

Ownership and Control of American Public Corporations, 1880-1920

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In *The Modern Corporation and Private Property* (1933), Berle and Means famously argued that many American corporations had become so diffusely held that their stockholders no longer played a significant role in their governance—ownership was separated from control, which was held by corporate managers. Yet twenty years earlier, the Pujo Committee’s investigation of the role of elite financiers in the economy had argued that a New York-based ‘money trust’ monopolized access to capital and exerted control over many large public corporations through a vast network of directorships (Pujo Committee, 1913a, 1913b; Brandeis, 1914). Some subsequent scholarship sought to reconcile these two views by arguing that the era of finance capitalism, with elite financiers playing significant roles in the management of large corporations, had come to a close well before 1930.¹ Others argued that financiers retained substantial influence over at least some corporations, but Berle and Means failed to see it because their analysis focused solely on ownership rights, whereas the power of financiers originated in their control over access to external finance (Gordon, 1939).²

As these diverging perspectives suggest, the evolution of the ownership and control of American public companies in the early twentieth century remains poorly understood. There is broad agreement that in the 1930s many large corporations were widely held, with no significant blockholders.³ Yet relatively little is known about the distribution of ownership of most public corporations from the decades prior to the 1930s, in no small part because the data available to researchers has been extremely thin. Similarly, neither the contemporary critics of finance capitalism nor the subsequent scholarship on the subject has produced a clear account of its rise and decline, or of the changing role of financiers in corporate governance over time.⁴ And perhaps most importantly, if widely held corporations with no strong influence of financiers in their governance did indeed emerge for the first time in the late 1920s, there has been relatively little analysis of the institutional forces that produced this outcome. A number of highly influential works have suggested that factors such as strong legal protections of investors make the separation of ownership from control possible (eg, LaPorta et al., 1998), but it is not clear whether such factors can account for changes in corporate ownership over time.

This paper analyzes the ownership and governance of NYSE-listed companies from 1880 to 1920. During this period, large public corporations proliferated and became increasingly important

¹ See Mizruchi (2004) for a discussion of these issues.

² A modern literature in corporate finance has studied the sources and consequences of the power of bankers over corporate investment decisions; see Sharpe (1990) and Rajan (1992).

³ Gordon (1938) confirmed Berle and Means’ claims regarding the distribution of ownership using data from the SEC. The TNEC’s Monograph 29 (1940) disputed the extent of separation of ownership from control, but Gordon’s (1945) careful analysis of the TNEC’s data concluded that in fact management control prevailed in most large corporations.

⁴ Brandeis, for example, does briefly mention that the “usurpation” of investment bankers occurred through “gradual encroachment” and “subtle and often long-concealed concentration,” but he does not offer any evidence in support of these claims, nor even a general sense of their timing or the mechanisms behind them (Brandeis 1914: 6).

institutions of American economic life. Drawing on a wide range of sources, including many that have not been utilized by earlier research, we present data on the median number of stockholders, and the presence of elite financiers on boards of directors, over the entire period. We also draw on lists of the largest owners of railroads, the largest and most important public companies for much of the period under analysis, to study the composition of ownership of NYSE-listed railroads. Together, these data offer unparalleled insights into the ownership and governance of American public companies in the decades leading up to Berle and Means' study.

Our analysis suggests that the number of stockholders of the typical public company rose relatively slowly over time, and in fact declined over some periods. Berle and Means present data showing the dramatic increases in the numbers of shareholders of U.S. Steel, AT&T, and the Pennsylvania Railroad from 1902 to 1931 in support of their claim that ownership diffused rapidly over the decades prior to 1930. Yet our data make clear that those corporations were outliers—unrepresentative cases which were closely followed in the press precisely because they were so extraordinary.⁵ Overall, we find that the median number of shareholders of NYSE-listed companies rose from about 1,000 in 1880, to over 5,300 in 1920. By contrast, U.S. Steel, AT&T, and the Pennsylvania Railroad had 95,776, 133,068, and 139,448 shareholders, respectively.

We also find that elite financiers were not a constant presence on the boards of public companies, but began to hold significant numbers of directorships in the late 1890s and early 1900s. These patterns were somewhat different between railroads, and other public companies (mostly industrials and utilities). Among railroads, elite financiers were present on only about 15 percent of their boards in the 1880s. This fraction had doubled by 1895, and it doubled again in the following decade—by 1915, bankers held seats on about 60 percent of the railroads' boards. Among industrials, elite financiers were never present on more than about 35 percent of their boards, and the peak occurred at around the same time. The presence of elite financiers on corporate boards declined after 1915 across all industries. For the largest firms, where their presence had been the greatest, this decline was quite sharp.

Our detailed analysis of the distribution of ownership of railroads, made possible by Interstate Commerce Commission (ICC) data, reveals some surprising insights that help explain these patterns. In 1908, the first year for which this data is available, the ownership of railroads was generally quite concentrated, and the largest category of owners by far was other railroads, which owned on average more than 23 percent of the common stock of NYSE-listed railroads. Many of these ownership stakes were made to establish what were known at the time as 'communities of interest' among railroads, in which competitors purchased stakes in one another. The establishment of communities of interest was a

⁵ Other well-known papers documenting changes in the number of stockholders, such as Warshaw (1924), and Means (1930), also tend to focus on corporations with unusually large numbers of stockholders.

response to antitrust cases that held that cartels or ‘pooling’ arrangements among railroads violated the Sherman Act. Organized by the financiers affiliated with railroads and often accompanied by bankers joining the target railroad’s board, the purchases of stock in competitors was a mechanism intended to restrain competition.

Yet these communities of interest became the subject of antitrust suits, and in 1912 the supreme court ordered the Union Pacific railroad to divest itself of its stake in its competitor, the Southern Pacific. In response, many other investments among competitors to establish communities of interest were dissolved. We observe detailed lists of the owners of railroads again in 1918, and at that time, the share held by other railroads had fallen nearly by half, to 13 percent. We also find that the railroads that were no longer owned by their competitors had far less concentrated ownership in 1920, and experienced much greater increases in their numbers of total stockholders, relative to comparable railroads.

These results suggest that the evolution of corporate ownership was not a simple process of growth over time as securities markets deepened or public corporations grew in size. Instead, the distribution of ownership was strongly influenced by antitrust enforcement. The supreme court’s 1912 decision holding communities of interest to be in violation of the Sherman Act substantially changed the distribution of ownership of many railroads, and likely contributed to the highly dispersed shareholding observed by Berle and Means in 1930. At the same time, it was earlier efforts to enforce the Sherman Act that led to an increase in ownership concentration in 1900 and 1905 relative to 1895, as railroads responded to the prohibition against pooling arrangements by investing in their competitors.

Our analysis also suggests that elite financiers were an important force in the governance of public companies in the early twentieth century, even though they were not significant owners of those firms. The source of their power was their ability not only to enable firms to gain access to external finance, but also manage relations between competitors, by arranging purchases of their stock, for example. The distribution of ownership, used by Berle and Means and an enormous literature inspired by their work to ascertain the identity of the parties in control of a corporation, did not capture the degree of power held by bankers. In many cases, the actions of bankers dictated, or at least influenced, the distribution of ownership, by arranging for competitors to make investments in railroads.

The results of this paper clarify a number of unresolved issues in the literature on the history of the corporation in the United States. Previous scholarship has presented sharply divergent views on the ownership of American public companies in the years around 1900, for example. Becht and DeLong (2005: 616) claim that “Immediately after 1900—and in a few cases before—the diffusion of shareholding and the shift of power to salaried managers begin,” and Herman (1981: 67) concludes that “the separation of ownership from control of the large corporation was already well advanced by the turn of the century.” By contrast, Hannah (2007: 421; see also Hannah and Foreman-Peck, 2012) argues that

in 1900 American public companies were characterized by “persistent personal capitalism” and higher levels of ownership by insiders and controlling families than their counterparts in the U.K. This divergence in perspectives is mostly due to the limitations of the available data for this time period; all of these authors make inferences from very small numbers of companies. This paper advances this literature by introducing data for a much broader range of companies than has been previously studied.

More broadly, a large literature that followed Berle and Means traced out the evolution of the ownership of American public companies over the rest of the twentieth century, and generally found that even though the separation of ownership from control in 1930 was not quite as extensive as some of Berle and Means’ rhetoric implied, it became more common among public companies over later decades.⁶ The growing importance of institutional investors in recent decades reversed this trend, however.⁷ A related literature went backward in time and studied corporate ownership in much earlier eras.⁸ This paper complements those works by exploring in detail the ownership of American corporations in the decades around the turn of the twentieth century, which were an important turning point in evolution of the public company. It also highlights the importance of antitrust enforcement in the evolution of corporate ownership, an issue that has received relatively little attention in the literature.

This paper contributes to several interrelated lines of research focusing on the role of financial institutions in American corporate governance. Gordon (1939), Kotz (1978) and Herman (1981) all conceptualize ‘bank control’ as distinct from the definitions of control presented in Berle and Means. A separate literature has challenged several elements of the Progressives’ critique of the role of financiers in the economy, in some cases drawing on stock prices and firm-level data to study the effects of affiliations between investment banks and nonfinancial corporations, and in other cases, carefully scrutinizing the evidence offered by the Pujo Committee in support of its conclusions.⁹ This paper complements those works by analyzing the origins of the relationships they study, and by exploring in depth the connection between the role of financiers in corporate governance and antitrust enforcement.

Finally, this paper also contributes to the literature on the participation of ordinary households in securities markets in the early twentieth century, and the growth of investing among middle-income households (e.g., Warshaw, 1924; Means, 1930; Edwards, 1938; Mitchell, 2007; O’Sullivan, 2007, 2016; Ott, 2011; Rutterford and Sotiropoulos, 2017; and Calomiris and Oh, 2018). The longer time span of data

⁶ On studies of corporate ownership over the twentieth century, see, for example, TNEC (1940), Lerner (1966), and Herman (1981). Cheffins and Bank (2009, Appendix 1-3) present a list of the relevant studies and summarize their findings.

⁷ On developments in recent years, see Gilson and Gordon (2013) and Coates (2018). See also Holderness (2008).

⁸ See, for example, Hilt (2008) and Hansmann and Pargendler (2014) on the U.S., and on other countries see Acheson et al. (2015), Musacchio (2009), and Pargendler and Hansmann (2013).

⁹ On the effect of affiliations, see DeLong (1991), Ramirez (1995), Cantillo Simon (1998), and Frydman and Hilt (2017). O’Sullivan (2017) argues that the degree of dominance of the money trust over financial markets claimed by the Pujo Committee was exaggerated.

assembled for this paper makes clear that the years around World War I were an inflection point in the history of corporate shareholding, with many public companies experiencing large increases in their numbers of stockholders during this period.

The Main Sample: Sectoral Composition, Median Size

In order to focus on a consistent set of firms over time, we construct samples of NYSE-listed corporations from 1880 to 1920. This enables us to observe the evolution of public companies over time, and to understand any selection issues in cases where data for particular companies are not available. We focus on NYSE-listed corporations because they typically included the largest corporations, and because information about them is generally more accessible in investor manuals.

To construct the sample, we obtained lists of all firms with common or preferred stock listed on the NYSE at five-year intervals, as reported in *The Financial Review*.¹⁰ With those lists of NYSE-listed companies, we then used investor manuals, namely *Poor's Manual of Railroads*, the *Standard Manual of Statistics* and *Moody's Manual of Railroads and Corporation Statistics*, to obtain basic accounting information on each company. These sources did not include much information on corporations other than railroads prior to the 1890s; for industrials and utilities, our data begins in 1895, when most of those firms began to appear consistently.

Figure 1 presents important elements of these data that shape the analysis that follows. The top panel displays the number of NYSE-listed firms, by sector. The railroads (in blue) become more numerous in the 1880s, a period of rapid expansion in the industry, followed by a gradual decline following the panic of 1893, which continues into the early twentieth century and stabilizes around 1910. The other sector, which consists of industrials, utilities, and mining companies, begins from a much lower level than the railroads but after 1885 increases quite consistently, surpassing the railroads in number by 1905 and completely overshadowing them in 1920, when there were more than 340 listed. The surge in industrials between 1915 and 1920 was likely due at least in part to the effects of World War I; see O'Sullivan (2017).

The lower panel presents median firm sizes, measured by total assets, by sector. The railroads were stable in the 1880s, and then grew fairly consistently over the subsequent decades of the sample. The median railroad's total assets were \$38 million in 1890, then \$110 million in 1910 and \$160 million in 1920. The quadrupling of the median railroad's size between 1890 and 1920 reflects the large investments many were making in electrification, better passenger terminal facilities, and improved track

¹⁰ *The Financial Review* was an annual publication by the publishers of the *Commercial and Financial Chronicle* which presented tables that reviewed the prices of all securities that traded on the NYSE.

and equipment, but it also reflected a growing trend in which railroads purchased equity stakes in other railroads.

The rapid and consistent growth of the railroads' balance sheets has no parallel among most industrials and utilities. We present those data beginning only in 1895, because in most of the earlier sample years, balance sheets could be obtained only for a handful of listed companies. But after 1895 and throughout the years up to 1920, the median size of these firms remains quite stable, at around \$35 million. This is less than one fourth the size of the median railroad in 1920. Like the railroads, many of the NYSE-listed industrials and utilities grew consistently in the early twentieth century. But unlike with the railroads, substantial new cohorts of companies became NYSE listed over time, and the newly listed firms tended to be quite small, keeping the median firm size stable.

In response to these differences in the prevalence and size of firms across sectors, we will analyze the railroads separately from the other firms in what follows. The railroads were also much more uniform in their business models and were subject to many industry-specific regulations enforced by the ICC, whereas the industrials, utilities and mining companies were much more varied in almost every respect.

Total Stockholders

We begin with counts of the total number of shareholders. The relevance of these data for Berle and Means' typology of control is admittedly not that strong; the presence or absence of the holder of a substantial block of shares is clearly much more important than the number of other shareholders. Yet these data do reveal the extent to which corporate shareholding was proliferating throughout society, and since they reflect the size of the stake held by the average shareholder (in percentage terms), they may also convey information about the incentives of the typical shareholder to participate in director elections, or the difficulty a dissenting shareholder would face in attempting to win the support of investors holding the majority of the shares.

It is worth noting that Berle and Means make frequent reference to the enormous numbers of shareholders in corporations such as AT&T in 1930, and present annual data showing the evolution of the number of stockholders in that firm, as well as U.S. Steel and the Pennsylvania Railroad since 1901, which show exponential growth over time (Table VII, pg. 55). An obvious question is: how typical were the experiences of those companies, and how many shareholders were there in the typical public company over time.

To answer this question, we utilized a very broad range of sources to compile data for the total number of stockholders of the sample companies at five-year intervals.¹¹ Table 1 presents the coverage of the dataset that resulted. In general, the data for railroads is fairly complete, especially after 1905, whereas the coverage for the other firms is somewhat sparser.

Figure 2 presents the median number of owners for the sample corporations over time. The top panel presents the data for the railroads. The first thing to note about these data is that their level is quite low. The largest railroad (the Pennsylvania) had about 70,000 stockholders in 1910 and 130,000 in 1920, but this was quite atypical. The median number of shareholders remained below 3,500 throughout the sample period, and many NYSE-listed railroad corporations had fewer than 100 owners. The data also generally trend upward over time, but not consistently. In the late 1890s, their ownership became considerably more concentrated. The median number of owners fell from about 1,800 in 1895 to about 1,000 in 1900, and remained low until after 1910. This coincided with a period of consolidation in the railroad industry, as railroads invested heavily in the stock of other railroads.

The lower panel of the figure displays median total owners for the industrials and utilities. Even though these corporations were smaller than the railroads, they typically had larger numbers of shareholders, and their numbers of total shareholders rose more consistently over time, reaching about 7,500 in 1920. But again, the median NYSE-listed corporation's total owners remained fairly low throughout the sample period.

There were, of course, limited numbers of corporations with very large numbers of shareholders. Figure 3 presents the 75th and the 90th percentiles of the distribution of total owners, by sector. The 90th percentile reached 10,000 in both sectors by 1900, and rose to more than 20,000 for the industrials and utilities, and more than 30,000 for the railroads. During the sample period, the Pennsylvania Railroad, U.S. Steel and AT&T all had more than 100,000 shareholders by 1920, but their experiences were quite atypical of NYSE-listed corporations.

Financiers and Directorships

To investigate the presence of elite financiers on public company boards, we compile the names of all directors and officers of sample firms, as well as the names of the partners and directors of major investment banks, and match them. The names of corporate directors and officers were collected from the

¹¹ For the railroads, the sources included publications of the Interstate Commerce Commission, as well as the reports of the Commissioners of Railroads of many states. For the other corporations, we relied on a 1914 study by the *Wall Street Journal*, a study by the *Journal of Commerce*, investor manuals, newspaper reports, the reports of state public service commissions, and many other sources.

same investor manuals where accounting information was obtained. With the exception of a small handful of firms in the early sample years, these data are quite complete.

Our next step was to identify major securities underwriting firms, and collect the names of their members. To identify the top underwriters, we use data on the original distributors of the outstanding bonds of NYSE-listed corporations obtained from the first edition of the *Fitch Bond Book* (1913).¹² This source presents the stock of outstanding debt in 1913; many bonds underwritten in the years prior to its publication had extremely long maturities, meaning that the bonds outstanding in 1913 provide a reasonably good account of underwriting activity from earlier decades.

The names of the top 25 investment banking firms as of 1913, along with their market shares, are presented in Table 2. Several of these firms changed names over time as their members changed, and in compiling our list of the top underwriters we were careful to maintain a consistent list of underwriters that followed the same firms through their name changes.¹³ Although we identified more than 100 investment banks that had participated in at least one issue for an NYSE-listed firm, the top 10 firms alone were responsible for more than 80 percent of the total volume of outstanding debt at that time, and in this paper we will focus on those top 10 firms. This market share-based list of the top investment banks is generally consistent with the top firms identified by historians of the investment banking industry; Carosso's (1970) history of investment banking, for example, specifically discusses 8 of our top 10.

To identify the directorships of the members of these firms, we need the names of their partners and directors over time. The majority of investment banks were organized as partnerships, and the names of their partners for each sample year was obtained from NYSE directories, which list the names of all the partners of all NYSE member firms. There were some commercial banks among the top underwriters as well, however, most notably National City Bank and First National Bank. Commercial banks were not permitted to join the NYSE, so they do not appear in the NYSE directory. The names of their directors were instead obtained from commercial banking directories: *Bankers Almanac and Register*, and *Rand McNally Bankers Directory*.

In order to identify all the cases where individuals were both members of investment banks and also directors of NYSE-listed corporations, the lists of investment banking firm members were systematically cross-referenced with the lists of NYSE board members in each sample year. A significant

¹² *Fitch* provides the identities of the lead underwriters for the original syndicate for most outstanding bonds, and lists the amount issued by the original (and subsequent) syndicates. In compiling our list of underwriting volumes, we divided the total amount of each issue equally among the original lead underwriters. That is, if there were n lead underwriters, each one was assigned the value of $1/n$ of the issue.

¹³ These name changes were sometimes significant; for example, Vermilye & Co. became William A. Read & Co. around 1905, and then in 1921 the firm's name was changed again to become Dillon, Read & Co. We used the names of the partners of new firms (from sources described below) to identify possible name changes, and then searched histories of the industry to verify that two firms observed at different times with some partners in common were in fact the same with a new name.

challenge encountered with these lists was that the same names were sometimes reported in slightly different formats across sources and over time. For example, the railroad director Charles Francis Adams Jr. sometimes was listed as “C. F. Adams Jr.,” sometimes as “Chas. F. Adams Jr.,” and sometimes as “Chas. Francis Adams Jr.” In order to ensure that such differences in reporting did not interfere with the matching of names across lists, all names were first standardized into strings containing only the first initial, middle initial, surname, and any suffix.¹⁴ In order to address problems related to misspellings of names in directories, these names were checked for consistency across lists and over time.¹⁵

The results of these matches between top investment bankers and NYSE-listed company boards are presented in Figure 4. The top panel shows the results for railroads. The rate at which at least one member of one of the top 10 investment banks was present on the boards of all NYSE-listed railroads over time (the solid line) was low and stable throughout the 1880s, then gradually began to increase in the 1890s and early 1900s, and peaked around 1915 before falling in 1920. In 1915, just over 58 percent of NYSE-listed railroads had an elite investment banker as a director. If we restrict our focus to the largest 10 percent of railroads (the dashed line), the change over time is even more dramatic, beginning from about 17 percent in 1880, and rising to fully 100 percent in 1910, before falling to about 71 percent in 1920. Elite financiers gradually acquired board seats among the majority of NYSE listed railroads during our sample period, and their presence became essentially universal among the largest railroads, before declining after 1910.

Among the industrials and utilities, the picture is somewhat different. In 1895, the first year for which we were able to obtain relatively complete data on these firms, elite investment bankers were present on only 11 percent of their boards (the solid red line). This gradually increased over time, reaching a peak of 37 percent in 1915, before dropping to 29 percent in 1920. Overall, the rate at which elite financiers were present on the boards of industrials and utilities boards was on average about half as high as the rate among railroads. Top investment bankers serving as directors was much more common among railroads, relative to other public companies.

¹⁴ Since only the first and middle initial are included, individuals with the same initials but different names would be assigned the same name string. The name lists were sorted alphabetically and hand-checked for such cases, and a few were found. In those cases, the name strings were altered to distinguish them from one another.

¹⁵ Usage of the suffix “Jr.” presents some challenges. In some cases, men who were named after their father and given the suffix “Jr.” choose to drop the suffix following their father’s death. In an attempt to address this problem, we examined the lists of directors with the same name at the same firm across time. In the small number of cases where an individual appeared on the board first with a suffix of Jr. and then later with no suffix, he was assumed to be the same person and was assigned his suffix in the later period as well. There were several additional cases where an individual and his son of the same name both appeared on the board of the same firm, and later only one of them appeared without a suffix. In these cases it was impossible to determine whether the father or son remained, and no change was made. However, such cases were extremely rare.

On the other hand, among the very largest industrials and utilities, the patterns were more similar to the largest railroads. In 1905, at least one elite financier was present on the boards of nearly 86 percent of the largest 10 percent of industrials and utilities (the dotted red line), compared to 89 percent of the largest railroads. The rate then remained stable in 1910 and then fell steeply in 1915 and again in 1920, a slightly different pattern from the largest railroads. But given the differences in firm size across sectors (recall Figure 1), this suggests that the greater presence of investment bankers on the boards of railroads may have been related to the size of those firms.

These patterns suggest that finance capitalism, where elite financiers held directorships among public companies and participated in their management, does not describe the experience of most NYSE-listed corporations until about 1905 or 1910, and even then, it was most common among railroads and large firms. But among the largest NYSE-listed corporations, and particularly among the largest railroads, the presence of top investment bankers on their boards was essentially universal in 1910. Although the extent of their influence in management is unclear, and much more data would be needed to determine whether these corporations should be thought of as under banker control, their presence on so many corporate boards suggests that any account of corporate control from that era must take seriously the possibility that elite financiers were an important factor in the governance and management of many public companies.

An issue that could potentially explain the growth of top investment banks we observe on corporate boards is that our measure of the “top” firms, which was calculated using the stock of outstanding debt in 1913, may be inaccurate as a measure of the leading underwriters for the early years of the sample. If there were a substantial volume of bonds issued in the 1880s or 1890s by a different group of investment banks, and if many of those bonds matured prior to 1913, our ranking of investment banks would reflect the top bankers of the years around 1900 or 1910 only, which might explain why those bankers became more commonly represented on firm boards. In other words, the greater presence of the members of our list of the top 10 investment banks over time might reflect the growing market share of those firms around 1913; they may have simply replaced an earlier cohort of top investment banks from earlier decades.

This concern is difficult to address precisely, because to our knowledge no systematic data on underwriting volumes or on the underwriters of specific debt issues exists prior to 1913. The approach we take instead is to use histories of the investment banking industry to produce lists of firms that were considered major underwriters in the 1880s and 1890s, and to add to our list of top firms any that are not

already present.¹⁶ We then use the NYSE directories to add their partners to our lists of top investment bankers over time, and match those to our lists of corporate directors.

Figure 5 presents the results. Although the presence of the augmented list of top investment banks is slightly higher in the 1880s, in general, the picture is quite similar to that of Figure 4, which included only the top investment banks as of 1913. Even though there were other important investment banks in the early years of our sample, those firms were not commonly represented on corporate boards. The frequent presence of elite investment bankers on public company boards was indeed a novel development in the years after 1900.

Ownership and Control of Railroads: Communities of Interest

In the railroads sector the presence of elite financiers on corporate boards was the greatest. There is also more detailed ownership data available for the railroads, which can be used to ask whether elite financiers owned significant stakes in the railroads where they held directorships. Here we use these data to investigate the degree and the nature of banker control among railroads.

In 1908, the ICC conducted a detailed study of railroad ownership, and collected the names of the 10 largest owners of all major railroads.¹⁷ Their lists do not include all NYSE-listed firms; foreign railroads and railroad firms that were technically only holding companies with no direct operating capacity were not obligated to submit reports to the ICC, and a few railroads in the process of reorganization in receivership were apparently unable or unwilling to comply. In total, the identities of the ten largest owners for 52 of the 83 NYSE listed railroads at the time were published.

Table 3 presents summary statistics for these data. These tabulations exclude two railroads whose shares were held by a voting trust; in both cases, this legal device gave the trustees control of the railroad, and the trustees included financiers.¹⁸ For the remaining railroads, the ownership of common stock was quite concentrated; the ten largest stockholders held just over 50 percent of the shares on average. The largest category of owners was other railroads, which on average held nearly 23 percent of the shares. The remainder of the large owners included individuals, estates and trusts, foreign investment funds, and financial institutions. Investment banks represented on the railroads' boards (including shares

¹⁶ The works we consulted in compiling these lists of firms included Carosso (1970), Greenberg (1980) and Johnson and Supple (1967). The firms that were stated to have been important in the early years of the sample included several that were among the top 10 in 1913. However, some were among the top 25 in 1913, but not the top 10 (Fisk & Hatch, Clark Dodge & Co., J & W Seligman) and there were two firms that no longer existed in 1913, Morton Bliss & Co., and Jesup Paton & Co.

¹⁷ To our knowledge, the ICC only published aggregated data from this study, but the lists of individual owners of the railroads were printed in the *New York Times* (16 January 1909).

¹⁸ On the significance of the use of voting trusts, see Lamoreaux and Philips Sawyer (2019).

held in the names of their partners individually) held on average 2.3 percent of the shares—a sum that is not negligible, but clearly not that large.¹⁹ Individual directors (including investment bankers) held 7.7 percent of the stock.

If one assumes that power within a corporation can only result from a substantial ownership stake, then the financiers on railroad boards were not very powerful, relative to other interests. In fact, the median stake held by bankers on the railroads' boards was zero. Except with the two railroads where the legal device of the voting trust gave the trustees control, it is difficult to make the case that control was held by the bankers. On the other hand, most railroads did have a significant owner (some individual or entity holding at least 5 percent of the shares), and that significant owner was most likely another railroad. It is possible that the presence of financiers on railroad boards was produced in part by the votes derived from ownership stakes: railroads elected bankers to the boards of other railroads. This may have been the product of efforts not to fully control other railroads, but to have a significant voice in their operating decisions.

In order to understand the power of financiers within railroads, and its relationship to the distribution of stock ownership presented in Table 3, it is necessary to understand the late nineteenth century evolution of the railroad industry, and the role of financiers in that evolution.

In the late nineteenth century, the railroad industry was dominated by large systems, which were generally created by merging together a network of smaller, formerly independent railroads. Many of these systems were affiliated with prominent investment banks, which often played significant roles not only in their financing, but also in their strategic decisions and in their interactions with other railroads. For example, the two largest and most important systems that connected the midwest to the major cities along the eastern seaboard were the New York Central and the Pennsylvania Railroad. The New York Central was affiliated with J.P. Morgan & Co., and Morgan himself was one of its directors for many years. The Pennsylvania was affiliated with Morgan's rivals Kuhn Loeb & Co., who were deeply involved in its financing decisions, but did not participate as actively in its management and did not hold directorships. In the 1870s and 1880s these two systems engaged in protracted rate wars, and each supported the construction of new railroads in the other's territories. Ultimately J.P. Morgan brokered an agreement between the two systems not to invade each other's territory and to work together to undermine any other railroad's effort to enter their territories.²⁰ And in the 1890s the two systems helped

¹⁹ It should be noted that the true share held by investment bankers on the boards, as well as directors overall, was likely slightly higher than the number reported in the table. The numbers reported were calculated from lists of the 10 largest owners; if bankers or directors held stakes that were too small to be included in the top 10, those shares were excluded from the totals.

²⁰ U.S. Senate, Investigation of Railroads, 1940, vol. 1, exhibit C-4.

establish a cartel among all eastern railroads, known as the Joint Traffic Association, to stabilize market shares and rates.

The Joint Traffic Association was quickly challenged by the federal government, and in 1898 the Supreme Court held that it violated the Sherman Act. In response, a new approach to undermining competitive pressures was adopted, known as the formation of ‘communities of interest’: competing railroads would purchase blocks of each other’s stock, creating an economic incentive not to take actions that would undermine their competitors’ profits. In testimony to the U.S. Industrial Commission in 1901, financier Jacob Schiff of Kuhn Loeb & Co. described the intended effect in a remarkably forthright way: “If I held stock of ‘A’ company and you held stock in ‘B’ company, and my shares were depressed in value because you were competing with me—each of us cutting the rates of the other—our interests would evidently be better served if you owned some of the stock of my company and I owned some of the stock of your company” (Schiff 1901: 770). Schiff stated that the impetus behind the establishment of communities of interest was the enforcement of the Sherman Act against railroad cartels, or what he called “antipooling legislation.” Schiff’s view of these arrangements as merely creating mutually beneficial economic incentives, however, does not fully capture the dynamics of some of the relationships established as part of this system. In some cases, a dominant system used its stake in a smaller competitor to control competition by simply suppressing the competitor’s growth, as we discuss in more detail below.

Between 1898 and about 1910, the community of interest system was adopted among a large number of railroads. In a few cases, these investments were large enough to establish control, and essentially represented the merger of competitors; this was the case with the Union Pacific’s purchase of 46 percent of the Southern Pacific’s stock. Another extreme example was the creation of the Northern Securities holding company to jointly control the Northern Pacific and Great Northern railroads (Haeg, 2013). But for the most part, the community of interest mechanism involved the purchases of much smaller blocks of stock in competing railroads. The Pennsylvania Railroad and the New York Central both invested in a number of smaller railroads in the northeast, and in some cases they purchased stock in the same railroads, sharing influence in management, if not control.²¹

The high levels of ownership by other railroads in 1908 reported in Table 3 reflect both the investments made among competitors to form communities of interest, and also investments made in connecting railroads to expand a railroad system. These two different types of investments, which we

²¹ Some contemporary observers argued that these minority investments were sufficient to establish control. John Moody, the well-known analyst and purveyor of financial information on corporations, argued that the investments “usually constitute[d] a dominating influence,” since the rest of the stock was typically held by thousands of small investors “who never combine” (Moody 1921: 43).

might think of as horizontal and vertical, were both common.²² But whereas the vertical investments had long been part of the railroad industry, and to some extent were necessary components of the establishments of large systems, the horizontal investments—the communities of interest—were quite new, and began only in the late 1890s.

Influential financiers were often responsible for the establishment of communities of interest; the Northern Securities combination was engineered, designed, and financed by J.P. Morgan, and almost certainly would not have existed absent his efforts. Yet even in cases where the railroads themselves may have been responsible for the decision to invest in a competitor, the participation of bankers was generally necessary. Bankers purchased stock on behalf of railroads, and helped finance the purchase by using the stock as collateral for a bond offering. These roles are significant because they imply that the distribution of ownership itself was the product of the influence of financiers. The list of significant owners of railroads may therefore not always clearly identify the holders of power within a railroad’s governance.

The ownership stakes established as part of communities of interest were nearly always accompanied by shared directorships, and it was often financiers who held board seats with competing railroads. The increase in the presence of banker-directors on railroad boards visible in Figure 4 likely reinforced the collusive nature of the relationships formed among the railroads beginning in the late 1890s, and represent an additional component of the industry’s efforts to replace the cartel structures which were ruled illegal. Railroading entrepreneur E. H. Harriman summarized this dynamic in 1906: “under the workings of the present anti-trust law, it is impossible for the railroads to make reciprocal contracts, and conditions compel the owners of railroads to buy up stock of competing roads or get control of them through the boards of directors in order to protect their own interests.”²³

The anthracite coal railroads of Pennsylvania present a clear illustration of the operation of the community of interest system, and the power of financiers within the railroads involved.²⁴ These railroads owned coal mines, transported coal to major eastern markets, and sold it through subsidiary companies. In the nineteenth century, they engaged in notorious ‘pooling’ arrangements which became the focus of numerous state antitrust investigations, and ultimately contributed to the passage of the Interstate Commerce Act in 1887 (Bogen, 1927). Beginning around the turn of the twentieth century,

²² Although vertical investments could have substantial anticompetitive effects, with railroads gaining market share by diverting traffic from their competitors via their influence over connecting railroads, these investments were necessary for the establishment of large regional systems, which typically were formed by combining smaller connecting railroads.

²³ “Harriman’s Views on Railroads,” *Wall Street Journal*, 24 November 1906.

²⁴ Anthracite coal was used for heating. Bituminous coal, located further west in Ohio and West Virginia, was also used in the manufacture of iron and steel. Brandeis (1914: 181) discusses the role of the Money Trust in facilitating collusion among the anthracite railroads.

after railroad pools were outlawed, communities of interest were established among them (U.S. Senate, Investigations of Railroads 1904: ch. 2, 4).

In Figure 6 we use the ICC ownership data from 1908 as well as our director data to depict the community of interest formed among the competing Pennsylvania anthracite coal railroads. There were three railroads focused on this business—the Delaware, Lackawanna and Western (the “Lackawanna”); the Reading; and the Lehigh Valley—which are enclosed in the dashed box.²⁵ Among those, the Lehigh Valley and the Lackawanna were the most strategically important, since their lines extended all the way from New York City to Buffalo. This not only gave them advantages relative to the Reading, but also meant that they could potentially be used to compete directly with the major systems in the region if connected to a rival system. At left in the figure is the New York Central and at right is the Pennsylvania Railroad. Both had extensive networks of subsidiaries; only the subsidiaries connected to the anthracite railroads are depicted in the figure.

The figure shows the investments made among these railroads, with the percentages of common stock held as of 1908. There are some vertical investments depicted in the figure; this is true of the New York Central’s stake in the Lake Shore, the Reading’s stake in the Central of New Jersey, and, arguably, the Baltimore and Ohio’s stake in the Reading. The latter two investments were made because the Reading and the Baltimore and Ohio depended on the Central of New Jersey’s tracks for access into New York City. But the horizontal investments—the community of interest mechanism—were also quite extensive. Among the coal railroads, both the Reading and the Lackawanna owned stakes in the Lehigh Valley. These purchases were brokered by J.P. Morgan in 1901, as part of a transaction that also led to the Lake Shore owning some of the stock.²⁶ These purchases were made at a time when the Lehigh Valley verged on bankruptcy, and served the dual purpose of helping to facilitate collusive behavior among the coal railroads, and also to ensure that the Lehigh Valley could not be purchased in bankruptcy by a third party and made part of a new regional system.²⁷ The Pennsylvania’s investment in the Baltimore & Ohio was another horizontal investment. The Baltimore & Ohio was a significant competitor to the Pennsylvania Railroad, and the Pennsylvania used its influence in that railroad

²⁵ Several other railroads also had at least some share of this market; these three were the most important. The Pennsylvania Railroad and the Central of New Jersey also had anthracite coal lines, as did the Erie Railroad, the Delaware and Hudson, and a few others. Market share data for anthracite tonnage hauled is presented in U.S. Industrial Commission (1901, p. 30).

²⁶ The Lake Shore was the part of the New York Central system that connected Buffalo to points west; its stake in the Lehigh Valley would have enabled it to influence that railroad’s connections and potentially handle traffic that originated on the Lehigh Valley (or prevent it from taking on traffic at Buffalo that would have gone to the New York Central).

²⁷ At the time, George Gould, the son of Jay Gould, controlled several railroads in the Midwest, and intended to join them together with a railroad in the east to form a new major system. See Investigation of Railroads, 1940, vol. 1.

aggressively; it gained shared control over the Reading with the Lake Shore by arranging for the Baltimore & Ohio to purchase a significant block of stock.

The web of investments among these railroads was quite extensive, and it was supported by deeply integrated boards of directors. Figure 6 also depicts the financiers who held directorships with many of these railroads. George F. Baker of First National Bank, one of the top underwriters of corporate debt at the time, sat on nearly all these railroads boards, as did at least one partner of J.P. Morgan & Co. But even this fact does not fully capture the degree of influence of financiers. The status of the three railroads in the figure as the dominant railroads in anthracite coal transportation was itself the product of interventions coordinated by J.P. Morgan to block new entry. In 1898, several significant coal mine owners moved to organize a new railroad, which would have connected their mines to other railroad lines and to the Delaware river, threatening the monopsony power of the three coal railroads. In response, J.P. Morgan arranged for the railroads to buy out those coal mine operators.²⁸

Investment bankers were not significant owners of any of the railroads in Figure 6, but it is difficult to overstate their power within those corporations. When pooling was prohibited, they arranged for cross investments and took directorships to coordinate decisionmaking and facilitate collusion, and they also acted to block new entry. The anthracite coal market was regarded as highly collusive by its critics; the prices of all the coal railroads were “very nearly similar,” and it was financiers who enabled that collusion (U.S. Industrial Commission, 1901: p. 30). Ultimately, new antitrust enforcement actions led to the dissolution of many of the relationships depicted in the figure.

One other element of the connections depicted in Figure 6 should be mentioned: the ownership of a block of shares of the Baltimore & Ohio by the Pennsylvania, its most significant competitor. The relationship between these railroads is an example of the distorted incentives that can emerge when a corporation is controlled by a minority owner, whose degree of control exceeds their ownership stake. But in this case, the minority owner was also the corporation’s most significant competitor, which distorted their incentives even more severely. As a later investigation concluded, “it is hard to believe that the Baltimore & Ohio’s subjugation to its sharpest competitor during a period of aggressive expansion and combination in the railroad field did not operate to stunt its growth.”²⁹ It is not obvious how different this outcome would have been if the Pennsylvania had held a large majority of the Baltimore & Ohio’s stock.

²⁸ The railroads made significant investments in a Pennsylvania corporation, the Temple Iron Company, whose charters granted it extremely broad powers. The Temple Iron Company then purchased the coal mines. An antitrust case decided by the supreme court in 1912 forced the railroads to divest their holdings in Temple Iron. See Jones (1914).

²⁹ U.S. Senate, Investigation of Railroads, 1940, vol. 1, p. 71.

End of the Communities of Interest

The anticompetitive nature of the community of interest system among competing railroads aroused some controversy, and quickly led to efforts by state governments and the federal government to challenge investments among competitors as violations of the Sherman Act. In 1904, the Supreme Court ordered the dissolution of the Northern Securities combination, and in 1912, the Union Pacific was ordered to divest itself of its stake in the Southern Pacific, in cases that set important precedents. The Union Pacific initially sought to distribute its shares in the Southern Pacific to its own shareholders; the court noted that this would give the two railroads a common set of owners, undermining the separation they had ordered, and held that a new dissolution plan be created (Daggett, 1914). Around the same time, the Pennsylvania Railroad decided that they needed to divest themselves of their Baltimore & Ohio stake, in order to avoid becoming the subject of an antitrust suit. As Kuhn, Loeb & Co. were bankers for both the Union Pacific and the Pennsylvania, they arranged an exchange of much of the Southern Pacific's stock for the Baltimore & Ohio stock. The Union Pacific then distributed the Baltimore & Ohio shares to its shareholders, and the Pennsylvania distributed the Southern Pacific shares to its shareholders.

A number of other cases were initiated against railroads around this time, including some that challenged the ownership of coal mines by the coal railroads. But in general, the vertical investments among railroads were not made the subject of antitrust suits, whereas horizontal investments were.³⁰ Over time, most of the communities of interest were dissolved.

These changes in antitrust doctrine occurred around the same time that the power of bankers in the economy more generally was questioned. The Pujo Committee's investigations in 1912 highlighted the extensive network of directorships held by elite financiers, and its report called for substantial restrictions on their activities (Pujo Committee, 1913a, 1913b). In an effort to forestall new regulations, the partners of J.P. Morgan & Co. prominently resigned from 30 directorships in January 1914, and several other elite investment bankers resigned from some directorships as well.³¹ The Clayton Antitrust Act of 1914, which contained provisions that were strongly influenced by the Pujo Committee's findings, gradually resulted in additional resignations. To be sure, many elite financiers remained on corporate boards, but their presence diminished only gradually prior to 1920, when Section 10 of the Clayton Act, which actually prohibited a railroad's underwriters from serving on its board, began to be enforced (see Frydman and Hilt, 2017).

³⁰ Conant (1962) surveys these cases.

³¹ "Morgan Firm Out of Thirty Boards," *New York Times*, 3 January 1914. It should be emphasized that some of these directorships were with commercial banks or other firms that were not listed on the NYSE.

In 1918, these names of the railroads' largest owners were collected by the ICC and published, affording an opportunity to compare the distribution of ownership in that year to what was observed for 1908.³² The statistics we calculate from these data are not exactly comparable to those of 1908, as they are based on lists of the top 20 owners, rather than the top 10. But most of the same railroads are included, and the summary statistics are reported in Table 4.

As in 1908, there were two railroads whose stock was under the control of a voting trust, and those are excluded from the table. The data for the remaining railroads reveal that the ownership of those firms remained concentrated in 1918, but less than it had been in 1908. The 20 largest owners held 41 percent of the stock, whereas in 1908 the 10 largest owners held just over 50 percent. The share of the stock held by bankers represented on the firms' boards was lower, declining from 2.3 percent in 1908 to 1.0 percent in 1918, reflecting both a diminished presence of bankers on the railroads' boards, and decreases in the size of the stakes held. The share held in the names of the directors remained roughly constant; it was 8.0 percent in 1918, and had been 7.7 percent in 1908.

The most significant change that occurred over those ten years was the decline in the share held by other railroads. This had been more than 23 percent in 1908, and fell to 13.2 percent. Most of this decline was due to the dissolutions of the communities of interest. This very significant change in the distribution of ownership of American railroads was not the product of greater market liquidity or changes in legal protections of investors, but instead to the aggressive enforcement of antitrust laws.

The change over the ten years after 1908 is illustrated in Figure 7, which presents the cross investments and directorships held by elite financiers among the anthracite railroads in 1918. A number of changes are immediately visible: all of the railroads' ownership stakes in the Lehigh Valley had been sold, the Pennsylvania no longer held any stock in the Baltimore & Ohio, and the Lake Shore no longer held any stock in the Reading. Also noteworthy is the change in the relationship between the New York Central and the Lake Shore: whereas in 1908, the New York Central had been the dominant owner, in 1918, the Lake Shore had been fully merged into the New York Central system, and had ceased to exist as a separate legal entity. The investments that remained essentially unchanged were vertical: the Baltimore & Ohio's stake in the Reading, and the Reading's stake in the Central of New Jersey.

There were some changes to the composition of these railroads' boards of directors as well, although these were less dramatic. There were no longer any J.P. Morgan partners on the board of the New York Central, and there was one fewer on the board of the Lehigh Valley and Central of New Jersey. At least one Morgan partner remained on the boards of nearly all these companies; Morgan influence likely remained quite strong. The forces of competition were likely kept in check through the influence of

³² The ICC apparently required railroads to disclose their 20 largest owners beginning in 1915, but did not publish this information. The 1918 names were published in *Annalist* magazine (15 April, 1918).

the financiers on all the railroads' boards, but the anthracite railroads no longer owned each others' shares.

Effect of the Dissolutions

Many railroads' horizontal investments in other railroads were sold off or transferred to others around 1913. Here we present a simple investigation of the effects of these changes on the railroads that had been owned in part by their competitors.

The exact timing of some of the dissolutions is difficult to identify, but a number of very significant changes occurred in 1913, right after the supreme court's decision in the case against the Union Pacific in 1912. These Union Pacific's investment in the Southern Pacific, the Pennsylvania Railroad's investment in the Baltimore & Ohio, the Pennsylvania's investment in the Chesapeake & Ohio, and the investments of a number of railroads in the Lehigh Valley all ended in 1913. The fact that these railroads were owned by their competitors would not only have directly produced a more concentrated ownership structure, but their competitors influence may also have stifled their growth.

We first study changes in the concentration of ownership, measured as the difference between the share held by the top 20 owners in 1918 and the share held by the top 10 owners in 1908. In 1918, the change in the share of stock held by the largest owners of the four railroads who were no longer owned by their competitors after 1913 was on average -16.8 percentage points. In comparison, the average change in this share for all railroads only -3.4 percentage points. The end of the communities of interest did indeed seem to produce a less concentrated ownership structure.

Further evidence on this point is presented in Figure 8, which shows the total number of stockholders of the four railroads from 1900 to 1920. These railroads are compared to a group of 23 comparable railroads, selected for having a relatively similar number of owners in 1905.³³ Although the two lines seem to begin to diverge from one another in 1910, indicating that the two groups of railroads may not have been exactly comparable, the change after 1913 is remarkable. The median number of stockholders of the four railroads no longer owned by their competitors in 1913 increased from about 9,000 to more than 26,000. By contrast, the other 23 railroads' median total owners increased from about 7,000 to about 10,000.

It is difficult to generalize from these four railroads' experiences. But this evidence suggests that antitrust enforcement played a small but important role in the development of mass shareholding and the

³³ Excluded from the figure are a large number of railroads with small numbers of owners. Including those railroads in the figure produces comparison group with a median number of owners that never exceeds 2,500 (one tenth the number of owners of the railroads no longer owned by their competitors), making changes over time impossible to see when presented on the same graph.

emergence of less concentrated ownership structures. When railroads were no longer able to invest in their competitors and were forced to curtail the practices associated with the communities of interest mechanism, much more diffuse ownership structures resulted.

Conclusion

This paper has presented a broad range of new data on the ownership structures and boards of directors of NYSE-listed corporations from 1880 to 1920, the period when public companies became increasingly important institutions in American economic life. Those years witnessed the rise and the beginning of the decline of what has been termed finance capitalism, with elite investment bankers joining the boards of most large public companies, and then around 1913-15 resigning from some of them. Those years also saw significant growth in the numbers of shareholders of the typical public company, but this was not a simple linear process. Between 1895 and 1900-05, the ownership structures of public companies actually became more concentrated, as a wave of consolidations and reorganizations of railroads occurred. Later, particularly between 1913 and 1920, the ownership of public companies became much more diffuse.

One insight that emerged from the analysis of this paper is that elite financiers were likely an important force in the governance of public companies in the early twentieth century, even though they were not significant owners of those firms. The source of their power was their ability not only to enable firms to gain access to external finance, but also manage relations between competitors and even block entry by new firms. The distribution of ownership, used by Berle and Means and the literature inspired by their work to ascertain the identity of the parties in control of a corporation, did not capture the degree of power held by bankers. In many cases, the actions of bankers dictated or at least influenced the distribution of ownership, by arranging for competing railroads to make investments in each other. Berle and Means categorize U.S. Steel as under management control in 1930, as it had no large owners. But J.P. Morgan organized that firm in 1901, and J.P. Morgan partners were on U.S. Steel's board continuously from 1901 through 1930. It seems likely that the Morgan firm was at least somewhat influential in that firm's governance. On the other hand, contemporary observers often assumed that if elite financiers held directorships with a corporation, they controlled it (eg, Moody, 1904). This was probably also inaccurate. The power of financiers likely varied significantly across corporations; in some cases their role was likely akin to a modern independent director, whereas in others, particularly where they had organized or reorganized the firm, they probably dominated it.

Another insight is that the emergence of the diffusely held public company in the United States was not simply a natural consequence of greater corporate scale or stronger popular interest in investing

in corporate securities, although both of those factors were likely very important. Instead, antitrust enforcement played a significant role in shaping the distribution of ownership of public companies, particularly railroads. To control competition, in the late nineteenth century railroads formed cartels, or ‘pools.’ When these arrangements were held to violate the Sherman Act in the late 1890s, the industry responded with the community of interest system, in which railroads invested in their competitors, producing a highly concentrated distribution of ownership. When those cross-investments were in turn held to violate the Sherman Act, many large blocks of railroad stock were sold off or distributed to the shareholders of the railroads that had owned them, producing a much broader distribution of ownership. In some cases, this freed railroads from domination by a major competitor, which may have made it a more appealing investment to small shareholders.

Finally, this paper has chronicled the changes in the roles of bankers in corporate governance, and in the organization of the railroad industry, in order to understand the evolution of the American public company. These changes also had important implications for the growth and profitability of the corporations involved, and for the economy as a whole, and it is worth noting some contemporary perspectives on these issues. Brandeis (1914), of course, regarded elite financiers as “financial oligarchs” who used their control over financial markets to suppress competition and economic dynamism, and the data presented in this paper lend some support to that view. Yet the financiers’ suppression of competition may also have helped sustain some failing railroads, and in their roles as directors the financiers enabled railroads to gain access to external finance on more favorable terms (Frydman and Hilt, 2017). On the occasion of the Morgan partners’ resignations from many corporate directorships in early 1914, the editorial board of the *New York Times* offered what might be called the ‘establishment view’:

[Following the Panic of 1893]...the condition of trade and industry was as prostrate as that of credit, and it became necessary in some way to organize prosperity. No better way appeared than that described now as an evil to be abated—that is, to place bankers in control of the finances of concerns...The “community of interest” device dates from this period. Railways bought interests in each other and exchanged Directors, in order that they might know that executives obeyed orders and kept faith. It was declared that this was not railroading, that it was investment, and speculation, and breach of the law against combinations in restraint of trade, and much else. However that may be, the effect was magical. Credit was restored to bankrupt properties. There was enough honestly earned to enable reductions of rates and to warrant the support of securities issued by hundreds of millions.³⁴

An interesting question for future work is what the counterfactual of the railroad industry without the communities of interest and the inventions by financiers that began in the 1890s would have looked like,

³⁴ “The Morgan Resignations,” *New York Times*, 3 January 1914.

and whether the “magical” effects ascribed to the communities of interest may instead have been due in part to the economy’s recovery from the recession.

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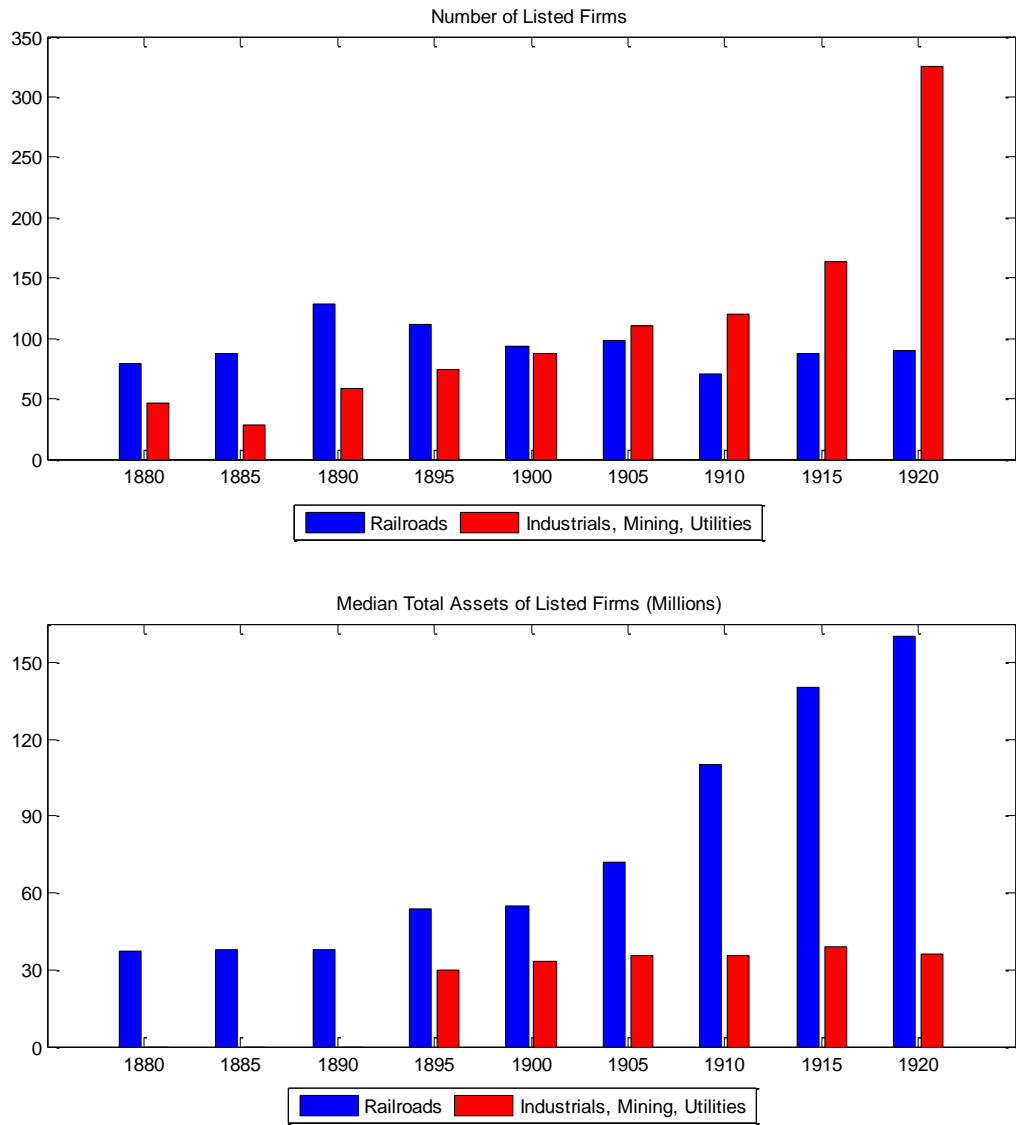
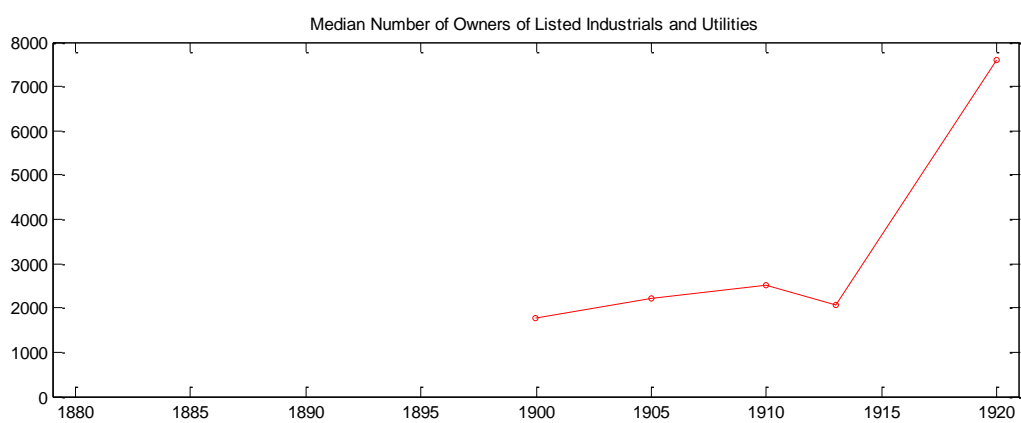
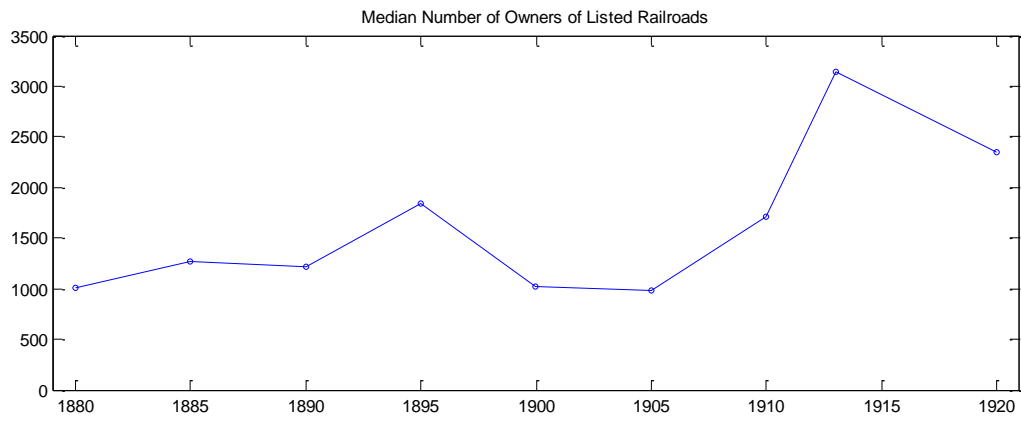


Figure 1:
Number of Listed Firms (Top) and Size of Listed Firms, by Sector

The top panel presents the number of corporations with NYSE-listed common or preferred stock, by sector. The bottom panel presents the median size, measured as total assets, of NYSE-listed corporations, by sector.



**Figure 2:
Median Number of Total Stockholders, by Sector**

The top panel presents the median number of total stockholders for the sample railroads over time. The lower panel presents the median number of total stockholders for the sample industrials, utilities and mining companies over time.

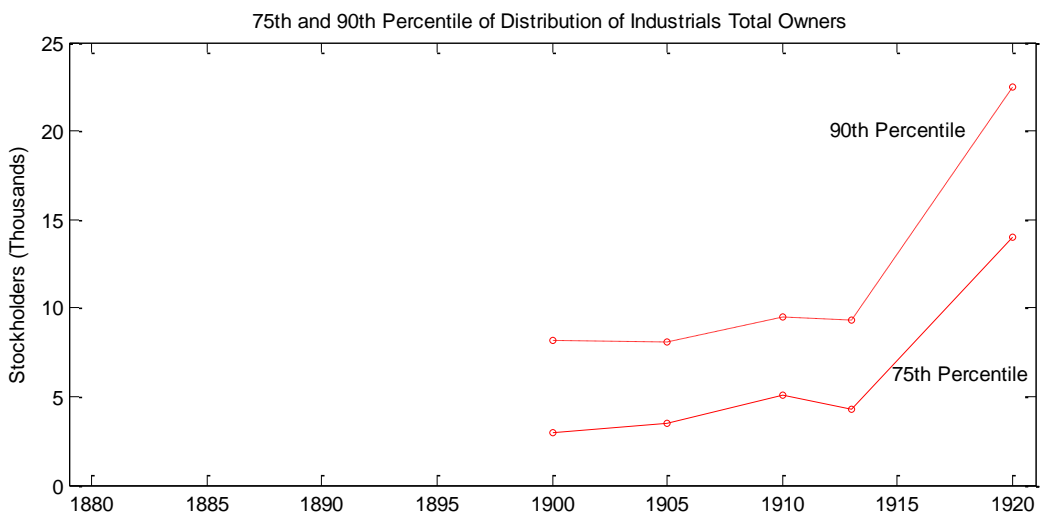
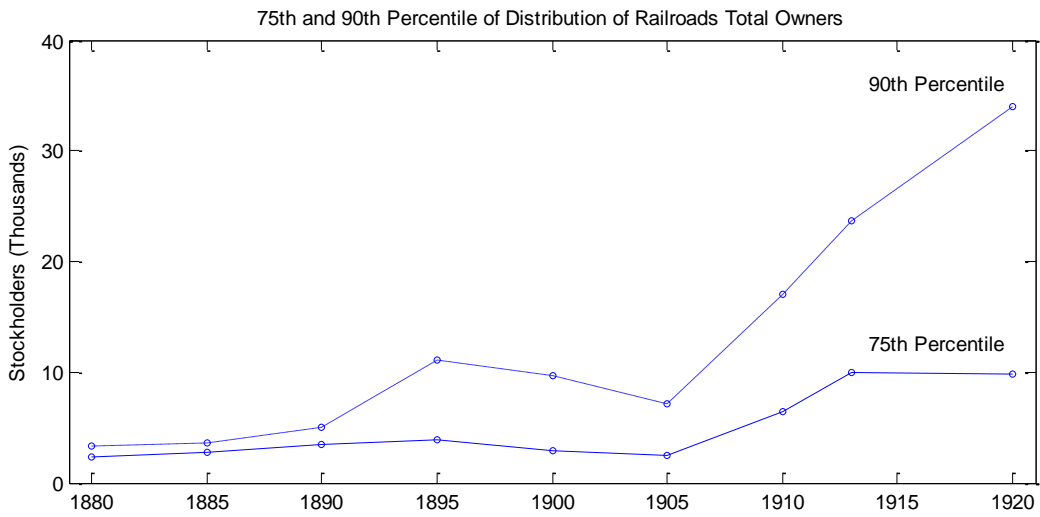


Figure 3:

75th and 90th Percentiles of the Distribution of Total Shareholders, by Sector

The top panel presents the level of the 75th and 90th percentiles of the distribution of total shareholders for railroads; the bottom panel presents the same data for the industrials, utilities and mining companies.

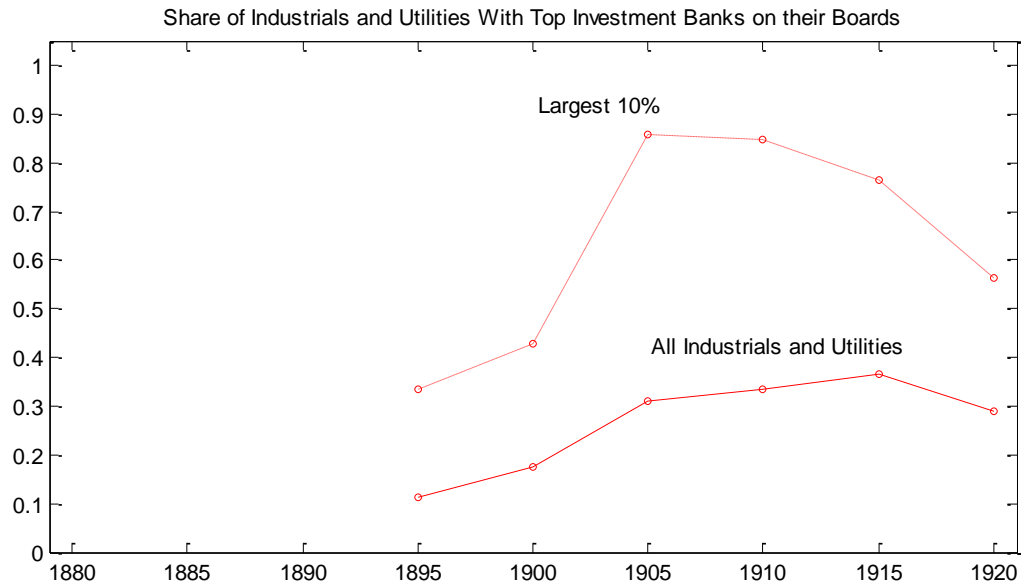
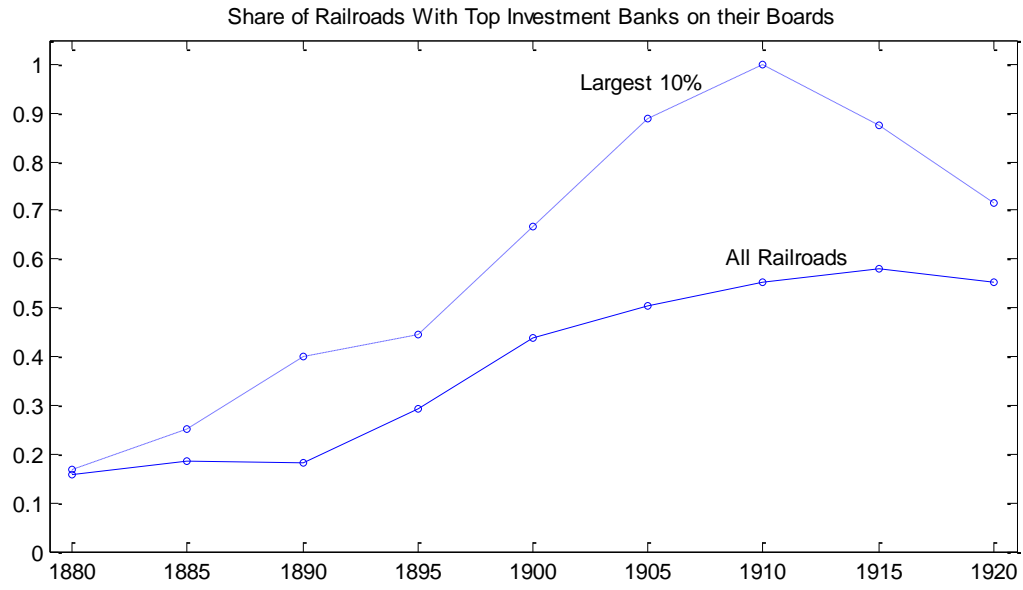


Figure 4:

Presence of Elite Investment Bankers on NYSE-Listed Company Boards, by Sector

The top panel presents the share of NYSE-listed railroads (solid line), and the share of the largest 10% of railroads (dashed line), with at least one member of one of the top 10 investment banks on its board. The lower panel (in red) presents the share of NYSE-listed industrials, utilities and mining companies with a member of one of the top 10 investment banks on its board.

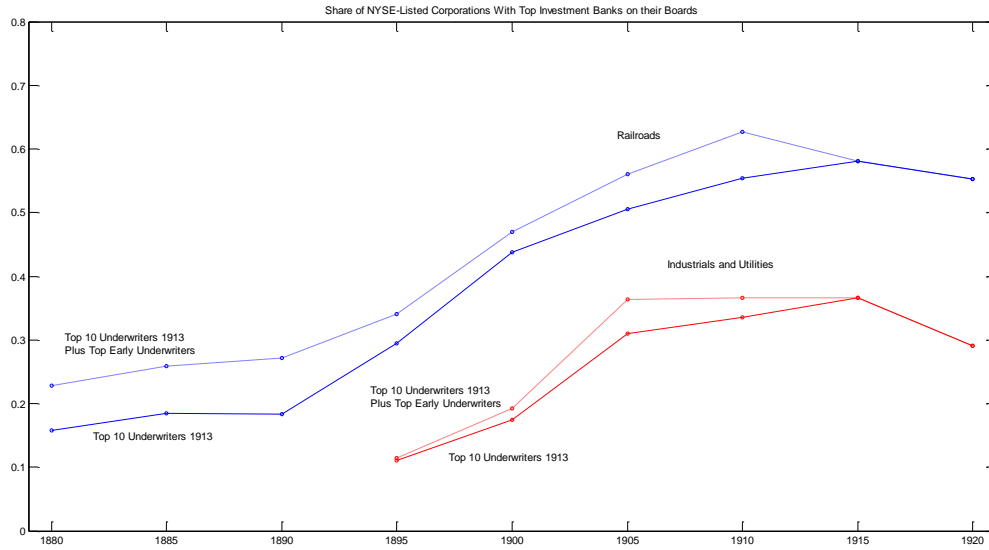


Figure 5:

Presence of Elite Investment Bankers on NYSE-Listed Company Boards, by Sector

The solid lines present the share of NYSE-listed railroads (blue) and industrials and utilities (red) with a director who was a member of a top 10 investment bank, as calculated from underwriting volumes as observed in 1913. In the dashed lines, the top investment banks are expanded to include underwriters deemed important in the 1880s and 1890s by historians of the investment banking industry.

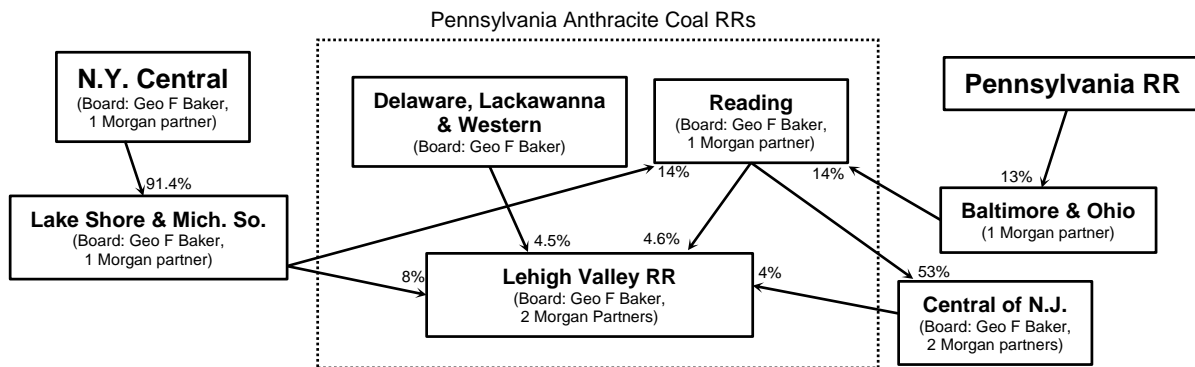


Figure 6:
Cross-Investments and Directorships held by Financiers
Among Pennsylvania Anthracite Coal RRs, 1908

The dashed box encloses the three main competitors in the Pennsylvania anthracite coal railroads. The New York Central, at left, and the Pennsylvania Railroad, at right, were the major competing systems in the region. Lines connecting railroads indicate ownership stakes held in common stock; the share held is written next to the railroad where the stake is held. Several other important financiers also held directorships among some of the companies depicted.

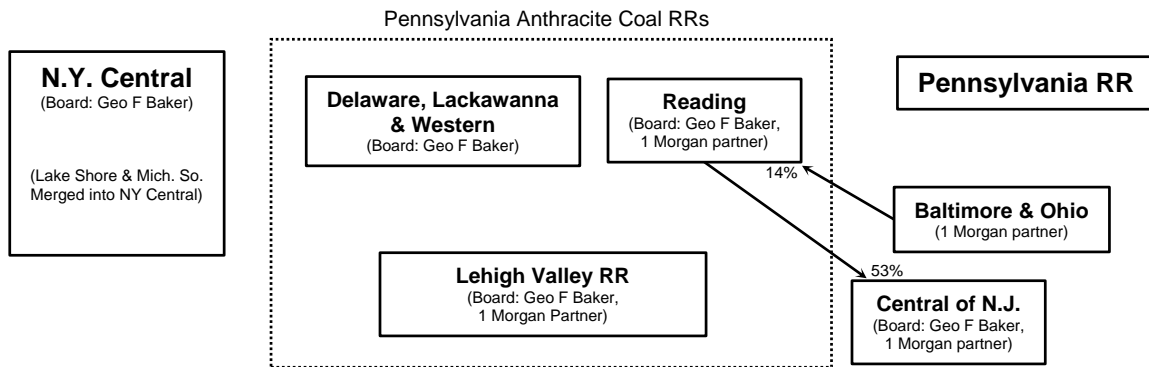


Figure 7:
Cross-Investments and Directorships held by Financiers
Among Pennsylvania Anthracite Coal RRs, 1918

The dashed box encloses the three main competitors in the Pennsylvania anthracite coal railroads. The New York Central, at left, and the Pennsylvania Railroad, at right, were the major competing systems in the region. Lines connecting railroads indicate ownership stakes held in common stock; the share held is written next to the railroad where the stake is held.

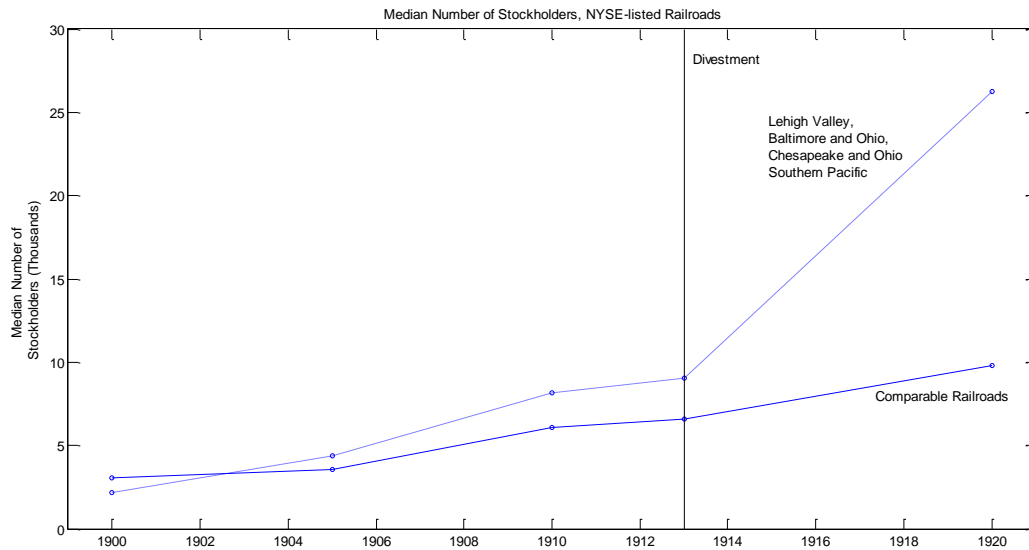


Figure 8:

Effect of Dissolutions of Communities of Interest

The dashed line presents the median number of stockholders of four railroads whose owners included competitor railroads until about 1913 when those stakes were sold off. The solid line presents the median number of owners for a group of 23 other railroads that had comparable numbers of owners in 1905.

Table 1:
Sample Coverage, Data on Total Stockholders, by Sector and Year

	Railroads		Industrials & Utilities	
	<i>N</i>	Share with Data for Total Owners	<i>N</i>	Share with Data for Total Owners
1880	57	0.281		
1885	81	0.284		
1890	109	0.330		
1895	86	0.337	36	0.139
1900	89	0.528	109	0.303
1905	84	0.893	116	0.371
1910	83	0.747	152	0.605
1913	74	0.703	180	0.533
1920	76	0.882	344	0.215

This table presents the total number of corporations in the dataset by year and by sector, and the share of corporations for which data on the total number of shareholders was found.

**Table 2:
Top Underwriters of Bonds of NYSE-listed Firms, 1913**

Rank	Underwriter Name (Predecessor, Affiliate Name)	Total Underwritten	Market Share
1	J.P. Morgan & Co. (Drexel, Morgan & Co.)	815,000,000	29.0%
2	Kuhn, Loeb & Co.	604,000,000	21.5%
3	Speyer & Co.	277,000,000	9.9%
4	National City Bank of NY (National City Company)	115,000,000	4.1%
5	First National Bank of NY	107,000,000	3.8%
6	Lee, Higginson & Co.	70,000,000	2.5%
7	Kidder, Peabody & Co.	66,600,000	2.4%
8	William A. Read & Co. (Vermilye & Co.)	54,600,000	1.9%
9	Hallgarten & Co.	54,000,000	1.9%
10	Blair & Co.	50,500,000	1.8%
11	Ladenburg Thalmann & Co.	46,100,000	1.6%
12	Brown Brothers & Co.	35,600,000	1.3%
13	White, Weld & Co.	33,200,000	1.2%
14	William Salomon & Co.	31,500,000	1.1%
15	Harvey Fisk & Sons	30,700,000	1.1%
16	Guaranty Trust of New York (Guaranty Company)	29,800,000	1.1%
17	Clark, Dodge & Co.	21,900,000	0.8%
18	J & W Seligman & Co.	20,400,000	0.7%
19	Equitable Trust of NY	19,600,000	0.7%
20	Redmond & Co.	19,000,000	0.7%
21	Moffat & White	16,900,000	0.6%
22	Baring Bros., of London	16,700,000	0.6%
23	Glyn, Mills, Currie & Co., of London	16,700,000	0.6%
24	Harris, Forbes & Co	11,300,000	0.4%
25	N. W. Harris & Co.	10,200,000	0.4%
All 73 others		236,468,850	8.4%

This table presents the names, rankings and market data for the top 25 underwriting firms in 1913. The data are collected from the first (1913) edition of the *Fitch Bond Book*, which presented data on the original underwriting syndicates for outstanding debt at the time of the publication of the book. For issues underwritten by more than one firm, the total amount of the issue is apportioned equally among them. (If there were n underwriters, the amount underwritten for each firm is assumed to be $1/n$). The “total underwritten” in the table reflects this apportionment, and therefore understates the size of the transactions each firm participated in.

**Table 3:
Ownership of Common Stock of NYSE-Listed Railroads, 1908**

	Mean	SD
Share held by 10 largest owners	50.7	27.4
Share held by other railroads	23.2	32.3
Share held by directors	7.7	16.0
Share held by investment banks on board	2.3	6.7

This table presents ownership statistics for the common stock of NYSE-listed railroads in 1908, from data collected by the ICC and reported in the *New York Times*. The top row is calculated as the sum of the ownership stakes of the 10 largest stockholders. The lower rows are also calculated using the identities and shareholdings of the 10 largest stockholders only, and therefore likely understate the total held by each category of stockholder. The shares held in the name of directors are shares held in their own names or in the names of firms in which they were partners; some directors may have been trustees or executors of estates that held blocks of shares, and these could not be identified. The shares held in the name of investment banks represented on the board were calculated by matching the list of major stockholders to lists of the directors and to lists of the partners of investment banks. Two railroads (the Southern, and Seaboard Air Line) were under the control of voting trusts which owned the vast majority of their shares; these were excluded from the calculations. One railroad (Great Northern) had only preferred stock listed, and the distribution of its preferred shares was used.

**Table 4:
Ownership of Common Stock of NYSE-Listed Railroads, 1918**

	Mean	SD
Share held by 20 largest owners	41.1	23.3
Share held by other railroads	13.2	24.3
Share held by directors	8.0	13.7
Share held by investment banks on board	1.0	3.4

This table presents ownership statistics for the common stock of NYSE-listed railroads in 1918, from data collected by the ICC and reported in *Annalist* magazine. The top row is calculated as the sum of the ownership stakes of the 20 largest stockholders. The lower rows are also calculated using the identities and shareholdings of the 20 largest stockholders only, and therefore likely understate the total held by each category of stockholder. The shares held in the name of directors are shares held in their own names or in the names of firms in which they were partners; some directors may have been trustees or executors of estates that held blocks of shares, and these could not be identified. The shares held in the name of investment banks represented on the board were calculated by matching the list of major stockholders to lists of the directors and to lists of the partners of investment banks. Two railroads (the Southern, and Seaboard Air Line) were under the control of voting trusts which owned the vast majority of their shares; these were excluded from the calculations. One railroad (Great Northern) had only preferred stock listed, and the distribution of its preferred shares was used.