Related Investing: Corporate Ownership and the Dynamics of Capital Mobilization during Early Industrialization

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ABSTRACT

Scholars engage in extensive debate about the role of families and corporations in economic growth. Some propose that personal ties provide a mechanism for overcoming such transactions costs as asymmetrical information, while others regard familial connections as inefficient with the potential for corruption and exploitation of minority shareholders. This empirical study is based on a unique panel data set comprising all of the shareholders in a sample of corporations in Maine, including information on age, occupations and wealth. Related investing was widespread among both elite and small shareholders, and was pervasive throughout the firm and the corporate economy. Such ties were especially evident among ordinary investors in the newer, riskier ventures and helped to ensure persistence in shareholding. "Outsider investors" were able to overcome a lack of experience and information by taking advantage of their own networks. The link between related investing and the concentration of ownership in the corporations suggests that this phenomenon was likely associated with a reduction in perceptions of risk, especially beneficial for capital mobilization in emerging industries. These patterns are consistent with a more productive interpretation of related investing and its function in newly developing societies.

I. INTRODUCTION

Related investing refers to investors whose personal ties influence their decisions to enter or exit the market, the composition of their portfolios, or other actions that they might not otherwise undertake. Market efficiency is in part defined in terms of depersonalized transactions, so many analysts regard related investing as a sign of the existence of inefficiencies. Some claim that the exploitation of family networks offers a haven for potential redistributive or criminal activity. Even if personalized interactions were initially prevalent because of productive reasons, it is commonly contended that such connections should tend to diminish in importance as financial markets and the economy matured. Most notably, Sir Henry Maine (1861) is frequently cited for his proposal that societies evolve from communal relationships based on status or ascribed ties, to contracting by autonomous actors. Thus, related investing is typically viewed as a temporary phenomenon, and its persistence is associated with anomalous deviations from optimality, or outright corruption. As the economy evolves, according to this perspective, one might expect that transactions costs would fall, and that a transition would occur towards the arguably more efficient state of depersonalized exchange.

This evolutionary assumption is evident in the work of John Majewski (1996), who examined the financing of transportation infrastructure in the antebellum period, drawing on the experience of six railroad enterprises in Pennsylvania and Virginia. He found that early expansions in transportation networks were financed by local residents or small investors who were connected by ties of kinship and social capital or community spirit. Majewski argues that the development of the Southern economy was retarded by the continued involvement of local investors, whereas the Northeast expanded in part because its investments evolved away from the "friends and family" approach towards arms-length professional transactions. Others have raised

the possibility that, while relational investing might be productive in certain circumstances, such ties might be incompatible with efficiency within some organizational structures, and in corporations in particular.[1]

In today's developing countries, a parallel extensive debate centers on the role of families and corporations in economic growth. La Porta et al., (1999) point out that family businesses are common in many parts of the world, and ownership in such firms is typically not dispersed. Even though family ownership and control in business enterprise is pervasive, the scholarly discussion tends to be somewhat skeptical and pessimistic about the contributions of kinship groups. First, complementary institutions such as legal and political systems may be inefficient and inadequate to support the needs of the corporate form. Second, research points to problems in corporate governance, and the potential for the expropriation of shareholders by the groups that control the company. Minority shareholders and other outside stakeholders can be expropriated by such practices as nepotism and on-the-job consumption by entrenched family members. Outside investors face the risk that both internal and external control mechanisms may be too weak to protect them from "tunneling" or corruption in the firm.

Although agency costs may be magnified in the presence of kinship ties among the managers and leading shareholders, who can form blocks to transfer resources to themselves at the expense of outsiders, groups with relational links can still generate net positive benefits. Such benefits are especially evident in circumstances where institutional imperfections hinder market transactions. Family networks can facilitate remedies for market failure, such as investments in trust and social capital, the ability to monitor group members more effectively,

[1] See Ingram and Lifschitz (2006) who argue that kinship ties allowed family firms to reduce the risk of bankruptcy, but that some types of relational governance conflicted with corporate modes of governance.

cheaper enforcement mechanisms, and the use of reputation to reduce informational asymmetries. Relational contracts may result in stronger commitments or incentives to adhere to agreements. Although one might expect that such ties would tend to weaken over geographic or genetic distance, this is not necessarily the case. For instance, Avner Greif (2006) found that Maghrebi traders formed coalitions that enabled them to overcome obstacles to long distance trade. These private institutions functioned as commitment devices that enforced agreements and deterred opportunism among market participants.

Most research on the corporate form of business organizations has tended to focus on the role of managers, directors, and other elite investors in the firm.[2] Naomi Lamoreaux (1994), for instance, demonstrated the importance of "insider lending" in early U.S. capital markets.[3] She found that elite investors in banks tended to be related to each other, and these owners directed a significant fraction of the loans in the bank to other insiders. Rather than unproductive "tunneling," Lamoreaux finds that relational links in the banking sector were an effective means of mobilizing capital. Insider lending facilitated risky investments in venture capital for innovative initiatives as industrialization got underway. Outsiders were quite aware that their stock purchases in the bank were destined to finance the other enterprises owned by the directors of the bank. They likely benefited from access to investment opportunities in new ventures, for the arrangement offered the uneducated investor the opportunity to gain enhanced profits beyond

[2] A significant amount of research on the role of corporations in early American development has focused on issues in corporate governance (Bodenhorn 2012, Dunlavy 2006, Hilt 2008). In particular, they examine ownership structures of the firms, and the causes and consequences of different voting rules. For instance, the charters of corporations sometimes specified graduated voting rights that reduced the degree of control exerted by the largest shareholders. Hilt analyzed the ownership structure of corporations in New York State in the 1820s, and concludes that minority shareholders were in danger of being "oppressed" by majority shareholders, but the latter were checked by corporate charters. Thus minority shareholders were granted disproportionate representation, and this reduced the cost of capital and enhanced diversification of portfolios. Bodenhorn similarly finds that graduated voting rules were prevalent in early American banks and were designed to attract small investors.

[3] Naomi R. Lamoreaux, Insider Lending: Banks, Personal Connections, and Economic Development in Industrial New England, New York: Cambridge University Press (1994).

the banking sector, while diversification reduced risk. Insider lending comprised an efficient response to supply and demand, whereby outsiders were induced to make investments in the new industries of the day primarily because of their trust in the reputation and experience of the prominent families who founded the financial institutions. Familial and other social connections substituted for incomplete markets and helped to resolve problems that arose in the presence of such market imperfections as high risk and asymmetrical information.

Kinship networks thus likely played a productive role in some aspects of British and American economic development. A question remains about whether relational connections were pervasive at all levels of business organization. If family ties were concentrated among elite investors, the implications for our understanding of the role of such ties would be different from the inference if these patterns were common to all investors of the time. Indeed, Naomi Tadmor (2001) rejects the conventional dichotomy between kinship circles and those who are unrelated, arguing that the family relationship is necessarily both affective and instrumental. However, little empirical research has been directed to the entire population of participants in the ownership and control of the firm, nor to the extent and implications of their heterogeneity. Most research tends to be at the firm level, although within-firm heterogeneity among owners can lead to significant unobserved variation which necessitates the analysis of the cadre of investors outside the managerial class. Such characteristics and patterns might have important implications for our understanding of the role of kinship ties in economic development.

Similarly, although the structure of ownership might be expected to vary over the life cycle of the firm and over time, the dynamics of firm ownership is still an understudied topic. Kinship links are predicted to decline over time, but if they are found to have persisted during economic development in an effective institutional environment, then their existence is less

likely to owe entirely to market imperfections. Helwege et al. (2007) examined how the ownership of insiders changed over time, and concluded that moral hazard and informational asymmetries were "irrelevant" to understanding changes in insider ownership. However, such research does not control for family relationships which, as discussed above, tend to be pervasive beyond the United States. Family ownership can be especially relevant to the dynamics of shareholding in corporate organizations. The internal incentives of the family unit might be more transparent and observable over time than in the case of unrelated shareholders. The intergenerational links that characterize family membership can thus provide a cost-effective signal to outsiders that a firm values continuity and future exchange.

This paper examines the nature of related investing at all levels in corporations and how such patterns changed over time. The analysis is based on a new and unique data set drawn from the population of investors in all Maine corporations during the antebellum period. The sample includes information on counties, industries, enterprises, as well as individual investors in banks, manufacturing firms and transportation enterprises. The shareholders have been matched with the manuscript population censuses, to provide information on age, occupations and wealth of individuals and households. The data include cross-sections of the same firms over time, which permits the investigation of longitudinal changes in corporate ownership and the structure of the firm.

The results confirm the conventional finding that corporate elites tended to be related to others within the firm. At the same time, nonelites, or the investors who were neither directors nor the largest shareholders, were also bound by kinship connections. Such ties were especially evident among ordinary investors in emerging industries and in the newer, riskier investments. Related investing was widespread among the ordinary investors, and seems to have been

pervasive throughout the firm and the corporate economy, during the critical period of early industrialization. The universal nature of relational investing in these data suggests that further attention needs to be paid to the entire ownership structure, and not just to the apex. These patterns are consistent with a more productive interpretation of related investing and its function in newly developing societies.

II. EARLY CORPORATIONS IN MAINE

From an international perspective, the corporate form of business enterprise has been prevalent in the United States to a far greater extent than in other countries, even Britain. Unlike the general perspective from studies in contemporary developed economies, the conclusions from research in economic history tend to be more consistent with a favourable interpretation of the link between corporations and family holdings. In the American colonies local and interstate debt contracting were extensive and functioned effectively from the earliest decades (Khan 2008). Many scholars credit the spread of the corporate form of business organization, and the financial system, with aiding the rapid industrialization and economic progress of the United States in the nineteenth century (Irwin and Sylla, 2011).[4]

In New England, banks and insurance companies were the first types of corporations with diffuse ownership, and these enterprises attracted a diverse array of investors, including relatively risk-averse savers such as trustees, women and the elderly. Banks provided “saver education” that helped to inform new entrants in the market for corporate capital mobilization, and both firms and investors in subsequent transportation and manufacturing ventures were able

[4] For an emphatic exposition of this thesis, see Wright (2002) who is convinced that "the root cause of early U.S. economic growth (1780-1850) . . . is the development of the financial sector, not transportation and communication improvements, not foreign trade, and not manufacturing firms" (193).

to benefit from their example. In some instances, banks served as institutional investors who helped to fund emerging enterprises and industries. Prior research has investigated banking firms extensively, but a lack of systematic data has made it difficult to ascertain the extent to which their investors differed from those who funded the "venture capital" of the nineteenth century, and how these patterns varied over time.

Records of the Maine experience offer insights into cross-sectional and longitudinal comparisons of the financial structure of corporations. Maine was an early leader in the chartering of U.S. business corporations and, as Figure 1 shows, its rate of incorporation remained competitive with states of much larger populations. The growth in corporate enterprises reflected a general expansion in the Maine economy across all sectors, ranging from banks to shipbuilding, fisheries, lumber, and manufacturing. The state was among the nation's leaders in many extractive pursuits, most notably shipbuilding and lumber. However, during the period under review there was a marked structural economic transformation that generated rapid economic growth in manufacturing and transportation as well. The first sawmill in the country was opened in Maine in 1634, and almost one thousand mills were in operation in 1820. The proliferation of natural resources and cheap sources of power propelled manufacturing in the "take off" phase during the early nineteenth century. The area was remarkably rich in inventive inputs, and Maine inventors were among the most innovative and productive in the nation, accounting for a substantial fraction of the most valuable patents filed in the United States.[5] By 1860 the economy was significantly diversified, the agricultural sector had shrunk to 40 percent, cotton manufacturing was the fifth highest in the country, and the state ranked ninth overall in U.S. manufacturing. Some of the largest enterprises in the country were founded in Maine, and

[5] B. Zorina Khan, The Democratization of Invention: Patents and Copyrights in American Economic Development. NBER and Cambridge University Press (2005).

their average output, capital and employment in 1860 were exceeded only by firms in New York and Massachusetts (Bateman and Weiss, 1975). Thus, the experience of this state provides a useful case study of the nature of capital mobilization during early industrialization.

Maine granted charters to business enterprises through private acts of incorporation until 1875, after which general incorporation laws were passed, implying that the charter applications for all of the firms in this study were individually vetted and approved by the legislature. In 1839 and 1841 the statutes required all business corporations to record and publish the complete list of shareholders in the company, and this offers a unique opportunity to assess a panel of corporate owners during a period of rapid industrialization.[6] In 1845, 55 commercial enterprises were organized as corporations in Maine, with an average of 64 shareholders. The Portsmouth, Saco and Portland Railroad company was the largest firm in terms of the number of shareholders (255), whereas the York Manufacturing Corporation had the greatest total capitalization ($1,000,000). During the antebellum period the number of firms and the extent of capitalization expanded, and by 1855 the number of corporations had increased to 122 firms, with an average of 107 shareholders. The largest railroad firms were owned by some one thousand shareholders, and several corporations now had capital investments that exceeded a million dollars.[7]

The data set (Table 1) comprises a random sample of roughly half of all corporations filing in 1845, 1850 and 1855.[8] These include 21 banks in 1845, and 15 nonbank firms; 13

[6] The 1839 law stipulated that banks should file their stockholders' lists, and the law was extended in 1841 to include all commercial (for-profit) corporations. The data do not include nonprofit corporations such as towns, religious and educational institutions.

[7] The Atlantic &St Lawrence Railroad had 1747 shareholders, and the Androscoggin & Kennebec Railroad had 1221 shareholders. The Portland, Saco & Portsmouth Railroad had grown to 958 shareholders. The Boston & Maine Railroad was capitalized at over four million dollars, firms with at least one million dollars included the Portland, Saco and Portsmouth Railroad, the York Manufacturing Corporation, and the Lewiston Water Power Company.

[8] The sample includes data for 1840, but they are not included in the analysis for this paper because they comprise only banks.

banks and 17 nonbank firms in 1850; and 29 banks and 25 nonbank firms in 1855. The entire sample includes some 13,900 individual observations of investors in these corporations. Shareholder lists include the names of the individuals, the amount and/or value of shares held, and their place of residence. The lists allow us to categorize related investors, who are defined as individuals within a company who share the same surname. They also enable the identification of women shareholders, corporate and nonprofit investors, trustees and other proxy investors, the entire stock portfolio of a given investor, and persistence or turnover in ownership. The names of stockholders were matched with the federal manuscript censuses in 1850 and 1860, which provided additional information on age, wealth, occupation, household composition, and marital status.

At the firm level, the charters that were granted at time of incorporation yielded information on the founding members of the company, governance rules, the initial capitalization, and stipulations about shareholder liability.[9] These corporate charters provided insights into restrictions on directors and officers of the corporation, voting schemes, accounting standards, and disclosure requirements. It is significant to note that Maine was an early innovator in disclosure rules that were intended to protect outside investors: almost three-quarters of the charters required the firm to offer financial statements to shareholders, and in many cases shareholders had the right to inspect the books of the firm at any time. Each enterprise is associated with a date of incorporation (and thus the age of the firm), limited liability status, industry, total number of shareholders, total capitalization at par value (paid-in

[9] Dick Sylla and Robert E. Wright generously provided access to their database of corporate charters in Maine, which supplemented the sample information on charters. The provisions of Maine corporate charters between 1840 and 1855 specified that the director should live in-state (40.4 % of all charters), directors had to be shareholders (37.4%), number of directors (72.5 %), officers had to give a bond (33.3%). Proxy voting was allowed in all cases, and graduated voting schemes were stipulated in 37.4 % of the charters, with only 2.9 % that allowed one vote per person (Carlson 2007).

capital for some), the names of the directors, presidents and other officers, and measures of ownership concentration. Finally, county-level variables include population and its density, and economic activity such as the percentage of employment and output in manufacturing, aggregate estimated wealth from tax records, and urbanization.

Many of these corporations were successful at the national, and even the international, level. For instance, the North Wayne Scythe Company of Kennebec County was chartered in 1848, by Reuben B. Dunn and J. E. T. Dunn, along with four other founding members. Reuben Dunn was the President of the company, and he remained the majority shareholder, with $67,500 in shares. The initial authorized capitalization of the enterprise was $300,000, but in 1850 only $130,200 was paid in. The firm manufactured scythes and other tools and implements, and ultimately grew to become the largest scythe manufactory in the world. North Wayne scythes were awarded the first prize, a silver medal, at the Crystal Palace Exhibition in London, England. During the Civil War a military contract for ten thousand sword blades was granted and filled for the United States Government.

III. GENERAL PATTERNS OF SHAREHOLDING

This section considers general patterns of shareholding during the antebellum period, and identifies the characteristics of safer, low-risk investments in the banking sector, relative to newer and riskier ventures in the incipient manufacturing industry and transportation enterprises. Banking and securities markets have been well-researched, especially financial centers such as Boston, Philadelphia and New York, which were extensive and integrated by the end of the eighteenth century (Bodenhorn 2000, Wright 2002). Significantly less research has been directed to the study of financial markets in "frontier regions," although empirical evidence does

support the view that credit markets were active and liquid from the earliest days of settlement, even in Maine during the seventeenth century (Khan, 2008). Lamoreaux (1997) shows that, in terms of formal banking institutions, Maine was somewhat behind its Northeastern counterparts, but its per capita access to funds was on par with the national average.

A key question for understanding the process of capital mobilization is the geographical origins of investors. If shareholders reside in distant locations, it suggests that information is cheaply available, or else that mechanisms to reduce transactions costs exist. Localization of adequate sources of funding, on the other hand, could point to a fairly sophisticated domestic financial system. Changes in these patterns over time offer insights into the evolution of capital markets. Table 2 therefore presents the distribution of shareholding by residence and industry over time. The residence of shareholders varies significantly by type of industry, although in all cases the percentage of domestic investors increases over time. Banks were predominantly owned by local residents, and over eighty percent of their shareholders lived in Maine. As might be expected, nonresident investors had addresses in nearby states such as Massachusetts, and very few stockholders were truly foreign (from other countries).

It is interesting to note that manufacturing shares initially were primarily owned by investors from out of state. However, this percentage fell over time, and in the 1850s local residents accounted for the majority of the value of capital invested, indicating that they held larger average numbers of shares of the company than the nonresidents. The capital structure of transportation corporations experiences a marked change over time. Initially, out-of-state investors comprised almost two thirds of the shareholders, but in the 1850s this pattern is reversed, and there is a significant move towards local ownership of transportation corporations. These results are consistent with the view that, over the course of economic development, a

process of "investor education" was underway. By the end of the antebellum era, Maine residents were adopting riskier portfolios, and in the process, they provided funding for the enterprises that would contribute to the course of industrialization and rapid economic growth that occurred during this period.[10]

Alexander Gerschenkron had pointed to the special role of banks in promoting economic development. Table 3 provides a useful perspective on the contribution of banks, bankers, and other financial sector transactors in funding the growth process. Banks themselves were owned by investors with links to finance, but these individuals accounted for only one third of bank shares. Instead, it is interesting to note that almost one quarter of bank shares were owned by investors with primary links to manufacturing, highlighting the symbiotic relationship which Lamoreaux (1997) had identified. Only 15 percent of shares in manufacturing enterprises were owned by manufacturers, with 41.4 percent attributed to bankers and others in related occupations.[11] The role of manufacturers in capitalizing transportation networks is especially noteworthy. At the other end of the spectrum, artisans and farmers played a relatively minor role in securities markets throughout the economy, despite their prevalence in the population at large.

The table also brings to the fore the disproportionately high participation of professionals and white-collar workers in the financial underwriting of corporate enterprises in all three sectors. This group might have been expected to be more risk-averse than financiers and manufacturers, and to have been primarily attracted to the security and low risk of banking

[10] For a study of overall transportation patterns, see Wright and Murphy (2009), showing some 7,000 private U.S. corporations had been chartered in the antebellum period to operate bridges, canals, ferries, railroads, and roads. Private capital investment accounted for a significant share of total domestic output; according to Klein and Majewski (2006) cumulative private sector investment in turnpikes between 1800 and 1830 in the New England and Middle Atlantic states likely comprised over six percent of 1830 GDP.

[11] See Fear and Kobrak (2010) who examined the role of "banks on board" and found that banks played a significant role in corporate governance during the second industrial revolution, and this was especially true in the case of investment banks in the United States before the advent of the Federal Reserve system.

investments. Instead, only 14.9 percent of bank stocks were owned by white collar workers. Perhaps surprising is the finding that they invested more in the manufacturing sector than shareholders whose occupation was in manufacturing (although obviously the table does not control for income levels), and comprised the largest proportion of the funders of transportation corporations. This is different from Majewski (1996) who argued that transportation improvements generated spillover benefits that encouraged farmers to pay for railroads and turnpikes, even if they were privately unprofitable. While manufacturers certainly benefited from internal improvements, it is unlikely that professional and white collar workers were motivated by externalities.

Table 4 reveals another departure from previous findings, regarding the role of women in capital mobilization for firms. The stereotype of women investors points to their tendency to cluster in the banking sector, which attracts the wealth of "widows and orphans" because of its familiarity and perceived low risk, derived from fixed-income returns and predictable dividend flows. Laurence (2008) studies six customers of Hoare's Bank in England, and discusses how women evolved from consumers of banking services to purchasers of stocks. Similarly, women investors in Maine typically owned disproportionately higher shares in bank stocks, relative to manufacturing and transportation. Women were even the largest shareholders in the Medomak Bank of Waldboro, and the Exchange Bank of Bangor. The percentage share of female bank stockholders increased from almost 20 percent in 1845, to 26.1 percent a decade later. As might be expected, the average size and value of their holdings was lower than those of male investors. However, women's portfolios increasingly included riskier equity shares in manufacturing and transportation corporations. Most notable is the rapid increase in ownership of transportation shares: by 1855 women comprised almost one quarter of investors in this sector, and the value of

their investments had more than tripled to 11.4 percent of shares. These results are inconsistent with such studies as Majewski's finding that few females invested in transportation stocks, for they suggest that women investors in the antebellum period may have been more similar to their male counterparts. Women were increasingly drawn into underwriting securities in riskier, newer ventures, in which it might be expected they would tend to have had little information or experience.

These patterns raise the question of the mechanisms that underlay investors' portfolio decision-making. Laurence (2008) argues that, in England, both the business of the bank and investments in the stock market occurred within the context of groups who were linked by kinship, religion, and other noneconomic ties. This is a plausible hypothesis but, again, such studies are limited to a few examples in a single industry. It would therefore be useful to examine the extent to which related investing was prevalent, not just in a single sector, but across the entire economy, and how these practices varied during the process of economic transformation. The next section investigates the role of family connections in the mobilization of capital during this period.

IV. RELATED INVESTING

The brothers of the Richardson family of Portland, Maine were all prosperous merchants in the East India trade, who became key insiders in some of the most important new Maine ventures, along with several other family members. Joshua Richardson was a Maine-born founder of the Cumberland Bank in 1813 and, with his brothers Israel Richardson, and William Putnam Richardson, also started the Merchants' Bank. Joshua was involved in the Portland Gas Light Company, the Portland Manufacturing Company, the Maine Bank, and the Atlantic and St.

Lawrence Railroad. He was an officer in several other firms, and acted as the President and Chief Executive Officer of the Manufacturers and Traders Bank, in which his mother Eunice Richardson was also a prominent shareholder.[12] According to the census records, Joshua Richardson held over $20,000 in real estate assets in 1850, while his brother Israel owned $15,000. William Putnam was subsequently President of the American Insurance Company in Salem, Massachusetts. In both developed and developing societies today, this network of interlocking directorships and familial ties would likely raise questions about the potential for negative outcomes such as tunneling, and the exploitation of "outside" investors.

Table 5 illustrates the patterns of related investing in banks, manufacturing, and transportation corporations, by examining the percentage of investors within each industry who owned shares in firms where at least one other shareholder had the same surname. Contrary to the notion of the demise of related investing during market expansion, the significance of kinship ties instead increases significantly during the period of industrialization. In 1845, 40 percent of bank shareholders could be counted as related investors, a figure which had grown to become almost half of all shareholding a decade later. This was also true of corporations engaged in manufacturing and transportation. The importance of kinship ties in manufacturing corporations increased to the point where more than half of the value of shares was held by related investors. Again, the most marked change was evident in transportation, where close to 70 percent of shareholders could be considered as related investors. Unlike manufacturing, related investors in transportation enterprises held smaller stakes on average, amounting to roughly half of the value of shares.

[12] In 1845 Joshua Richardson held $1100 in shares, whereas Eunice Richardson owned $2100 in the Manufacturers and Traders Bank.

The standard studies of kinship networks in an economic context tend to focus on corporate insiders, or officers who hold key managerial positions or directorships. Table 6 shows the prevalence of overall ownership and of related investing among such officers, comprising treasurers, directors, or presidents in Maine corporations. Banks and manufacturing exhibit similar trends over time. First, the officers of the firm remained roughly the same fraction of the total number of shareholders: bank insiders comprised around seven percent of all shareholders; directors and other key officials in manufacturing corporations numbered about four percent of the shareholders. Second, insiders held disproportionately larger amounts of capital, and their ownership shares increased significantly over time. By the end of the period, insiders accounted for approximately 20 percent of the capital in banks, and 23 percent in manufacturing enterprises. Once again, transportation is notably different from these other industries, with a more "democratic" distribution of shareholders and share value among the officers of the corporation.

The distribution of ownership concentration for overall corporate insiders is reflected in the patterns for related investors. In 1845 a third of all officers were related to another shareholder in the same firm, and this soon increased to over half of all insiders. Related investing was largely responsible for the increase in the influence of insiders in both banking and manufacturing corporations. In banks, related insiders initially owned 5.3 percent of total capital, and this jumped to 13.5 percent of capital by 1855. Similarly, manufacturing exhibited a sharp rise in the concentration of shares in the hands of related insiders, to 18 percent of the capitalization of these firms. In the case of transportation, the level and degree of concentration was significantly lower, since related inside investors owned no more than 3.6 percent of outstanding shares.

Women were far more likely to share a surname with another investor in the same firm. In some cases, their shares were inherited from male relatives. For instance, in 1840 David Wooster, a Justice of the Peace in Vinalhaven, owned $700 in the Lime Rock Bank of Rockland, without any relatives listed in the roster. In 1845, his name does not appear among the bank's shareholders, but the records now include Lydia Wooster, a 66-year-old widow with $200 in real estate wealth, holding $700 in shares of the Lime Rock Bank of Rockland. Her unmarried daughter, 31-year-old Jane Wooster, who lived in the same household, owned $100 worth of shares in the same bank. But apart from passively inheriting shares, women were also represented as shareholders who had made active decisions about how to allocate their wealth. When the York Bank was first incorporated in 1831, its biggest shareholder was the wealthy widow Sarah Cleaves, followed by her children, Mary and Daniel.[13] In 1845, after the death of their mother, Mary Cleaves became the majority shareholder, and owned 10 percent of the bank; whereas, her brother Daniel Cleaves was the second-largest shareholder, and served as the President of the bank from 1849 through 1865. However, even if they were active investors, it is impossible to determine whether these female related shareholders made decisions wholly independently, or whether they were following the advice of relatives with more financial experience. In any event, the general point is that, whether as active or passive investors, women were more likely to be involved in financial decisions as part of a family unit.

We can gain more insights into the characteristics of related investing by women if we exploit variation in investments across industries. Table 7 shows that the number of women shareholders increased from 385 (8.9 percent of the total) in 1845 to 1681 (15.4 percent) a

[13] The patriarch of the Cleaves family, the Daniel Cleaves Sr., had died in 1817 leaving the largest estate in Maine at that time, created from diverse successful investments and businesses in shipping, banking, land, and manufacturing. Daniel Cleaves Jr. was around 25 years of age when the decision was made to contribute to the founding of the York Bank.

decade later. In 1845, 57.9 of women fell in the roster of related investors, growing to 66 percent in 1855, in comparison to the 30.4 percent of men who were related to other shareholders in 1845, and 54 percent in 1855. Part of the rising prominence of related investors owed to the experience of women shareholders in transportation enterprises. By the end of the period, 78.5 percent of female stockholders in railroads, turnpikes, bridges, and similar corporations were related to other investors in the same firm, significantly higher than the 50.7 percent in banks. The lower prevalence of related investing in the stable banking industry, and the higher incidence in transportation suggests that kinship ties played a role in attenuating transactions costs in more venturesome enterprises.[14] In particular, it is likely that the burden of these transactions costs were disproportionately felt by women and other groups that were financially uneducated, less wealthy, or otherwise disadvantaged at equity investing.

The notion that related investing aided in the democratization of securities markets is supported by the kernel density distributions of related and unrelated investors, both in terms of the value of shareholding (Figure 3) and the amount of real estate wealth in their investment portfolio (Figure 4).[15] Just as in the case of the kernel density estimate of the value of shares held, there is greater "heaping" for related investors at the lower tails of the distribution of real estate wealth, as well as in personal wealth (figure not included). The density estimates for the transportation corporations and other enterprises are noticeably skewed leftward for related investors, and to a greater extent than in the case of unrelated investors. This result suggests that the current tendency for researchers to focus almost exclusively on the kinship networks of elite

[14] Majewski (1996) similarly concludes from his study of transportation corporations in two counties in PA and VA, that kinship was a means of reducing transactions costs (in this case, a free rider problem). He found that 40-50 percent of the shareholders in most of these enterprises shared the same surname.

[15] Kernel density estimation creates a hypothesized probability density function from the shareholder observations. A Gaussian density function was used as the kernel and nonparametric techniques were employed for the density estimation.

investors is likely to miss what may be other crucial functions of related investing. Indeed, these distributions provide visual confirmation that kinship ties were especially relevant for small investors and individuals who were less wealthy.

What was the impact of related investing on ownership in the firm? The regressions in Table 8 examine the effects of related investing, ceteris paribus, on the shareholders' ownership stake in the firm, or the fraction of total shares that the individual holds.[16] The cross-tabulations had indicated that banks, manufacturing, and transportation corporations were characterized by different processes and outcomes. Diffuse ownership in these industries was also determined by varying factors. For instance, in banking and manufacturing, farming areas were associated with higher ownership concentration, but in transportation enterprises lower concentration occurred in more prosperous farming regions. For banks, older firms had lower concentration of shares, while the opposite was true of railroads. In all corporations directors and other officers owned larger fractions of shares, and this was especially true of manufacturing firms. The less advantaged shareholders, such as women investors, owned lower stakes in the banking and manufacturing enterprises, but they held larger proportions of equity in transportation. This result was also true for related investors, which is consistent with the hypothesis that kinship networks encouraged their members to reduce perceived riskiness of investments. Related investing arguably promoted a democratization of capital mobilization during the early industrial period.

[16] Regressions were also run that allowed the coefficients and intercepts to vary over each time period, and controlled for the size of the firm in terms of the number of stockholders, and for the age and location of the firm. These results confirmed that ownership by local Maine residents rose in each subsequent year. Shareholders in transportation held lower amounts of ownership rights initially, but by 1855 they owned significantly higher fractions of total equity in corporations. Related investing had grown over time, but the pattern was not due to the elite insiders in the firm, it was rather because of the higher percentage of shares held by the "outsider" related investors.

The regressions in Table 9 show the determinants of variation in "persistence," or the holding of shares in a company for more than five years. As might be expected, concentrated ownership (a higher fraction of equity held by an investor) was positively associated with persistence. Elite officers of the firm, such as the President, were also more likely to retain shares for longer periods, but occupation in general (such as white-collar status, or financial backgrounds) was not a significant explanatory factory. Women were more apt to hold shares for a shorter period, which is perhaps consistent with the notion of passive investing. Perhaps unexpectedly, manufacturing shareholders tended to be longer-term investors, relative to banking or transportation. The results suggest a positive role for related investing, in explaining persistence of both elite investors with family ties, as well as the persistence of nonelite investors.

IV. CONCLUSION

Related investing refers to family ties among the owners of firms, and has been found to be pervasive in most parts of the world. Researchers have typically focused on kinship networks among the elite investors such as corporate insiders, ignoring the characteristics of the rest of the population of shareholders. From this perspective, related investing in securities markets is held as anomalous and suspect, raising the possibility that insiders are taking advantage of their family relationships to avoid governance oversight. The negative connotations are highlighted in regions where institutions are opaque and external controls are nonexistent or ineffective; the use of kinship ties compound the problem of corruption by circumventing internal controls within the corporation. In short, related investing has been regarded with caution because it has the potential to serve as a mechanism through which resources within the firm are redistributed to

the elite owners. Even in studies where personal ties are acknowledged to play a productive role, such as overcoming transactions costs, it is generally argued that their influence should decline and disappear as markets become more developed and impersonal.

The current project employs a more extensive data set of shareholders and firms than has previously been available to reexamine the debate about related investing. The scope of coverage encompasses a period when the economy of Maine was undergoing rapid industrialization, and many of its corporations were leaders in the national sphere. It is generally agreed that Maine institutions were effective and transparent, and helped to promote technological change and economic growth. The results confirm that elite insiders, officers of the firm including treasurers, directors, and its presidents, were typically connected to other shareholders in the corporation. These familial networks did not decline over time, instead, they increased as the economy developed. Moreover, it is striking that, when the analysis is extended to all shareholders in the firm, the same patterns are detected. As such, related investing seems to have been a universal feature of equity markets in the antebellum period.

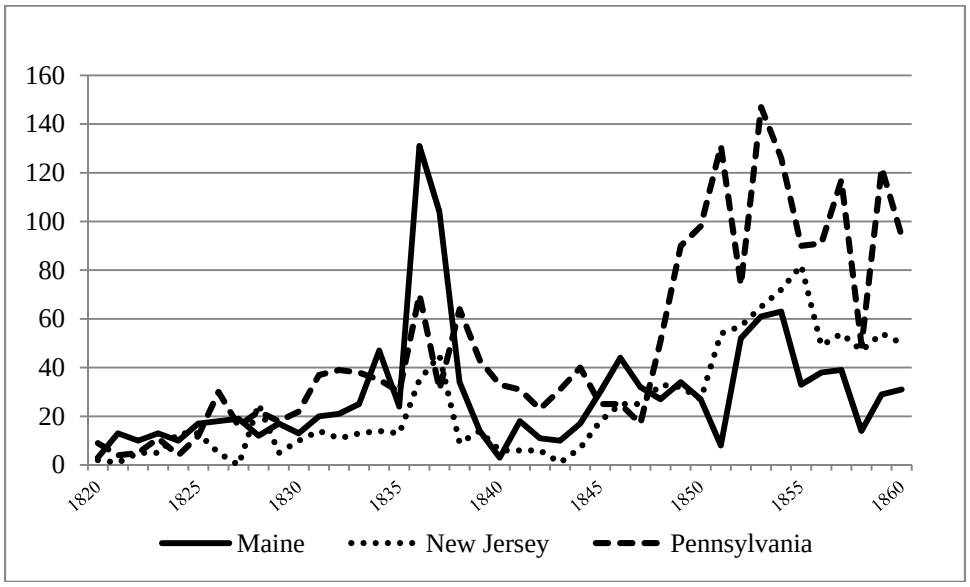
This leads to the question of the reasons why kinship ties existed, not just among insiders, but also among outside shareholders. At least one implication is that, although insiders might attempt to use family networks to exploit other shareholders, their ability to tunnel may be limited by the countervailing power of family networks among outsiders. This perspective may be less applicable for explaining the Maine experience, because of the institutional mechanisms in place to ensure transparency, disclosure and monitoring of the financial and accounting status of the firm. Studies of the banking sector have argued that the reputation of kinship groups among insiders had helped to resolve asymmetries in information, sending signals to outsiders who were unfamiliar with business ventures which the directors financed. The results from this

examination of Maine corporations in the nineteenth century does indeed find that insiders took advantage of family connections. However, the standard arguments have to be somewhat moderated, since related investing was also a feature among the general population of shareholders. This finding supports the argument that outsiders were able to overcome a lack of experience and information by taking advantage of their own networks. Investors with family connections were more likely to persist in holding shares over a longer term.

The role of related investing in early financial markets becomes further clarified when we exploit the variation in the patterns that existed across the banking, manufacturing, and transportation sectors. The expansion of the railroads attracted large scale investments in securities markets, that primarily consisted of investors who were likely to have been uneducated about financial assets. Women and comparatively disadvantaged newcomers with lower stocks of personal and real estate wealth were induced into making contributions to capital mobilization, perhaps because the externalities offered by their kinship networks may have reduced transactions costs. Finally, the analysis of the effects of related investing on the concentration of ownership in the corporations suggests that this phenomenon was likely associated with a reduction in perceptions of risk, especially in the context of "venture capital" in manufacturing and transportation. This may in part explain why, instead of declining over time, related investing increased. The analysis here refutes the strained dichotomy between family business and impersonal corporations, and suggests a continuum along which familial elements in corporations can play a productive role in the democratization and dynamics of capital mobilization during early industrialization

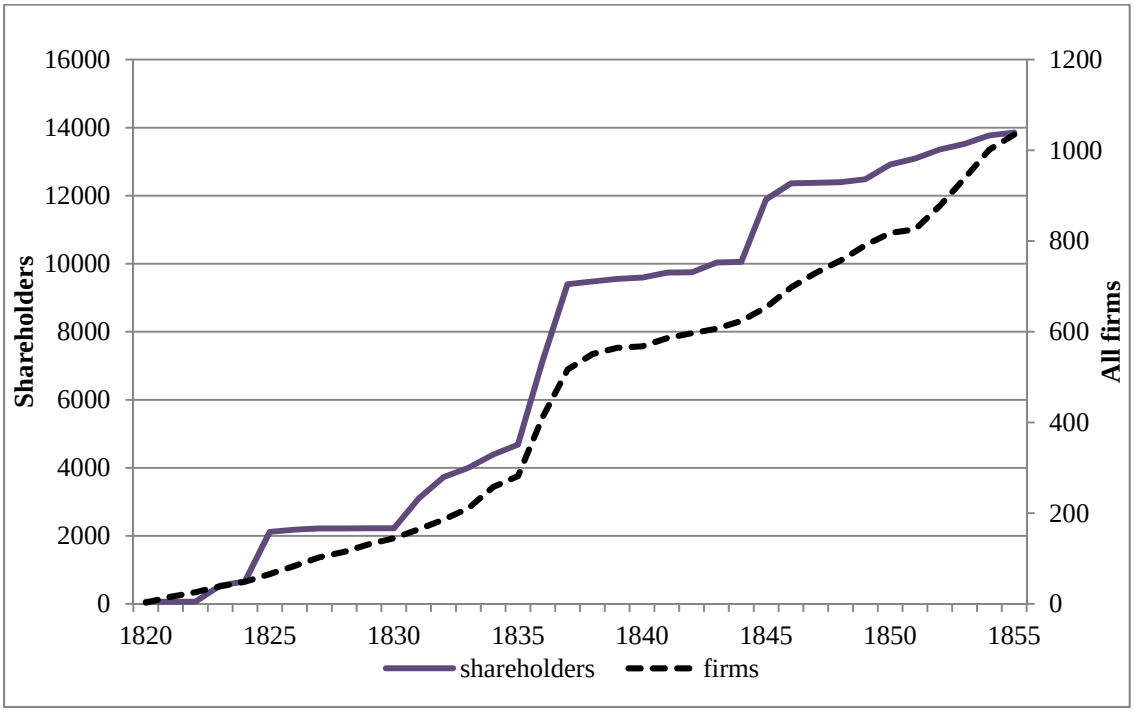
Figure 1

Incorporations in Maine, New Jersey and Pennsylvania in the Antebellum Period



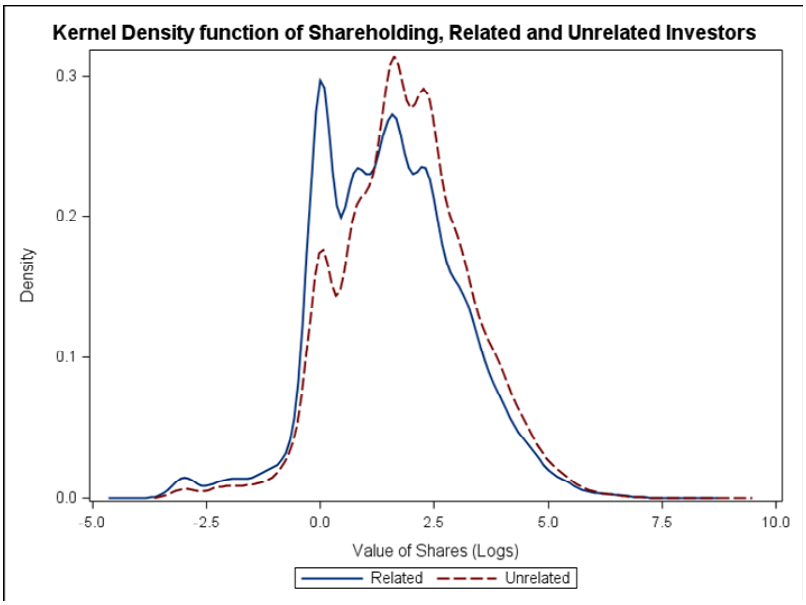
Notes and Sources: Evans (1948). Maine separated from Massachusetts to become an independent State in 1820. The comparison states were chosen because they all granted corporate charters through special acts of the legislature during the period under review, and changed to general incorporation in the 1870s (Maine, 1875; New Jersey, 1875; and Pennsylvania, 1873).

Figure 2
Cumulative Frequency of Shareholders in Sample, and of Total Corporations
by Year of Incorporation



Notes and Sources: Sample of Maine Corporations. The figures show the cumulative number of shareholders who have invested in corporations by the year of incorporation of the firm in which they have acquired ownership, and the total number of firms which had become incorporated in that year.

Figure 3


Kernel Density function of Shareholding, Related and Unrelated Investors
Density
0.0
0.1
0.2
0.3
-5.0
-2.5
0.0
2.5
5.0
7.5
10.0
Value of Shares (Logs)
Related
Unrelated

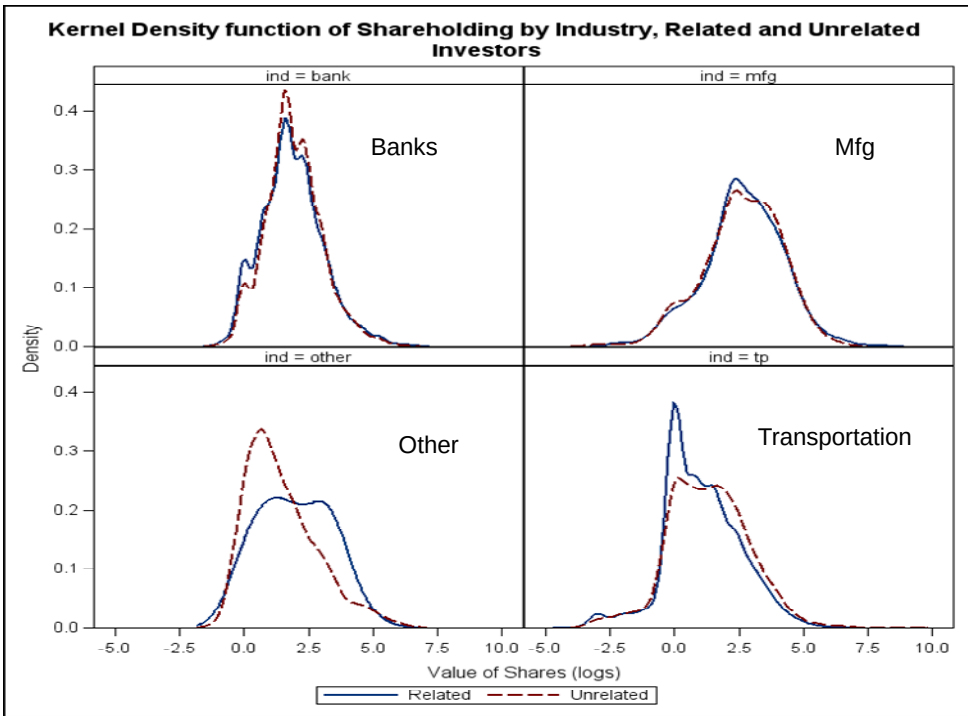
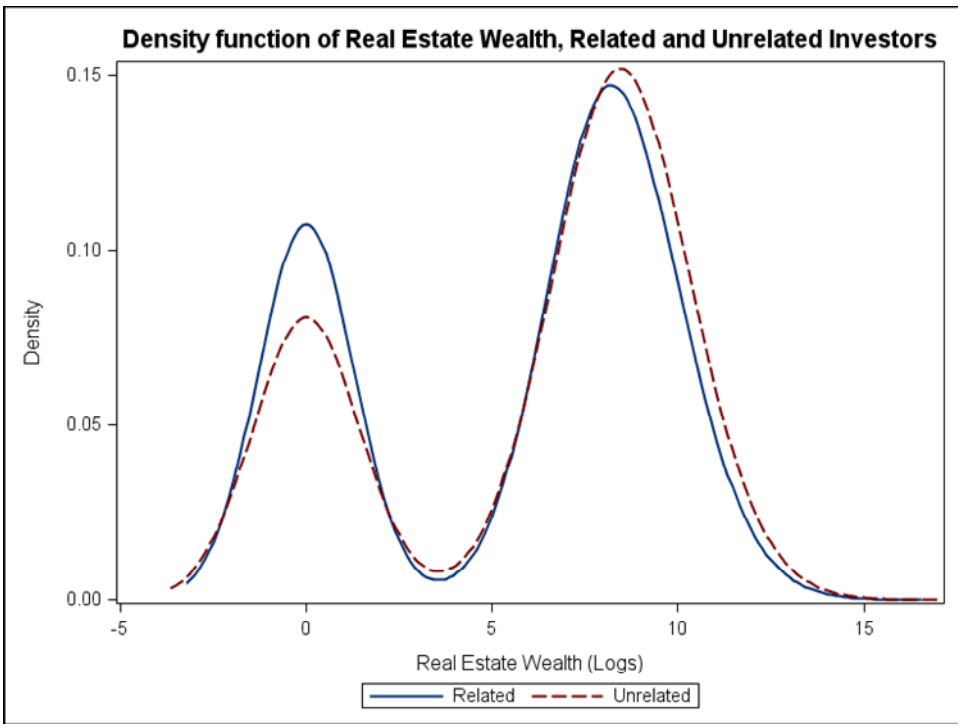

Kernel Density function of Shareholding by Industry, Related and Unrelated Investors
ind = bank
ind = mfg
ind = other
ind = tp
Banks
Mfg
Other
Transportation
Density
0.0
0.1
0.2
0.3
0.4
-5.0
-2.5
0.0
2.5
5.0
7.5
10.0
Value of Shares (logs)
Related
Unrelated

Figure 4: Wealth and Related Investing



Notes and Sources: See text for sources of data set. The shareholders were matched in the manuscript censuses of 1850 and 1860 by names and town of residence. The matching procedure was successful for approximately 47 percent of the sample. This yielded information on state of birth, occupations, age, marital status, and wealth for the subset of the matches.

Table 1
Sample of Corporations in Relation to Total Maine Corporations

	1845		1850		1855		1845-1855
	Maine	Sample	Maine	Sample	Maine	Sample	Sample %
Banks	35	21	35	13	70	29	45.0
Nonbank	20	16	34	17	52	25	63.2
Total Corporations	55	37	69	30	122	54	49.1
Percent NonBank	36.4	43.2	49.3	56.6	42.6	46.3	

Notes and Sources: See text for sources. The sample comprises a random selection of 121 firms, and 13,900 shareholder observations, from the published returns of stockholders in Maine Corporations.

Table 2
Residence of Shareholders

	1845		1850		1855	
	No.	**%**	**No.**	**%**	**No.**	**%**
BANKS	**N=1428**		**N=971**		**N=2292**	
Maine	**1253**	**87.8**	**816**	**84**	**1986**	**86.7**
Mass.	**118**	**8.3**	**68**	**7**	**156**	**6.8**
Other US	**51**	**3.6**	**67**	**6.9**	**123**	**5.4**
Foreign	**6**	**0.4**	**20**	**2.1**	**27**	**1.2**
MFG	**N=568**		**N=730**		**N=843**	
Maine	**99**	**17.4**	**417**	**57.1**	**279**	**33.1**
Mass.	**446**	**78.5**	**281**	**38.5**	**507**	**60.1**
Other US	**23**	**4.1**	**28**	**3.8**	**54**	**6.4**
Foreign	**0**	**0**	**4**	**0.6**	**3**	**0.4**
TRANSPORT	**N=460**		**N=2263**		**N=3187**	
Maine	**188**	**40.9**	**1525**	**67.4**	**2284**	**71.7**
Mass.	**240**	**52.2**	**632**	**27.9**	**654**	**20.5**
Other US	**32**	**7**	**105**	**4.6**	**199**	**6.2**
Foreign	**0**	**0**	**1**	**0**	**50**	**1.6**

Sources: see text.

Table 3

Shareholding by Industry and Occupation

	Number	Mean	Std	Percent
BANKS	2439	1476.86	3437.6	100
Artisan	323	1110.4	1992.2	10.0
Farmer	378	751.2	832.7	7.9
Finance	415	3049.7	6564.2	35.1
Manufacturer	522	1533.9	3019.8	22.2
None	347	1024.6	2680.5	9.9
White Collar	454	1184.2	1340.5	14.9
MFG	916	4192.09	13124.26	100
Artisan	183	3495.3	5907.5	16.7
Farmer	35	1547.4	2618.6	1.4
Finance	146	10899.1	29243.1	41.4
Manufacturer	266	2158.8	3900.4	15.0
None	21	2223.8	2108.8	1.2
White Collar	265	3524.4	7462.4	24.3
TRANSPORTN	3219	1038.95	2316.71	100
Artisan	791	675.1	1410.8	16.0
Farmer	532	586.6	1454.3	9.3
Finance	165	3120.6	5221.3	15.4
Manufacturer	811	1150.0	2380.3	27.9
None	246	469.5	860.6	3.5
White Collar	674	1387.6	2508.3	28.0

Notes and Sources: See text for sources of data set. The shareholders were matched in the manuscript censuses of 1850 and 1860 by names and town of residence. The matching procedure was successful for approximately 47 percent of the sample. This yielded information on state of birth, occupations, age, marital status, and wealth for the subset of the matches. Artisans include labourers; white collar occupations include "gentlemen" and other professionals except for those employed in finance, which incorporates bankers, stockbrokers, and accountants.

Table 4
Women Investors as a Percentage of All Shareholders and Total Capitalization, by Industry

	1845	1850	1855
BANKS			
% Investors	19.8	25.8	26.1
% Share Value	12	16	14.8
MANUFACTURING			
% Investors	9.6	8.7	14.8
% Share Value	5	8.3	6.4
TRANSPORTATION			
% Investors	8.5	11	24.1
% Share Value	3.4	7.6	11.4
ALL INDS			
% Investors	15.4	14	23
% Share Value	7.2	9.6	10.6

Notes and Sources: See text for sources of data set. Value refers to the par value of shares held by the investor.

Table 5

Related Investing, by Industry

	1845		1850		1855	
	% Investors	% Value	% Investors	% Value	% Investors	% Value
Banks	40	35.5	45.3	51.4	45.1	49.1
Manufacturing	36.5	38.4	41.3	45.4	44.7	52.5
Transportation	40.4	39.2	66.9	57.8	68.9	52.3

Notes and Sources: See text for sources of data set. Value refers to the par value of shares held by the investor.

Table 6
Related Investing Among Corporate Insiders
(percentage of industry total)

	1845		1850		1855	
Industry	Investors	Capital	Investors	Capital	Investors	Capital
Banks						
All insiders	7.8	12.1	7.3	16.6	7.1	19.5
Related insiders	2.5	5.3	4.1	12.2	3.6	13.5
Manufacturing						
All insiders	3.8	12.2	3	11.2	4.2	22.7
Related insiders	1.6	4.4	1.5	8.9	2.2	18
Transportation						
All insiders	3.6	11	1	5.2	1.3	4.9
Related insiders	1.1	1.4	0.5	3.5	0.7	3.6
All insiders (n)	154		131		268	
% Related	33.1		50.4		51.9	

Notes and Sources: See text for sources of data set. Insiders are defined as all officers of the corporation who could be traced, including treasurers, directors, and presidents of the firm. Related insiders are those officers who share the same surname as another investor in the same enterprise.

Table 7
Related Investing by Industry and Gender

	1845		1850		1855	
Industry	Men	Women	Men	Women	Men	Women
Banks						
%M, %F	35.4	59	43.3	51.2	43.1	50.7
% All Bank Invs	28.4	11.7	32.1	13.2	31.8	13.2
Manufacturing						
%M, %F	34	60	39.3	62.5	41.9	61.1
% All Mfg Invs	30.8	5.8	35.9	5.4	35.7	9.1
Transportation						
%M, %F	39.7	47.5	66.7	68.8	65.8	78.5
% All Transp Invs	36.4	4	59.4	7.6	50	18.9
ALL (N=13,890)	2123	385	3585	582	5533	1681
% Related	30.4	57.9	56.4	60	54	66
% All Invs	30.4	8.9	48.5	8.4	41.4	15.4

Notes and Sources: See text for sources of data set. Related investors share the same surname as another investor in the same enterprise.

Table 8

Regressions: Influence of Related Investing on Ownership Share
By Industry

	BANKS	T-Stat	MFG	T-Stat	TRANSPORT	T-Stat
VARIABLE						
Intercept	10.50***	4.02	18.9*	2.03	46.85***	13.68
Investors						
Maine Resident	-0.41*	-1.63	6.63***	8.91	8.51***	34.12
Directors	1.55***	5.49	5.54***	4.57	1.52**	2.18
Female	0.03	0.16	-1.36*	-1.81	0.58***	2.46
Related Investor	-0.5***	-3.30	-2.09***	-4.32	2.56***	14.07
Firms						
Established Firm	-4.03***	-21.71	0.081	0.14	7.86***	26.85
Closely Held	14.94***	22.92	30.68***	22.21	24.9***	28.66
Time Period						
Year=1850	0.94***	4.37	4.18***	5.98	-4.72***	-11.94
Year=1855	-0.97***	-5.55	-0.69	-1.01	2.4***	6.45
County						
Log(CountyPop)	0.08	0.41	-1.95***	-2.72	-1.55***	-6.08
Log(County Farm Value)	0.13***	2.48	0.83***	4.69	-2.00***	-30.85
R'-square	0.24		0.32		0.62	
N	4535		2420		5857	

Notes and Sources: See text for sources of data set. Insiders are defined as all officers of the corporation who could be traced, including treasurers, directors, and presidents of the firm. Related investors/insiders are those shareholders/officers who share the same surname as another investor in the same enterprise. Established firms had been in existence for at least ten years. Closely held firms were owned by fewer than 20 shareholders. The excluded industry is banking. Population and farm value are estimated at the county level.

Table 9
Regressions: Influence of Related Investing on Persistence in Shareholding

	Estimate	T-Stat	Variable	Estimate	T-Stat
Intercept	-0.03	-1.16	Intercept	-0.19	-3.71***
1850	0.24	9.69***	1850	0.23	8.62***
1855	0.43	18.44***	1855	0.4	14.13***
Maine resident	0.07	3.81***	Maine resident	0.06	3.14***
Manufacturing	0.11	4.27***	Manufacturing	0.14	5.01***
Transportation	-0.04	-2.31**	Transportation	0.03	1.05
Female	-0.05	-3.22***	Age of Firm	0.01	2.64***
Related investor	0.05	3.38***	President	0.2	1.82*
			Director	0.11	1.73*
			Other Officer	0.01	0.16
			Trustee	0.012	0.45
			Female	-0.04	-2.45***
			Percent Ownership	0.01	3.56***
			Related Investor	0.04	2.79***
			Related Director	0.17	2.07**
	N=3912			N=3912	
	Rsq=0.11			Rsq=0.12	

Notes and Sources: See text for sources of data set. Persistence refers to shareholding for more than five years. Insiders are defined as all officers of the corporation who could be traced, including treasurers, directors, and presidents of the firm. Related investors/directors are those shareholders/officers who share the same surname as another investor in the same enterprise. The excluded industry is banking.

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