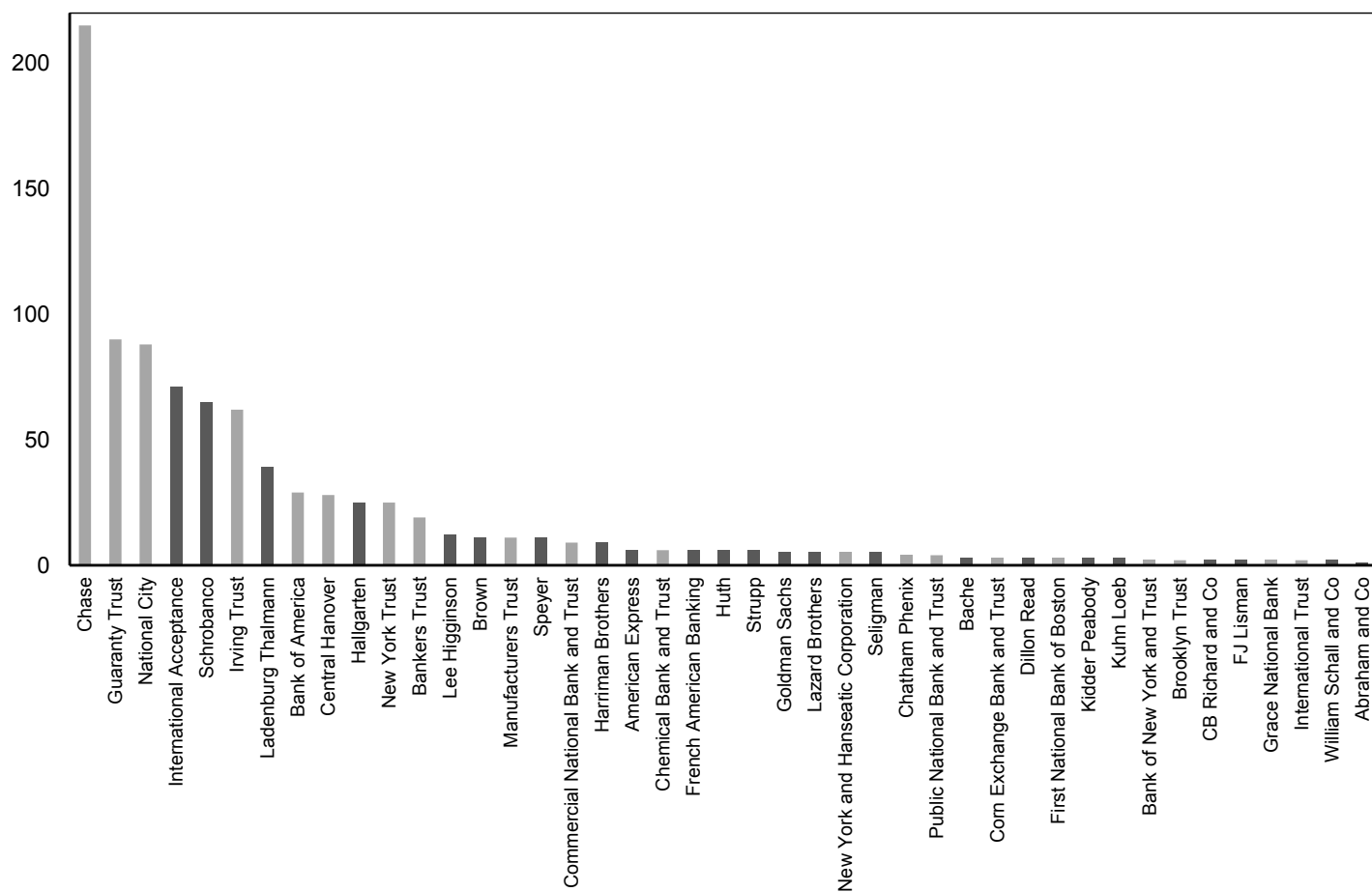
Source: Author's computations based on the *Bankers' Almanac* (see text).

Figure 8. London banks' correspondents in Central Europe (Austria, Germany, Hungary)



Source: Author's computations based on the *Bankers' Almanac* (see text).

Figure 9. NYC banks' correspondents in Central Europe (Austria, Germany, Hungary)



Source: Author's computations based on the *Bankers' Almanac* (see text).

**Table 1. New York City and London Banks'
German Short-Term Credits, July 1931**

	NYC Banks	London Banks
In Mio US Dollars	525.20	314.80
% of 1930 GDP	0.58	1.53
% of Banks' 1930 Total Assets	3.43	2.65
% of Banks' 1930 Capital	25.58	33.06

Note: The table reports the aggregate amounts of New York City and London banks' German short-term assets at the end of July 1931. The total amount of NYC banks' German short-term assets is from Board of Governors (1943), section 15, p. 585, and is related to the 1930 US GDP figure in Carter et al. (2006), series Ca10, and to the total assets and aggregate capital of New York central reserve city member banks reported in Board of Governors (1943), section 2, p. 81 for the end of December 1930. The total amount of London banks' German short-term assets is from Archives, Bank of England, ADM33/21 and is related to the 1930 UK GDP figure in Mitchell (2007) and to the total assets and aggregate capital and reserves of London clearing and merchant banks in 1930. London clearing banks' total assets and capital and reserves in December 1930 are from *The Economist*. The figures for London merchant banks' total assets and aggregate capital and reserves in 1930 are from Truptil (1936, p. 162).

Table 2. New York City and London Banks' Foreign Correspondents, 1930

	NYC Banks		London Banks	
	Nb	Share	Nb	Share
Europe	3089	83.9%	4105	78.6%
- Germany	744	20.2%	848	16.2%
- Scandinavia	355	9.6%	503	9.6%
- France	319	8.7%	380	7.3%
- Netherlands	264	7.2%	353	6.8%
- Eastern Europe	244	6.6%	335	6.4%
- Switzerland	240	6.5%	379	7.3%
- Belgium/Luxemburg	200	5.4%	261	5.0%
- Austria/Hungary	193	5.2%	235	4.5%
- Italy	187	5.1%	240	4.6%
- Spain/Portugal	167	4.5%	297	5.7%
- Southeastern Europe	155	4.2%	217	4.2%
- Other Europe	21	0.6%	57	1.1%
America	399	10.8%	933	17.9%
- United States	--	--	604	11.6%
- Canada	54	1.5%	23	0.4%
- South America	345	9.4%	306	5.9%
Asia	137	3.7%	130	2.5%
Africa	22	0.6%	43	0.8%
Oceania	33	0.9%	11	0.2%
Total	3680	100.0%	5222	100.0%

Note: The table shows the geographical repartition of London and New York City banks' foreign correspondents. For each region, it reports the number of correspondent relationships with each financial center's banks and the region's share in the total number of correspondents. Source: *Bankers' Almanac*, 1930/31.

Table 3. London Banks' Foreign Lending Specialization

	Nb of corr.	Relative Concentration Index	Countries of Specialization
Big Five Clearing Banks			
National Provincial	206	0.58	
Barclays	365	0.52	USA (0.27)
Lloyds	217	0.44	USA (0.24)
Westminster	340	0.43	
Midland	687	0.32	
Average	363	0.46	
London Merchant Banks			
Brown Shipley	39	1.49	USA (0.72)
London and Eastern Trade	45	1.45	Italy (0.24)
Ruffers	34	1.27	France (0.26), Switzerland (0.29)
Hambros	243	1.11	Denmark (0.21), Norway (0.24)
Anglo South American	24	1.10	
Anglo International	37	1.08	
British Overseas	66	1.07	Belgium (0.30)
Rothschilds	44	1.04	Germany (0.32), Netherlands (0.20)
Schroders	152	1.02	Germany (0.61)
London Merchant	32	0.99	Germany (0.41)
Japhets	158	0.97	Germany (0.58)
Barings	53	0.97	Switzerland (0.38)
Guinness Mahon	57	0.84	Germany (0.42)
Higginson	23	0.84	Germany (0.35)
Anglo French	64	0.82	
Huth	56	0.68	
Kleinworts	158	0.65	Germany (0.34)
Seligman	50	0.64	Netherlands (0.20)
Lazards	86	0.61	
Samuel	125	0.54	
Montagu	45	0.54	
Average	76	0.94	
Foreign Banks			
Credito Italiano	37	1.44	Italy (0.54)
Societe Generale	22	1.38	France (0.50)
Credit Lyonnais	66	1.13	
Banque Belge	96	1.09	Belgium (0.41)
Comptoir National	71	0.90	
National City	58	0.87	USA (0.38)
Guaranty Trust	84	0.85	USA (0.36), Germany (0.25)
Banca Commerciale	91	0.82	Italy (0.32)
Bankers Trust	32	0.79	USA (0.22)
Chase	90	0.69	Germany (0.28)
Swiss Bank	374	0.68	Germany (0.25), Switzerland (0.30)
Average	93	0.97	

Table 3 (continued). London Banks' Foreign Lending Specialization

	Nb of corr.	Relative Concentration Index	Countries of Specialization
Other Banks			
Glyn Mills	24	1.14	USA (0.38)
Royal Bank of Scotland	46	0.83	France (0.22)
Martins	56	0.77	
Bank of Scotland	53	0.76	
Average	45	0.88	

Source: Author's computations based on the *Bankers' Almanac* (see text).

Table 4. NYC Banks' Foreign Lending Specialization

	Nb of corr.	Relative Concentration Index	Countries of Specialization
National Banks and Trust Companies			
Chemical Bank and Trust	42	0.94	
Chatham Phenix	21	0.85	
New York Trust	89	0.84	Norway (0.25)
Bank of America	89	0.78	
Manufacturers Trust	39	0.75	
Commercial National Bank and Trust	25	0.73	France (0.28)
Chase	509	0.55	Germany (0.39)
Central Hanover	104	0.53	
National City	467	0.52	
Irving Trust	341	0.50	
Bankers Trust	91	0.41	
Guaranty Trust	377	0.33	
Average	183	0.64	
Private Banks and Acceptance Houses			
Iselin	85	1.40	France (0.21), Switzerland (0.69)
French American Banking	57	1.09	France (0.56)
Lazard Brothers	22	1.05	France (0.50)
JP Morgan	20	0.98	France (0.25)
Huth	23	0.95	
Lee Higginson	27	0.95	Germany (0.33), Netherlands (0.22)
American Express	54	0.92	
Schrobanco	99	0.90	Germany (0.58)
Hallgarten	57	0.88	Germany (0.37), Netherlands (0.21)
Ladenburg Thalmann	65	0.83	Germany (0.57)
Harriman Brothers	21	0.75	Germany (0.29), France (0.24)
Brown	88	0.72	Belgium (0.22)
International Acceptance Bank	142	0.69	Germany (0.44)
Average	58	0.93	
Foreign Banks			
Banque Belge	73	1.41	Belgium (0.45)
Banca Commerciale	65	1.36	Italy (0.52)
Royal Bank of Canada	20	1.11	Spain (0.25)

Source: Author's computations based on the *Bankers' Almanac* (see text).