Voting Rights, Share Concentration and Leverage at Nineteenth-Century US Banks

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Abstract: Modern corporate governance scholarship emphasizes the conflict of interest between owners and managers, but in the early nineteenth century the principal conflict of interest was that between controlling and minority shareholders. One mechanism to limit expropriation of minority shareholders and encourage the diffusion of share ownership is to limit the voting rights of majority shareholders. Evidence on early shareholding concentration at US bank reveals that limited voting rights were associated with considerably more diffuse share ownership. The result is consistent with concerns with majority shareholder self-dealing in finance, an industry particularly prone to self-dealing. In addition, evidence from bank balance sheets shows that increased share concentration was associated with greater bank leverage. If more levered banks were more prone to bank runs and bankruptcy, more concentrated ownership was correlated with financial instability.

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1. Introduction

In the *Modern Corporation and Private Property*, Adolph Berle and Gardiner Means (1932) drew attention to what they considered a disturbing phenomenon: the separation of ownership and control in the large, modern corporation. They were troubled by the trend toward great accumulations of wealth contributed by diffuse owners and directed by insular managers. The separation of ownership and control had “effectively broken the old property relationships” (Berle and Means 1968, 4). Strong managers, freed from the effective oversight of weak owners, had opportunities to pursue policies inconsistent with maximum firm value (Roe 1994). In 1968, reflecting on his earlier conclusions, Berle had grown more rather than less concerned by trends in corporate control. “Directors of the corporation,” he wrote, “are not the owners; they are not [even] agents of the [owners] and are not obliged to follow their instructions” (Berle and Means 1968, ix). Absent effective oversight, managers were freed to pursue policies that generated utility for them without creating benefits for owners; in short, managers were free to self-deal.

In his study of shareholdings at New York corporations in the 1820s, Eric Hilt (2008) finds that the earliest corporations were not beset by managerial self-dealing. Because boards of directors were dominated by large shareholders who exercised control over daily operations, large shareholders did not face the collective action problem that plagues effective monitoring of management at modern corporations. Managerial self-dealing was not then the central corporate governance issue that it was to become in the next century. The central concern of the earlier era was
self-dealing by large shareholders. With effective control over boards, large shareholders might utilize the firm’s resources to their own benefit at the expense of minority shareholders. Entrepreneurs who organized and took large stakes in contemporary firms faced two options. They could keep the shares close and organize firms no larger than the capital contributed by a small number of investors, all of whom had representation on the board and could thwart other’s efforts to self-deal at their expense. But concentrated ownership limited firm size and the owners’s ability to diversify. Alternatively, to curtail the power of large shareholders corporate charters might limit their own voting rights, which would increase the attractiveness of small-scale investing. With proportionally more votes than shares, minority shareholders might elect some of their own to monitor and control self-dealing by other board members. Encouraging minority shareholding reduced capital costs and allowed for greater portfolio diversification.

Like Hilt (2008), this paper investigates how differences in share voting rules influenced the concentration of ownership. Unlike Hilt, who considered a cross section of industries located in New York State in the 1820s, I investigate the effect of alternative voting rules on share ownership in a single industry – banking – across time and space. Using a newly constructed data set of shareholdings at about 200 banks from eight states and five decades, I exploit exogenous state-level variation in corporate voting rights to identify the effect of alternative voting rules on share ownership. I find that vote ceilings and other limits on votes were associated with more diffuse share ownership. As an example, Pennsylvania’s corporate law circa 1815 imposed a 30-vote ceiling regardless of the number of shares held and banks had, on average, more than 800 shareholders. Under New York law circa 1830, one share-one vote with a ceiling of 400 votes was the default rule. On average, New York banks organized in that era had fewer than 80 shareholders.
One implication of this finding is that nineteenth-century bank investors were concerned with majority shareholder self-dealing. To attract capital from minority investors, large investors accepted credible limitations on their ability to loot banks. They did so through limited voting rights. One share-one vote regimes were less attractive to minority shareholders than share voting rules that limited the number of votes large shareholders might cast. Empirical investigation demonstrates that the association between limited voting rights and less concentrated shareholdings is robust to how share concentration is measured. Statistical evidence, combined with contemporary expressions of concern with concentrated ownership, provides strong evidence that the corporate governance issue of the nineteenth century was not the conflict of interest between managers and owners; rather, it was the conflict of interest between majority and minority shareholders.

A second significant finding demonstrates why contemporaries were so deeply concerned with bank governance. Because banks were not just another corporation in that they supplied the bulk of the country’s media of exchange, the conflict of interest surround majority owner self-dealing was not just that between large and small owners, but between large owners and creditors, namely depositors and holders of banknotes. Banks are different (Fama 1980) and contemporaries recognized that self-dealing not only put small shareholders’ investments in jeopardy, but threatened to disrupt transactions more generally. The evidence shows why contemporary regulators preferred to place controls on the power of majority shareholders. To the extent that they were diversified and preferred idiosyncratic variance of returns to individual investments, majority shareholders had incentives to increase bank leverage through smaller specie reserves and higher loan-to-asset ratios. Such leverage increased the likelihood that unanticipated redemptions or bad loans might drive a bank into liquidation. In the case of banks, governance has implications not only for microeconomic
efficiency, but for macroeconomic stability as well.

2. The politics of one share-one vote in early America

Some scholars too readily accept what Colleen Dunlavy (2004) labels the “timeless” view of the corporation; that is, they write about the corporation as if it sprang forth in its modern incarnation some time in the late nineteenth century. It didn’t. One of its more important modern governance features – “all shares vote, all votes have the same weight” – surely didn’t (Easterbrook and Fischel 1983). One share-one vote did not emerge as the norm until the late nineteenth century, and then only after a long and contentious debate concerning the proper allocation of power within the corporation. While modern corporate governance research is concerned primarily with vertical power relations, or how owners treat with managers and how managers treat with employees, nineteenth-century commentators were much more concerned with horizontal power relations, or how owners treat with each other (Jensen and Meckling 1976, Alchian and Demsetz 1972). Share voting rights reflected one manifestation of horizontal power relations within the firm. Voting rights could be, and were, distributed along a continuum from pure democracy (one shareholder-one vote) to pure plutocracy (one share-one vote), tending more toward the former than the latter (Ratner 1970, Maier 1993, Dunlavy 2004, Dunlavy 2006).

The issue of appropriate shareholder voting rules dates from the very inception of the corporation. In the earliest English corporations (circa 1500-1650), shareholders were regarded as “members” rather than investors and charters as constitutions among equals (Maier 1993). One shareholder-one vote was the logical byproduct of this conception of the corporation. Less than proportional voting rights were institutionalized when the English East India Company’s charter
became the governance prototype for the next century or more (Harris 2009). The EEI’s charter established a single class of shares, placed a ceiling on the number of votes that any shareholder might cast, made all shareholders eligible for a directorship, mandated that all directors stand for annual (re)election, and provided for the removal of directors at any time for nonperformance.

As the so-called legal origins literature makes clear, English tradition traveled well and influenced the institutions of corporate law in North America (La Porta et al. 1998). The Bank of North America was chartered by the Continental Congress in 1781. The bank’s chartering act left internal governance rules to the organizers. Contrary to English custom, Robert Morris and the bank’s other principals adopted a one share-one vote rule (Rappaport 1996, Bodenhorn 2011). Their choice quickly came under attack by men with no direct stake in the bank, an attack that led to an annulment of the bank’s charter. After a long debate, the Bank of North America’s charter was restored, but to assuage critics the bank’s by-laws were revised so as to limit the number of votes any shareholder could cast.²

As a friend of Morris’s and an astute observer of contemporary finance, Alexander Hamilton was familiar with the Bank of North America debates, and his Report on a National Bank and the

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1 Despite La Porta et al.’s (1998) assertion of the primacy of the common law and the origins of the modern corporation, judge-made law was of relatively minor import. The law of corporations and the nature of internal governance originated and became standardized through legislative enactment, not common law precedent (Harris 2009). In discussing much-cited Taylor v. Griswold 14 N.J.L. 222 (NJ 1834), which is often held up as a clear articulation of the common law doctrine of one shareholder-one vote, Ratner (1970) shows that the majority did not reiterate an ancient common law tradition because there was no tradition to reiterate. Despite his assertion that the question was “perfectly plain,” Justice Hornblower’s opinion cited only a few tangential common law precedents and a single legal treatise in support because there were few, if any, precedents to cite in support or otherwise.

2 Transcripts of the debate are provided in Carey (1786). The debates are discussed in Maier (1993), Rappaport (1996), Dunlavy (2004) and Bodenhorn (2011).
chartering bill for the Bank of the United States attempted to allay Republican distaste for undemocratic corporations by offering a middle ground to share voting (Dunlavy 2004, Bodenhorn 2011). In the Report, Hamilton rejected the federal government’s use of the Bank of North America as the national bank for several reasons, not least of which was its one share-one vote rule, which he labeled “improper.” He considered the one shareholder-one vote rule “not less erroneous” (Clarke and Hall 1832, 28). Hamilton called his graduated voting alternative the prudent mean and described it thus:

For one share, and not more than two shares, one vote; for every two shares above two, and not exceeding ten, one vote; for every four shares above ten, and not exceeding thirty, one vote; for every six shares above thirty, and not exceeding sixty, one vote; for every eight shares above sixty, and not exceeding one hundred, one vote; and for every ten shares above one hundred, one vote; but no person, co-partnership, or body politic, shall be entitled to a greater number than thirty votes (Clarke and Hall 1832, 32).

Although the Bank of the United States charter resembled the Bank of England charter in several respects, its voting rule looked more like that adopted by the English East India Company. Larger shareholdings received more votes, but votes did not increase linearly in shares and the charter imposed a ceiling on the number of shares that might be cast by any one shareholder. Hamilton had previously included a similar voting scheme in the Bank of New York’s 1784 articles of association (Dommett 1884, Hammond 1957).

Hamilton’s prudent mean voting rule proved popular and durable. By the 1840s variations on the prudent mean appeared in state bank charters from Maine to Georgia, from Virginia to Missouri. Whereas the Bank of the United States charter limited a shareholder owning 25 shares to nine votes, New Jersey bank stockholders owning 25 shares could cast eight votes at shareholder

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3 Hamilton’s Report on a National Bank and the charter of the Bank of the United States can be found in Clarke and Hall (1832).
meetings. Bank shareholders in New Hampshire with 25 shares could cast ten votes, while Missourians could cast either twelve or thirteen. A shareholder with 25 shares in a Georgia bank could cast just six votes in a director’s election. Connecticut followed an alternative path and seemingly wrote whatever voting rule the organizers desired into each charter. Eight of Connecticut’s first ten banks adopted one share-one vote; the two remaining banks adopted prudent mean rules.

In 1811 New York was the first state to adopt a general incorporation law (for manufacturers only) that specified one share-one vote. One share-one vote had become standard in New York bank charters by 1830, but, viewed from a national perspective, it was more the exception than the rule.4 In Pennsylvania prudent mean voting rules persisted until 1874. In Massachusetts prudent mean rules persisted until 1906 for railroads, 1910 for banks and 1928 for insurance companies (Ratner 1970, 7).

Figure 1 provides a graphical representation of four variations on the prudent mean. By the late 1820s, bank charters in New York – like that of the Merchants’ Exchange Bank of New York City – typically included one share-one vote up to a limit of 400 or 800 votes, depending on the bank’s capitalization and authorized number of shares.5 Pennsylvania imposed more restrictive voting caps. The Farmers’ & Mechanics’ Bank of Philadelphia (1809) followed the Bank of the United States so that votes did not increase linearly with shares and the charter imposed a ceiling of 30 votes. Vermont and New Jersey did not impose any ceilings, but votes increased less than one-

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4 Following New York, one share-one votes were also adopted in the Old Northwest states of Ohio, Indiana and Wisconsin.

5 For the purposes of the empirical work, New York law is considered a one share-one vote state because the 400- and 800-vote limits were not binding at any of the New York banks in the sample.

for-one with shares. In Vermont, the marginal vote rule for was such that ten additional shares gave the shareholder another vote; in New Jersey, five additional shares received an additional vote. In the first half of the nineteenth century, Americans did not universally embrace one share-one vote. Although corporate charters created a single class of shares with equal residual claims, shares carried potentially unequal voting rights and, therefore, unequal residual control rights.

3. The economics of share voting

The economics of corporate governance and share voting is now so well understood that I offer a brief discussion of two relevant conceptual issues and how they apply to nineteenth-century corporations. First, corporate shareholders are subject to a collective action problem. Because the benefits of managerial monitoring by shareholders are diffuse and the costs concentrated, shareholders produce inefficiently low levels of monitoring so that managers may not face effective internal discipline. Regular dividend payments and the market for shares provide imperfect substitutes, as do debt contracts that encourage creditor monitoring (Hart 2001). Dividends reduce the cash available for managers to consume as perquisites, which forces managers into debt markets. Although some debt enhances shareholder governance, its excessive use will sufficiently reduce free cash flow that the relatively more costly option of debt finance may render unprofitable.

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entrepreneurial ventures that would be profitable if financed with retained earnings. Moreover, an excessive reliance on debt may cause too many bankruptcies and the liquidation of otherwise good firms.

Second, one available solution to the collective action problem of diffuse ownership is the presence of one or a few large shareholders. Because residual claims on the corporation’s earnings are tied to the residual control rights associated with voting, a shareholder who has a substantial fraction of his or her wealth tied up in the firm has an incentive to elect and monitor managers committed to maximizing the value of the firm to the large shareholder (Easterbrook and Fischel 1983, Shleifer and Vishny 1986). And, in the modern context at least, large shareholders – those holding at least 5% of the outstanding shares – are more prevalent than might be expected. Shleifer and Vishny (1986) report that 45% of Fortune 500 companies had at least one 5% shareholder.

But large shareholdings are not without their own incentive problems. Although a few large shareholders face incentives to control the excessive consumption of managerial perks, they also face incentives to elect board members and hire managers willing to direct the firms’ resources to the large shareholders’ advantage, perhaps at the expense of small shareholders. Morck, Shleifer and Vishny (1988), in fact, identify an inverted U-shaped relationship between the largest ownership stake and Tobin’s Q. For firms with the largest single shareholding between 0 and 5%, they find a positive relationship between the largest ownership stake and firm value. Ownership stakes beyond 5% are associated with lower Q values. They attribute this to large shareholders expropriating from

7 This assumes, of course, that debt intermediation drives a wedge between borrowing and lending rates.
Several scholars identify an association between higher proportions of shares owned and lower firm value and attribute it to expropriation (Morck, Shleifer and Vishny 1988; Cull, Matesora and Shirley 2001; Bena and Hanousek 20xx). If minority shareholders are rational and expect majority shareholders to expropriate at their expense, the prices they are willing to pay for their few shares reflect their individual assessments of the likelihood and extent of expropriation. If minority shareholder anticipate excessive self-dealing, the rents from majority shareholder self-dealing will be offset by the reduced market value of the shares owned and the post-expropriation returns to minority shareholding will be competitive.

Although one share-one vote is desirable on equity grounds, it may or may not be desirable on efficiency grounds (Easterbrook and Fischel 1983). If we let Q represent firm value, v votes and s shares, Burkart and Lee (2008) show that Q increases as (v-s) decreases. A one share-one vote rule translates into higher firm value for shareholders. They note, however, that expropriation declines as (v-s) approaches -s. Expropriation is minimized when the majority shareholder owns a large block of nonvoting shares. Although expropriation would be minimized and the incentives for majority shareholders to monitor managers are enhanced under such a voting rule, limits on the influence of large shareholders dilutes the shareholders’ abilities to concentrate and exercise control over managers. Voting rights ceilings – including any variation on Hamilton’s prudent mean – introduce a tradeof between managerial self-dealing and a majority shareholder’s self-dealing.

That so many states included prudent mean voting rules in corporate charters suggests that nineteenth-century shareholders were less concerned with managerial than majority shareholder self-dealing. This is not surprising given that contemporary corporations did not employ the extensive

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9 Modern corporate finance, not surprisingly, is more concerned with the current trend toward providing some shares with disproportionate voting rights, which further entrenches the power of large shareholders. The analyses of more votes than shares and fewer votes than shares among large shareholders are not symmetric, but Burkart and Lee (2008) provide a brief discussion of the latter.
managerial hierarchies that emerged later in the century. The typical bank employed a cashier, who acted as a chief operating officer, a few tellers and a staff of clerks to record daily transactions. Best practice recommended separate clerks for each of the major account books – loans, banknotes, deposits, cash – to mitigate opportunities for fraud, but this still implies that a typical bank employed a half-dozen men; the largest city banks perhaps a couple dozen, only a handful of whom exercised much managerial discretion.

Lending choices, perhaps the most important management decisions at banks, were delegated by charter or by-laws to discount committees, which were usually populated by three to seven members of the board. Prospective borrowers applied at the bank during the week and the discount committee would offer recommendations on whether to accept each loan at weekly or biweekly meetings. Given the internal operating structure, managerial self-dealing was limited so long as the board and the discount committee did their jobs. A prominent concern with the discount committee procedure, however, was that it provided opportunities for large shareholder self-dealing. With more voting shares, large shareholders could elect themselves to boards and then onto discount committees that might too willingly accept each other’s loans.\textsuperscript{10} Meissner (2005) finds that banks with larger discount committees were more profitable than banks with smaller committees. He attributes the greater profitability of banks with large discount committees to better monitoring and the reduced incidence of unprofitable insider self-dealing.

From the standpoint of the prospective small shareholder, banks with larger boards, larger discount committees and fewer large shareholders would have been more attractive investments.

\textsuperscript{10} Lamoreaux (1994) argues that the benefits of insider self-dealing at nineteenth-century New England banks (overcoming information asymmetries) outweighed the costs (accepting too many bad loans).
That is, small shareholders could better protect themselves from expropriation from self-dealing large shareholders with vote ceilings or prudent mean voting rules. Contemporaries certainly expressed great concern over the possibilities for one share-one vote regimes and self-dealing. In his *Report on a National Bank*, Hamilton advocated the prudent mean because one shareholder-one vote failed to give more weight to men more invested in the institution, but one share-one vote rendered “a combination between a few principal stockholders, to monopolize the power and benefits of the bank, too easy” (Clarke and Hall 1832, 28). Hamilton’s assistant secretary of the treasury, Tench Coxe, declared that the blemish on the Bank of North America’s charter was its one share-one vote rule because it led to “conspiracy” within the bank, by which he meant institutionalized self-dealing among a few large shareholders (Dorfman 1946, 291). Two empirical questions are presented by contemporary concerns: Did prudent mean voting rules lead to more diffuse ownership than one share-one vote rules? Did the absence of large shareholders lead to more or less risk taking at nineteenth century banks? After discussing the data, subsequent sections bring some evidence to bear on these questions.

4. Data

Information on shareholdings for nineteenth-century US banks is not readily available, but it can be found in bank histories, scattered legislative reports, extant bank ledgers at various archives and other contemporary documents. Bank histories tend to provide lists of the founding shareholders. Dommett's (1884) history of the Bank of New York, Gras's (1938) history of the Massachusetts Bank and Baldwin's (1916) centennial history of the Bank of Orleans in Vermont are all examples. If the sample consisted only of data drawn from such sources, it would be subject to survivor bias, but
these represent a modest fraction of the data.

Nevertheless, great care need to be used in the treatment of and the interpretation of results that make use subscribing shareholders lists. Lists of original shareholders may not represent equilibrium investor holdings. Then, as now, new share issues were subject to initial public offering pricing effects as speculators scrambled to capture quick profits in the price run-ups that surrounded new offerings. Cowen (2000, 35) describes the "subscription frenzy" surrounding the First Bank of the United States in July 1791. The initial public offering was oversubscribed by 20 percent. At the IPO date, subscribers to each $400 share paid $25 in cash and received transferable scrip that entitled the bearer to buy a share. Buyers of the scrip were purchasing an option right to pay an additional $375 in four additional semianual installments. Once the full $400 had been tendered to the bank, the scrip would be redeemed for a share. By early August 1791, $25 scrip prices rose as high as $250. An investor buying scrip at this price was effectively paying close to $625 for a $400 share. Prices for the $25 scrip declined from the peak, but remained between $130 and $170 for the remainder of the year. Speculation in state bank shares around their IPOs differed only in magnitude.

A second source of data, subject to a different kind of bias, are shareholder lists compiled by legislative committees during hearings on a bank's failure. Again, it is not clear that individuals holding shares at the point of failure are representative of shareholdings generally if knowledgeable insiders sold out in the months and weeks prior to failure. The data include only two such banks from New York: the Lewis County Bank and the Eighth Avenue Bank, both of which failed in 1854.

The most useful sources are legislative documents that report shareholder lists for all of a state's banks in existence at the moment the reports were compiled. State laws in Maine, New Hampshire and Wisconsin required banks to submit annual shareholder lists to a government agency,
only some of which have been located. These should be representative, unbiased shareholder lists. Other states collected reports at various times, often in response to a generalized bank panic. Michigan, for example, collected some shareholder lists in 1840, after the crisis of 1839 and the suspension of specie payments. It is unclear how a generalized panic would influence shareholding. If the panic were of the sunspot type described in Diamond and Dybvig (1983), it is likely that the composition of shareholdings at the moment of the panic was representative of pre-panic shareholdings. Ohio collected shareholder lists in 1849 and 1854. It is unclear whether some idiosyncratic state-specific event triggered the collection of these lists. Huntington (1915) does not mention any Ohio-specific banking event occurring around these dates and neither is associated with a national or regional event.

Several shareholder concentration measures were constructed from the shareholder lists. Hilt (2008) focuses on the number of shareholders or its natural log. It is evident from Table 1 that one share-one vote banks had significantly fewer shareholders than prudent mean banks. The mean at one share-one vote banks was 58; it was 245 at prudent mean banks. Figure 2 compares the distribution of shares at banks with one share-one votes and prudent mean rules. Differences in mean shareholdings are not the consequence of outliers. Rather, nearly 80% of banks in one share-one vote regimes have fewer than 50 shareholders, and no bank has as many as 300 shareholders. Share distributions at banks in prudent mean states, by comparison, are less right skewed. Although a majority of prudent mean banks had 150 or fewer shareholders, 23% had 500 or more; 8.4% had more than 1000 shareholders. These were relatively close corporations by modern standards, but bank shares were more widely held than any other type of corporate share (Hilt 2008; Majewski 2006).
Demsetz and Lehn (1985) use the fraction of shares owned by the five largest \((CR5)\) and twenty largest \((CR20)\) shareholders, as well as the Herfindahl-Hirshman Index \((HHI)\), to capture shareholder concentration. LaPorta et al (1998) suggest that the important measure in matters of corporate governance is whether one or a few shareholders hold a combined 20% stake in the company. Their research suggests that a 20% block is sufficient to take control of a corporation, which may lead to director self-dealing. Following La Porta et al., I calculate an additional measure of share concentration to capture the extent of large block ownership: \textit{Large Block 20} is a dummy variable equal to one if the five largest shareholders held a combined 20% stake and zero otherwise.

Table 1 reports summary statistics for the alternative measures of share concentration for the full sample, as well as subsamples of banks operating under one share-one vote and prudent mean voting rules. The first thing to notice about nineteenth-century banks is that, compared to the modern, industrial corporation, they were neither large nor widely held. At the risk of anachronism, nineteenth-century corporation are best considered close corporations. The mean number of shareholders was 142 in the full sample, but the difference between one share-one vote and prudent mean banks is immediately apparent, as are differences in measures of share concentration.\footnote{Any bank with five or fewer shareholders was dropped from the sample because under New York and Wisconsin law such banks were treated as partnerships and not corporations.} Mean share concentration values for banks with one share-one vote rules are statistically significantly larger than mean values at prudent mean banks at p-values less than 0.005.

5. Voting rules, share concentration, and leverage

Two questions present themselves. First, how did alternative voting rights influence the
concentration of ownership? Hilt (2008, 669) contends that corporate ownership structure and governance rules were jointly endogenous when looking across industries within a single state. Manufacturers in 1820s New York had the most concentrated ownership and were the least likely to have adopted prudent mean voting rules. Banks, on the other hand, exhibited the least concentrated ownership and were the most likely to have adopted prudent mean voting. By looking across states, most of which adopted one or the other voting rule and maintained it for extended periods, joint endogeneity is a less problematic empirical issue. While there may have been some sorting among owners across states based on preferred voting rules, investors could not alter voting rules within a state. Although some Easterners in prudent mean states invested in western one share-one vote states, which might suggest investor preference for one share-one vote rules, there is little evidence of Westerners investing in eastern prudent mean banks. The largely one-way east-to-west capital flow was driven more by the profitability of arbitraging on interregional differences in risk-adjusted returns to capital than the profitability of arbitraging on interstate regulatory differences (Bodenhorn 1992; Bodenhorn and Rockoff 1992). Alternative regulatory regimes may have led to selection on owner type, but for most potential bank investors the voting rule was exogenously established by state practice. Of the states included in this sample, Connecticut was the only one that tailored voting rules by bank. In all other states, once a voting rule was adopted early in its charting history, that rule persisted, often for decades.

Second, did voting rules influence bank leverage? If so, did voting rules per se have a direct effect on bank leverage? Or, did voting rules operate indirectly through their effects on shareholder concentration? The last question is particularly relevant considering the earlier discussion of majority shareholder self-dealing. Jensen (1986) contends that debt limits expropriation through third-party
Lamoreaux (1994) finds that many banks were created to provide insiders with access to funds to finance manufacturing and mercantile operations. They interpret their finding to imply that controlling shareholders use leverage to channel the firm’s resources to their own uses. If nineteenth-century majority shareholders used banks to finance their nonbanking ventures, they would prefer greater leverage than minority shareholders. Legislative inquiries into failed banks uncovered extremely high leverage and shareholders who had taken control of the board and become the banks’ largest debtors. Such sources are subject to selection, of course, given the absence of comparable inquiries into nonfailed banks, but the pattern suggests greater leverage (and risk-taking) at banks with more concentrated ownership. An empirical concern is that, for an exogenously given voting rule, share concentration and leverage are likely to be jointly endogenous. The problem can be mitigated with the use of instrumental variables (IV) regression.

To determine whether and the extent to which voting rules influences bank leverage, I adopt two approaches. The first includes a prudent mean dummy variable in a bank leverage equation of the following type:

\[
\text{Leverage}_{it} = \alpha \text{Voting Rights}_{it} + \beta Z_{it} + \epsilon_{it}
\]

where all the variables are measured at a single year (for comparative purposes, the same year(s) in which I observe a bank’s shareholdings) and the Voting Rules variable is an indicator variable equal to one in prudent mean regimes and zero otherwise. These regressions determine whether prudent mean voting rules have some discernible effect on bank portfolio behavior. One problem with this direct approach is that it does not reveal the mechanism through which voting rights influence bank

\[12\] Lamoreaux (1994) finds that many banks were created to provide insiders with access to funds to finance manufacturing and mercantile operations.
behavior. Given the previous discussion, it is plausible that alternative voting rights influence bank behavior through the mediation of share concentration. To determine whether voting rights are mediated through concentration, I estimate a two-equation model using an instrumental variables approach. The two equations take the following forms:

\[
\begin{align*}
(2) \quad \text{Share concentration}_t &= \theta \text{Voting Rights}_t + \lambda X_t + \mu_t \\
(3) \quad \text{Leverage}_t &= \gamma \text{Share Concentration}_t + \delta W_t + \eta_t
\end{align*}
\]

where the estimation involves specifying eq(2) as the first-stage and eq(3) as the second-stage equation. Interstate variation in voting rights (prudent mean=1, zero otherwise) are plausibly exogenous and is used as the instrument so that we can obtain efficient and consistent estimates of $\gamma$.\(^{13}\) In this instance, the first stage regressions are of inherent interest, so I discuss them in some detail before moving on to the second-stage leverage regressions.

5.1 Voting rights and bank leverage

OLS regressions measuring the extent to which prudent mean voting rules influence bank portfolio choices are provided in Table 2. These very simple regressions reveal a limited direct effect of voting rights on bank portfolio choices. They have no statistically significant effect on reserve or capital ratios. Voting rights do, however, appear to have some direct effect on both sides of the banks’ balance sheets. On the liability side, prudent mean voting rules are associated with a significantly lower proportion banknotes to total liabilities, suggesting that the banks operating under a prudent mean voting regime were less risky. On the other hand, the high loan-asset ratio may

\(^{13}\) It is, of course, well known that 2SLS or IV estimates can be biased if the instruments are “weak” (Angrist and Pischke 2009). The first-stage regressions, reported in Table 2, suggest that they are not subject to the weak instrument problem.
reflect somewhat greater risk-taking on the asset side of the portfolio. Because the regressions fail to account for potentially confounding factors and the connection is not theoretically obvious, the results cannot be interpreted as uncovering causal effects. But the results do suggest that some underlying connection between voting rules and bank portfolio choices may be operative. The next two sections investigate one potential pathway.

5.2 Voting rights and share concentration

Regression estimates of equation (2) using alternative measures of share concentration as the dependent variable are reported in Table 3. As controls, the regressions include the bank’s capitalization (in $000), the bank’s age, and the natural logarithm of the population of the city or town in which the bank was located. All three variables likely influenced share diffusion. Helwege et al (2007) argue that most modern firms begin with relatively concentrated share holdings that grow more diffuse through time. Thus, the regressions include the bank’s age in years since its charter was granted. It is also plausible that larger banks with more shares might become more widely held, so the bank’s capitalization is also included as a regressor. Finally, the natural logarithm of the city’s population is included to capture the potential size of the market for bank shares. Shares could be and were sometimes geographically diffuse – the Bank of Kentucky, for example, sold many of its shares through Philadelphia brokers and its shares traded regularly on the Philadelphia exchange – but most founding bankers viewed the local market as the most important source of investment capital. Larger local markets were more attractive than smaller ones, all else equal. Moreover, given the opacity and idiosyncracy of bank portfolios, knowledge of likely borrowers and local economic conditions probably served bank investors well.
The control variables are generally statistically significant and the direction of influence is consistent with expectations. Shareholdings were more diffuse at larger banks and banks situated in larger cities and towns. Contrary to modern studies, however, older banks exhibit more concentrated ownership, all else equal. A one standard deviation increase in bank age (10.6 years), decreased the number of shareholders by about 37%; it increased the fraction held by the five largest shareholders by about 4.5 percentage points or the Herfindahl index by about 100 points. Increasing concentration in firm age was a logical consequences of contemporary IPO rules. Unlike the modern IPO, the nineteenth-century IPO was conducted by subscription. If the available shares were oversubscribed, shares were allocated pro rata with the subscription, and every subscriber was guaranteed at least one share. Thus, if an individual subscribed for 100 of the bank’s 2000 shares, but there were subscriptions for 3000 shares, the 100-share subscriber would be allocated just two-thirds of his subscription or 66 instead of 100 shares. All other subscribers’ allocations were similarly reduced. If the investor preferred a five percent stake in the bank, he could purchase shares from other subscribers, but only after the IPO was complete. If given thin secondary security markets outside Boston, New York and Philadelphia, consolidating a large position in a bank’s stock probably took some time.

The coefficients of principal interest are those on the prudent mean variable. Regardless of the measure of shareholder concentration used as the dependent variable, prudent mean voting rules

\footnote{After the subscription frenzy at the Bank of the United States in 1791, most bank charters included a provision against the sale of one’s subscription until after the shares had been fully paid. Subscribers usually had to swear that they were the bona fide purchaser and had not sold their claim to someone else. The rule served three purposes: to limit speculation, to create transparency in ownership so that a consortium of subscribers might not disguise their taking control of the bank at the IPO; and to spread corporate ownership as widely as possible.}
are associated with more diffuse ownership. A prudent mean voting rule increased the number of
shareholders by an estimated 218% \( (e^{1.16} - 1) \), a value consistent with though smaller than the
univariate comparison of 430% in Table 1. Prudent mean voting is also associated with more diffuse
share holding, whether measured by CR5, CR20 or the Herfindahl index. Compared to one share-one
vote regimes, and controlling for other factors, the Herfindahl index for a bank in a prudent mean
regime was 643 points lower, which is 85% of the standard deviation of the index.

Following La Porta et al (1998) who argue that large ownership stakes, rather than
concentration per se, are strongly associated with the quality of governance, Table 2 also reports the
results of regressions where the dependent variable equals 1 if the five largest shareholdings
represent at least 20% of the outstanding shares (Large Block 20).\(^{15}\) The last two columns report the
results of linear probability and probit models with Large Block 20 as the dependent variable. Banks
operating under a prudent mean regime were less likely to have a group of controlling shareholders.
Marginal effects estimated from the probit specifications, for example, imply that banks with prudent
mean voting were about 20% less likely than banks with one share-one vote to have had large block
ownership. OLS estimates suggest an even large effect: prudent mean banks were about 25 to 32%
less likely to have controlling owners.

Interstate evidence drawn from banking stand in sharp contrast to Hilt’s (2008, 671) findings.
Using an alternative measure of voting rights, he concluded that prudent mean “voting rights
schemes did not cause the distribution of shares to become dramatically more equal ... Evidently,

\(^{15}\) Rather than consider the single largest proportional stake, as in La Porta et al (1998)
and Morck, Shleifer and Vishny (1988), the mechanics of lending discussed earlier suggests that
large shareholder self-dealing might be dependent on taking control of the discount committee,
which would require a majority of a three to seven-member committee.
investors were willing to hold stakes that were large enough to be penalized by graduated voting rights schemes.” In fairness, Hilt notes that his regressions do not reveal causal relationships because voting rights regimes were potentially endogenous in some industries in New York in the 1820s. In contrast, interstate variation in voting rights granted bank shareholders were arguably exogenous, outside Connecticut at least. Once a particular regime was established, it tended to persist and nearly every bank in a state operated under one regime or the other. The interstate evidence provides compelling evidence that voting rights regimes influenced the diffusion of share holdings. Bank in states that limited the voting rights of large shareholders exhibited more diffuse ownership, which suggests that at least some shareholders were more concerned with self-dealing large shareholders than self-dealing managers.

5.3 Share concentration and leverage

While evidence concerning the relationship between corporate voting rights and balance of power between large and small shareholders is interesting, the important issue is whether or how the balance of power manifested itself in firm performance. If leverage and riskiness are correlated at financial firms, if bank risk taking is privately and socially costly, and risk tolerances differ across stakeholders, leverage ratios provide valuable metrics of bank risk-taking preferences.

Any discussion of bank leverage and portfolio risk must acknowledge potential conflicts between five distinct groups: creditors, managers, regulators, large shareholders and small shareholders. It is widely accepted that limited liability shareholders have incentives to increase firm risk taking by increasing leverage (Saunders et al 1990). To the extent that depositors and other bank creditors can only imperfectly monitor bank portfolios, bank owners can increase the value of their
equity by increasing the underlying riskiness of the bank’s portfolio at the expense of the firm’s creditors. The owners’ ability to increase leverage depends on the effectiveness of regulators and the risk preferences of managers. Owners and managers generally have different risk tolerances (Rose-Ackerman 1991). Because managers have invested in nondiversifiable, firm-specific human capital, they will pass up risky loans preferred by the diversified shareholder. Saunders et al (1990), in fact, find that owner-controlled banks exhibit greater risk taking than manager-controlled banks.

How leverage changes with large shareholdings is not obvious absent information on the diversification of large shareholders. If large shareholdings represent an effort on the part of a well diversified investor to increase the idiosyncratic component of a firm’s value through leverage, the presence of a large shareholder may increase bank risk taking because variance is valuable. If, on the other hand, the large shareholder has a substantial share of his or her wealth invested in a single firm, the highly leveraged large shareholder is exposed to greater risks than a more diversified investor. If the undiversified large shareholder controls the firm’s strategic decisions, he may pass up some profitable opportunities to lever based on an assessment of total rather than idiosyncratic risk (Güner and Aydoğan 2002).

When considering banks subject to random withdrawals, debt ratios are of first order importance. Bank-issued debt serves as currency and creates an atypical class of corporate creditors. Bank-issued debt also affords opportunities for controlling shareholders to expropriate from creditors and minority shareholders. In a short period, controlling shareholders can issue additional debt (principally banknotes) and secure more of the firm’s resources for their own use at the expense of creditors and minority shareholders. In short, greater control of the ability to issue short-term debt affords additional opportunities for self-dealing even while it increases the likelihood of financial
Weber (2010) has compiled extant bank balance sheets for the early nineteenth century and I make use of these data to calculate measures of bank leverage. The question at hand is whether relatively more concentrated ownership led to identifiably different banking practices than diffuse ownership. To answer that question, four leverage measures are constructed for the same years in which shareholdings are observed.

Two reserve ratios capture short-term leverage and risk taking. By law, banks were required to redeem banknotes and deposits into specie on demand. Failure to do so could result in the revocation of a bank’s charter and its forced liquidation. Banks faced both systemic (generalized liquidity crises) and idiosyncratic (localized bank run) reserve risks. The leverage measures reflect narrow and broad definitions of reserves. The narrow definition equals cash divided by the sum of deposits and banknotes and reflects the strict contemporary legal standard that demand liabilities be redeemable in specie. The broad definition replaces the numerator in the narrow definition with cash plus notes of other banks. The broad definition recognizes that while banknotes lost currency during a systemic shock and lost their reserve status, they might serve as reserves during a localized, idiosyncratic bank run. A second way in which risk-preferring shareholders could have increased short-term illiquidity risk was to increase the volume of banknotes outstanding relative to total liabilities. A notable increase in banknotes outstanding may have been a signal of greater risk taking or, in the extreme, a form of wildcatting whereby the large shareholders issued an unexpectedly large volume of notes, purchased real assets and absconded. Less concentrated ownership would have afforded controlling owners fewer opportunities to engage in these sorts of behavior because controlling owners would have had less control over the board and the discount committee.
The loan-asset ratio measures medium-term leverage; it should also reflect risk tolerances. Banks could construct portfolios of the same overall risk by holding a large portfolio of predominantly low-risk loans and a few relatively low-risk government bonds or a smaller portfolio of riskier loans and relatively more bonds. If well diversified large shareholders preferred idiosyncratic variance, however, and returns on risky loans were greater than bonds, they would prefer higher loan-asset ratios. Finally, I include the asset-capital ratio as a measure of long-term risk tolerance. Higher asset-capital ratios (or greater leverage) meant that risky banks were less able to cover losses and were more prone to bankruptcy risk, whether due to systemic or idiosyncratic shocks.

The results of 15 separate regressions are reported in Table 4. Each cell in the table reports second-stage IV coefficients from estimates of the general form reported in Eq(3) above. Three features of contemporary leverage and bank risk taking are revealed in the regressions.

First, the asset-capital (leverage) ratio was not influenced by any measure of shareholder concentration. This might follow from effective capital regulation or from comparable preferences for capital leverage across large and small shareholders. It may also reflect a general distaste for bankruptcy. Rose-Ackerman (1991) argues that managers have a lower tolerance for potential bankruptcy than shareholders. Accepted wisdom holds that diversified shareholders prefer greater variance of returns and accept the possibility of a negative return on some assets as part of a well diversified portfolio. Absent information on the portfolios of large and small shareholders, it is difficult to posit anything about their preferences over idiosyncratic variance.

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16 A preferred medium-term risk measure would be a metric that captured the riskiness of a bank’s loan portfolio.
Second, there is a robust association between loan-asset ratios and concentration measures. A one standard deviation increase in the natural log of shareholders (sd=1.11) is associated with an increase equivalent to 32% of a standard deviation in the loan ratio. Similarly, a one standard deviation increase in the fraction of shares owned by the 20 largest shareholders was associated with a decrease equivalent to 32% of a standard deviation in the loan ratio. The magnitudes are comparable for the other concentration measures. The signs and magnitudes of the associations appear peculiar if large shareholders tunneled. If tunneling or large shareholder self-dealing manifested itself as directing the bank’s resources toward the controlling shareholders’ personal projects, we would expect to see larger, rather than smaller, loan-asset ratios.

The result is less peculiar than it appears at first blush once we recognize the insider nature of the nineteenth-century bank lending. Lamoreaux (1994) contends that nineteenth-century banks were not the impersonal financial institutions of modern theory; rather, they were the financial arms of extended entrepreneurial networks. Throughout the first half of the nineteenth century, banks loaned much, if not most, of their funds to insiders, such as directors, officers, shareholders and the family, friends and business partners of insiders. Bank shares were prized by trustees of widow and orphan funds because they paid regular, if unspectacular dividends. Bank shares were also prized by small-scale entrepreneurs because share ownership provided access to credit often unavailable to nonowners. Ironically, more diffuse ownership led to greater loan-asset ratios not because small shareholders necessarily desired more variance in returns than large shareholders, but small shareholders exercised their insider option and demanded access to credit that they believed was attached to share ownership. Accommodating small shareholder credit demands increased the loan-asset ratio.
Third, the large shareholder’s ability to take advantage of creditors is evident in the banknote and reserve ratio regressions. As previously noted, controlling shareholders could (and, in a few instances, did) issue notes, buy assets and disappear, leaving the minority shareholders to clean up the mess. Second-stage coefficient estimates on shareholder concentration variables in the regressions on banknotes to liabilities imply that greater share concentration led to greater risk taking and, possibly, tunneling. A one standard deviation change in the natural log of shareholders led to a decrease equivalent to a 25% of standard deviation in the note-liability ratio. Similarly, a one standard deviation increase in the proportion of shares held by the 20 largest shareholders led to an increase equivalent to 26% of the standard deviation in the ratio. Majority shareholders preferred a riskier liability mix than minority shareholders.

It was in reserve ratios that conflicts of interest between large shareholders and creditors become most evident. Because depositors and note holders could only imperfectly monitor bank activities, large shareholders could increase the value of their equity by reducing their reserve ratios (increasing specie leverage). The opportunity cost of excess specie reserves was the interest rate; the cost of inadequate reserves in the event of unexpectedly large redemption calls might range between the marginally higher funding costs due to loss of reputation to charter recision and court-ordered liquidation. Markets in banknotes generated prices that reflected redemption risks and costs, but existing studies have not accounted for systematic differences due to alternative governance regimes (Gorton 1996, Jaremski 2010). The evidence presented here suggests that banks controlled by large shareholders held lower reserves – their specie was more levered – than banks without a large shareholder. Because their specie was more highly leveraged, these banks were less able to meet unexpectedly large redemption calls and were, therefore, at greater risk for bankruptcy.
6. Conclusions

An enduring interest in the relationship between development and institutions have led economic historians to study the emergence, adoption, adaptation and spread of the Old World corporation in the New World (Handlin and Handlin 1945, Maier 1993, Harris 2009, Hilt 2008, Lamoreaux 2004, Dunlavy 2004, Dunlavy 2006, Guinnane et al. 2007, Wright 2011). While the old saw about American exceptionalism is overused, in the case of the corporation the United States was exceptional. Even while it restricted the ability of incorporators to alter the internal nexus of contracts, there were more corporations in the US circa 1840 than elsewhere, including England (Lamoreaux 2004, Sylla 1998).

Berle and Means’s (1932) concern with the separation of ownership and control in the large modern corporation established a lasting and productive research agenda. Their concern with unaccountable managers does not well describe the concerns of the early nineteenth century. Contemporary concerns with minority control were well founded, however. Fears of majority shareholder expropriation led many states to adopt vote ceilings, graduated voting rights modeled on Hamilton’s prudent mean, and other mechanisms to limit the ability of large shareholders to direct firm resources to their advantage at the expense of minority shareholders.

Graduated voting rights were not just so much political window dressing to blunt Republican criticisms of the undemocratic corporation. Graduated voting rights had real economic effects. They encouraged more diffuse ownership – surely a Republican objective – and altered bank leverage and, by implication, bank risk taking. Bank runs were recurrent events in the early nineteenth century, which notable systemic crises in 1819, 1837, 1839 and 1857. To the extent that high leverage created the conditions for and exacerbated the recessionary consequences of such crises, voting rules assume

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first-order importance, not just for microeconomic reasons, but for macroeconomic outcomes.

7. Data appendix

**Connecticut**
Hartford Bank (1792).

**Indiana**

**Kentucky**
Bank of Kentucky. *A List of the Present Holders of the Original Stock in the Bank of Kentucky; Also, a List of Spurious Stock.* Louisville: Morton & Griswold, printers, 1841.

**Maine**

**Massachusetts**

**Michigan**

**New York.**
Merchants Bank (1803).


Ohio
Ohio. General Assembly. Documents, Including Messages and Other Communications made to the Forthy-Seventh General Assembly of the State of Ohio. Columbus: Chas. Scott, state printer, 1849.


Pennsylvania
Bank of North America (1782).

Bank of Delaware County (1815).


Vermont

Wisconsin


8. References


Bena, Jan and Jan Hanousek. 20xx. “Rent Extraction by Large Shareholders: Evidence using Dividend Policy in the Czech Republic.” SSRN


Cull, Robert, Jana Matesora, and Mary Shirley. 2001. “Ownership Structure and the Temptation to


Helwege, Jean, Christo Pirinsky and René M. Stulz. 2007. “Why Do Firms become Widely Held?


<table>
<thead>
<tr>
<th>Variable</th>
<th>Full Sample (N=161)</th>
<th>One share-one vote (N=88)</th>
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<td>CR5</td>
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<td>(10.56)</td>
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Notes: CR5 is the fraction of shares owned by the five largest shareholders; CR20 is the fraction owned by the 20 largest shareholders. Large block 20% is a dummy variable equal to 1 if the five largest shareholders own 20% of the shares, otherwise it equals 0. Reserve ratio 1 = vault cash/(banknotes+deposits); Reserve ratio 2 = (vault cash+ notes of other banks)/(banknotes + deposits). Statistically significant * p<0.10; ** p<0.05; *** p<0.01. Sources: see Data Appendix for shareholdings. Other variables from Warren Weber (2010).
<table>
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<th>Table 2: Prudent mean voting and bank leverage</th>
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<td>Prudent mean</td>
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</tr>
<tr>
<td>Constant</td>
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<tr>
<td>Adj R-square</td>
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<td>F-statistic</td>
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Notes: Capital in $000; absolute value of t-statistics in parentheses; * signifies p<0.10, ** signifies p<0.05; *** signifies p<0.0. N=161 in all equations.
Sources: see Table 1.
Table 3: Determinants of share concentration

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<th>Herfindahl</th>
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<td>(5.89)***</td>
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Notes: Capital in $000; absolute value of t-statistics in parentheses; probit regressions report marginal effects; * signifies p<0.10, ** signifies p<0.05; *** signifies p<0.01. N=161 in all equations.
Sources: see Table 1.
### Table 4: Share concentration and risk taking

**IV regression estimates**

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<th>Reserve ratio 2</th>
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<td>(1.86)*</td>
<td>(2.63)***</td>
<td>(1.08)</td>
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**Notes:** Each cell represents a coefficient from a separate regression. First stage regressions are reported in Table 2. All regressions include ln(population) as an additional regressor. Generalized Hausman test statistics rejected the null of no systematic difference between OLS and IV in most instances.

CR20 is the fraction of shares owned by the 20 largest shareholders. Large block 20 is a dummy variable equal to 1 if the five largest shareholders own 20% of the shares, otherwise it equals 0. Reserve ratio 1 = vault cash/(banknotes+deposits); Reserve ratio 2 = (vault cash + notes of other banks)/(banknotes + deposits).

**Sources:** see Data Appendix for shareholdings. Bank balance sheet variables from Warren Weber (2010).
This figure plots the number of shares on the horizontal with the corresponding number of votes on the vertical axis. The four banks do not represent the universe of voting rules types, but present four common variations. New York adopted a one share-one vote rule, but imposed a cap on the maximum number of votes allowed. Caps were set at 400 or 800 votes, depending on bank capitalization and the number of outstanding shares. The charter of the Merchants’ Exchange Bank of New York City (1830) imposed a 400-vote cap. Pennsylvania tended to place sharp restrictions on shareholder voting. The Farmers’ & Mechanics’ Bank (1811) charter was typical in that it allowed one vote per share for the first two votes, and then allowed more votes for more shares up to a maximum of 30 votes for 190 or more shares held. Vermont imposed graduated voting, but placed no cap on the maximum number of votes. The Bank of Orleans’ (1832) charter was typical in that it imposed graduated voting on the first ten shares and then allowed one vote for each additional ten shares owned above 10. If a one share-one vote rule is characterized by the 45-degree line with a slope of +1, we can think of the Vermont rule as one in which voting moved along a line with a slope of +0.1. Share voting in New Jersey, as seen in the voting rule of the Newark Banking Company (1804) increased by one vote for every five shares or along a line with a slope of +0.2.
Figure 2: Share concentration under alternative voting rights regimes

This figure presents a histogram comparing the distributions of the number of bank shareholders by voting rule. Nearly 70 percent of banks with one share-one vote rules had 50 or fewer shareholders. Less than 20 percent of banks with prudent mean voting rules had 50 or fewer shareholders. No one share-one vote bank had as many of 300 shareholders, whereas 15 percent of banks with prudent mean voting rules had 500 or more shareholders. This chart includes banks with 5 or fewer shareholders, but such banks are excluded from the regression analysis because they were considered partnerships at law and could not take advantage of all corporate privileges, such as limited liability.

Sources: see Table 1.