Financial Market and Industry Structure:

A Comparison of Banking and Textile Industry between Boston and Philadelphia in Early Nineteenth Century

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1. Introduction

Modern financial economists view the advanced financial markets as the precursor of economic development. Schumpeter (1912), Gurley and Shaw (1955), and McKinnon (1973) all suggest that financial market development promotes economic growth. Empirical literature, such as King and Levine (1993), Levine and Zervos (1998), shows that the aggregate size of financial sector can explain the differential economic growth rate across countries. Economic historians, such as Sylla (1998, 2002) have long stressed the importance of financial markets in fostering the American economy. Specifically, Sylla (1998) argues that the US securities and financial markets were more efficient than those in England. While empirical evidence confirms the influence of

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1 The earlier draft of this paper benefitted greatly from discussions with Gavin Wright. All errors are mine.
financial market on economic growth, how financial market affects the direction and model of industrial growth has not been fully examined. In the case of early 19th century America, the development and market structure of financial sectors varied across different regions. Laws, regulations, and entry policies differed from state to state; these institution elements forged the landscape of banking environment. As most banks acquired charters at the state level before the National Bank era, they responded to state-specific environment. Over time, different lending practices began to emerge.

In the mean time, different regions in United State also began the course of industrialization, albeit through different trajectories. Economic historians, such as Temin (1999) often view the New England textile mills, especially those of the Boston Associates, as the leader in American industrialization: large-scale production, unskilled workforce, and large investment. However, the New England model was by no means the only course to industrialization. Scranton (1983) carefully documents the growth pattern of Philadelphia textile industry and shows that it progressed toward a different direction. Small proprietors with skilled workers focusing on specialized product constituted the majority of Philadelphia textile manufacturers. Their distinctiveness was further accentuated by the relative slow capital accumulation, often through retained earnings rather than long-term credit. The small scale and the common practice of physical capital rentals were in stark contrast with the large capital investment of Bostonians. Thus the difference between these two models not only lies in the method of production, but also the financing requirement and sources.
What caused this divergent path to industrialization in the two major clusters of textile industry? The origins of different paths to industrial development, as Scranton explains, ranges from labor conditions and technology to social and cultural relations. Among these factors, access to external finance also played a role. The divergent paths of the textile industry in Boston and Pennsylvania parallel that of the development in banking. Thus it is reasonable to conjecture that financial sector contributed to the trajectory of industrial development. While this explanation is often brought up in the literature (Scranton (1983), Temin (1999), Shumate (2004)), until of late, relatively little evidence from banking history can directly attest such hypothesis. Recent development in banking history sheds new light on the hypothesis. First, a compilation of state bank balance sheets (Weber (2005)) demonstrates the scale and the competitive environment of banks in antebellum America. Such information provides more concrete evidence on the difference in the landscape of antebellum banking. Second, the emergence of more micro-level studies of antebellum banks enables a better understanding of antebellum banking practice. In particular, the valuable information on loan terms, loan sizes and sometimes loan destinations delineate bank lending policies in greater details. Combined with the balance sheet information, the advancements in the banking literature help unveil the role of banks in industry development in early 19th century America.

Specifically, in New England, the practice of “insider lending” was prevalent. The insider fueled industrial growth through extending long-term credit. As a result, New
England became the leader in the transformation from agriculture to industry.\textsuperscript{2} In contrast, banks in Mid-Atlantic region seemed to focus on relatively impersonal and short-term credit. Bank ownership was less concentrated with diverse groups of stockholders; the borrower profiles also reflect such diversity. These observations suggest striking differences between banking practices in the two regions.

This paper aims at exploring the relationship between early industrialization and development of banking system in antebellum America. Specifically, I use the divergent path of textile industries in Massachusetts and Pennsylvania to illustrate the influence of bank lending practices and how they help shape the regional economies.

\section*{2. Textile industry in Philadelphia and Boston}

Although early industrialization in the United States has been well documented, a disproportionate emphasis has been placed on the New England textile industry. Its large, complex operation has been the precursor of modern industrial firms. Therefore, New England is regarded the birthplace of American capitalism.\textsuperscript{3} Among early 19\textsuperscript{th} century industries, textile was considered the pioneer of industrialization. In the midst of dramatic progress in organizational and technological capabilities, the Boston Associates stood out as the leader in the production of cotton goods. The Waltham-Lowell system established large-scale, vertically integrated firms. The Associates controlled of every aspect of


\textsuperscript{3} Temin (2000) “Introduction.”
textile manufacturing, from the machine shops to the marketing of final product. This specific business model fostered rapid growth in their production capacity. As of 1845, the members of the Boston Associate were involved 31 textile companies, making up about 20% of the total capacity of the industry in America.

In addition to their innovation in production methods, the organizational format of Boston Manufacturing Company was also distinctive. They were all incorporated, limited-liability companies. The Associates tightly controlled the operation and ownership of the mills. In addition, they expanded their business relationship to familial ties through incorporating kinship ties and marriages. Their extension of such connection ensured that the business relationship, albeit personal in nature, would not terminate with the death of a specific partner. Like their incorporated companies, the underlying business network of the Associates extended beyond the natural life span of individuals.

The Boston Associates also had their stakes in industries such as railroad, banking and insurance. Their impacts on the regional or even national economy were deep and widespread. In banking, the Associates controlled seven banks in Boston and commanded 40% of the total authorized banking capital in the city by 1948. They brought similar business patterns into other industries as they did in textiles: heavy capitalization and conservative operations.

Despite their influence on the financial system of Massachusetts, the Boston Associates did not really view banking and railroads as profit-making investments in their own rights. When it comes to investment decisions, the main focus was on the textile empire they built up. Many of the members in the Associates owned bank stocks at some
point, but not on a large scale. The prominent example is Nathan Appleton, who sold all his bank stocks between 1823 and 1825, only to purchase limited amount of banking stocks after 1831. When choosing stocks, he only selected larger and conservatively managed banks. This somewhat reflects both the attitude of the Boston Associates toward risk and the temperamental nature of banking in the first half of the nineteenth century. However, this does not mean that they were not active in banking activities. On the contrary, they sought to start banks and retain control on their banks’ lending decision. Nevertheless, the major purpose of their banks was so much as generating profit, as guaranteeing access to credit for their own mills.

Lamoreaux (1985) documents the way Boston Associates practiced insider lending. First of all, they would charter a bank, and subscribe enough shares to control the bank. The required paid-in capital was from borrowing from another bank under their control. Then they deposit the loan in the new bank and subsequently borrow out the money to pay for the new mill. To replenish funds in the new bank, they either have to sell the remaining of the stocks, usually to their own insurance companies or charitable organizations, or issue bank notes. The so-called alchemy of the banks is indeed a way to practice insider lending, and the success and stability rests on the careful selection and monitoring of borrowers. Without appropriate incentives, this could have easily fallen into the trap of crony capitalism in the modern sense. However, this was not the case. Insider lending can be viewed as a way to affiliate more existing business partners to the specific investment, and the kinship ties actually provided the information advantage to
prevent moral hazard. The mutual interest thus strengthens the monitoring incentive among the Associates.

Because of the success of the New England textile manufacturers, Lamoreaux argues that banks in New England became the engines of economic development. However, this is not to say that the economic development in other regions of the United States follows a uniform path; each region pursued economic activities that are shaped by institutions, natural resources, and market conditions. If anything, the industrial success of New England in 19th century seems unique. Even within the industrial northeast, New England was by no means the only path to industrialization. Scranton (1983) carefully documents the development of textile industry in Philadelphia

For the smaller scale firms of the Quaker city, the norm of textile firm organization was proprietor or partnership without the modern corporation form. Each establishment usually specialized in a certain link of the production process. The production was completed through a series of intermediate good transactions. The relative small amount of capital was complemented by the use of skilled labor. The result was a larger variety of products but smaller scale of production. Because of the proprietary nature of Philadelphia manufacturers, these firms in general did not survive the demise of the individual businessman. However, this is not to say that the physical capital was not in use anymore. After the death of an owner of the proprietor, the physical capital were sold to other firms and continued to be in use, only under a different name. The tangible assets and operations of mills in Philadelphia changed hands rather frequently. The business continued to operate after the demise of the owner, but under
different names. According to Scranton (1983), five out of the six largest mills in Philadelphia ceased to operate, at least under the same name, by 1850. This does not indicate that the proprietors’ failure in the trade; more likely than not, it simply means that the owner relocated or deceased. Thus even for the large and successful Philadelphia firms, sole proprietorship was not uncommon.\footnote{Scranton used Joseph Ripka to illustrate this point. He started his business with a single handloom in 1816. His business started to expand rapidly in the 1820’s. It soon became the closest counterpart of the Lowell mills in terms of the size. However, the mills remained a proprietorship throughout his life.} This again contrasts sharply to the Boston Associates, where the business could be continued through the marriage of their descendents. Even though the stock holdings showed a certain degree of diversity across time, just like the counterpart of New England banks, the Associates were able to maintain the control over their factories and firms.

A co-existing element complementing organizational forms of New England textile firms is financing sources. The close familial ties in the business world of Boston provided an easy way to access the information on credit-worthiness. The insider lending practice and tight controls of banks took advantage of their information advantages. Moreover, once large existing firms absorbed significant sources of loanable funds, in an era of strong credit needs, little was left for outsiders. The only way for entrants to access bank credit was to establish their own insider lending banks. As the business relationship extended beyond the natural life spans, the banks served as sources of long-term credit. In contrast, little evidence indicated that banks in Philadelphia participated in the
accumulation process of industrial capital. Proprietors, large or small, often relied on retained earnings to expand their operation. Physical capital not only changed hands frequently, but were rented out as well. With markets for rental capital, little initial investment was required to begin textile production.

3. Development of early banking system in Massachusetts and Pennsylvania

The first commercial bank in the United States, the Bank of North America, was established in 1781. Hamilton’s financial revolution granted states the right to charter banks. Since then, the number of commercial banks grew over the years, and by 1790 all four major cities (Philadelphia, New York, Boston and Baltimore) had their own banks. However, the number of banks did not grow steadily throughout the antebellum period. Nor did it expand evenly across different states. State charter policies and economic growth, interspersed with financial crises collectively determined the path of bank development before the Civil War. Sylla, Legler, and Wallis (1987) argue that public finance concerns and incentives dominated the chartering policies for states, which in turn shaped their respective distinct pattern of bank expansion. For example, New England states such as Rhode Island and Massachusetts, levied taxes on bank capital. The revenue for the state thus depended on the amount of bank capital. In tandem with the incentive of state finance, these states adopted a virtual free-entry policy. At the end of other spectrum, Pennsylvania relied on charter fees and tax on bank profits. Therefore limited entry was required to ensure the extraction of rent. In any case, policy responses to incentives in state finance shaped the banking landscape in antebellum America.
Early banks were usually founded by merchants to meet their demand for credit. While this is not to say that these banks only discounted short-term commercial papers, invariably their banking practice favored merchants. To protect credit access to other groups, states would also charter banks that specifically focused on loans to groups outside of merchants, such as farmers, mechanics, and artisans. One example would be Farmers and Mechanics Bank in Philadelphia. Chartering banks specializing in loans to specific occupational groups was not the only way to extend the reach of bank credit; some states, like Massachusetts, stipulated that banks appropriate a certain percentage of loans to farmers. The very fact that such laws were required only reflects the dominance of loans to merchants.

3.1 Philadelphia

Up until 1814, only fourteen banks ever existed in Pennsylvania, and two of them (Pennsylvania Bank and Bank of the United States) were non-operating by 1814. Among the remaining twelve banks, only four were officially chartered: The Bank of North America, the Bank of Pennsylvania, the Philadelphia Bank, and the Farmers and Mechanics Bank. In addition to these four banks, there are seven other banks formed under the Articles of Association. Some were organized by local businessmen to meet the needs of finance outside of Philadelphia, while others focused on serving specific professions, specifically farmers, millers and mechanics. It is worth noting that these early banks were allowed to open branches outside of their initial locations. As early as 1803, the state chartered Bank of Pennsylvania has already opened up branches in different cities of Lancaster, Pittsburgh, and Easton. This pattern basically followed the
one established by the Bank of the United States. Its rival, The Philadelphia Bank also started to establish branches after gaining a supplement to the charter from the State, though later the branches proved to be unprofitable.\(^5\) Lastly, some banks did not seek state charters. For example, Stephen Girard formed his own private bank in 1812. The bank took over the building used by the Bank of the United States after its charter expired.\(^6\)

The Omnibus act of 1814 dramatically changed the landscape of banking in Pennsylvania: the state chartered forty one banks at the same time, and thirty seven of the newly chartered banks opened for business. These banks spread out across the state. This drastic change in policy reflects the political struggle behind it. Such tension could be

\(^5\) For example, the Philadelphia Bank applied for a supplement charter to set up a branch in Washington, Pennsylvania. The reason was that the proposal to build a road connecting the Potomac and Ohio Rivers raised some concern on the local trade of Washington. People feared that once the road was built, it could divert the western trade from Philadelphia, which might affect the economy of Washington. Somehow they had the belief that a branch could offset part of the negative effect.

\(^6\) The bank was established in 1812 in the wake of the liquidation of the Bank of the United States. Stephen Girard took over the shares of the Bank of the United States and ran the bank without a charter. Girard’s private bank continued to issue notes despite the 1810 act, which prohibited unincorporated business to issue bank notes or engaging in the banking operation. Just about a month into its operation, other major banks, including Bank of Pennsylvania, the Philadelphia bank, the Bank of North American and Farmers and Mechanics Bank, protested against the circulation of Girard’s notes. They eventually reached a resolution and the Girard’s bank went on business as before. The bank remained unincorporated until Girard’s death in 1832, after which the stockholders organized themselves to charter the Girard Bank.
traced back to the feud between the Bank of Pennsylvania and the upstart Philadelphia Bank. The Philadelphia made an offer to the State in stock holdings; the Bank of Pennsylvania tried to block the charter of the Philadelphia Bank by giving a gift to the state.7 Similar political tension arose in the passing of the Omnibus Act; the bill was first vetoed by the Governor and finally overruled by the congress again. The passing of the act reflects the politicians’ desires to organize their own banks.

Immediately after the Omnibus Act, Pennsylvania boasted a large number of banks relatively to other states. However, its leader status in bank capital was not long-lasting. Seventeen banks failed in wake of the Crisis of 1819. Poor accounting practice, mistakes and inexperience in the banking business depressed bank profit. The problems were aggravated by the Crisis of 1838 and eventually caused more banks to fail. Demands for loans to the state aggravated the problems of banks. Through specific arrangements of the loans the high default risk of the state was transferred to banks. As a result, the financial system of Pennsylvania was severely weakened; the number of banks in the state stagnated and eventually fell behind those in Massachusetts and New York. Bodenhorn (2003) argues that the one-time aggressive policy in the expansion of banks, followed by contraction, mismanagement, and failed government policy dampened the development of a sound financial system of Pennsylvania.

7 Daniels (1976), Pennsylvania. pp. 64-65.
3.2 Massachusetts

The banking system in Massachusetts exhibited an increasing divergent pattern from that of Pennsylvania. The first chartered bank was the Bank of Massachusetts in 1784. Throughout the years of 1790 to 1860, the number of chartered banks in Massachusetts increased rapidly. Between 1795 and 1803, nine new banks were established. Prior to 1814, at least 41 banks received charters, including re-charters; the number continued to grow up to the Crisis of 1837. Such gradual growth reflected the liberal chartering policy rather than Pennsylvania’s Omnibus Act. John Wallis refers to the Massachusetts policy as *de facto* free-entry. Another feature of antebellum Massachusetts banks was the relatively modest amount of capital.\(^8\) Even for some of the unchartered banks in Pennsylvania, the amount of capital was much greater than state-chartered banks in Massachusetts in the same period. For example, the Mechanics Bank in Philadelphia had the paid-in capital of $700,000, and that of Commercial Bank in Philadelphia amounted to $750,000. Since the amount of bank note allowed was limited to double the capital, the small bank sizes suggest limited ability to extend credit. Figure 1 presents the average capital stock for banks in Massachusetts and Pennsylvania. For most of the antebellum period, the average size of bank capital in Pennsylvania was greater than that in Massachusetts.

Despite their smaller capital stocks, the number of banks in Massachusetts far outnumbered those in Pennsylvania; this was particularly prominent towards the late 1790s and 1800s.

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\(^8\) See van Fenstermaker, J. *The development*, pp.139-141, 169.
antebellum period. The liberal charter policy of Massachusetts and the missteps of Pennsylvania contributed to the difference. In terms of aggregate bank capital, the rapid increase in the number of banks in Massachusetts outweighed their relatively smaller size. Consequently, the total bank loans between the two states diverged since early 1820’s, as shown in Figure 2. Such contrast is even more striking when comparing the bank loans and capital in per capita terms. Table 1 shows the per capita bank capital and loans in these two states. In both capital and loans, the gap between the two states widened between 1820 and 1860. More interestingly, the difference between these two measures became even more considerable when controlling for the urban centers of Boston and Philadelphia. While bank capital and loans per person declined in Philadelphia, these indicators continued to rise in the Boston area. Thus the availability of bank credit seemed very different.

In addition to the number and size of banks, other features in the banking system are also important in explaining the divergent paths between these two states. First, the ownership structure of New England banks was different from those in Mid-Atlantic States. In New England, kinship groups often maintained tight control over their banks; the same group of businessmen can serve as directors in different banks, all owned by the members of the group. The ownership patterns, in turn, affected their loan decisions; it was common for New England banks to extend a high percentage of loans to bank directors and their affiliates. Although the government and some bank presidents attempted to reduce the amount of insider lending through various means, such efforts
proved to be ineffective. By 1830s, the insider lending practice has become so prevalent that it was taken for granted by the press and the general public.

From a broader perspective, the practice of insider banking is self-enforcing. Once it became popular with those who controlled their own banks, the borrowing from insiders quickly absorbs the available funds. In an era with thriving business environment and strong credit demand, it became more difficult for other business to borrow from existing banks. With the ease of entry in banking, the best way for new ventures to secure credit sources was to establish their own banks. As a result, the practice of insider lending, combined with \textit{de facto} free entry of banks, further perpetuates such practice. Many New England banks served as the financial arm of the business group. Boston Associates controlled several banks to fuel their own ventures.

Another feature of New England banking was its conservative lending policy and low default rate. In order to attract outside investors, the reputation of the kinship group becomes particularly important. The private information on insiders provides an advantage in the screening and monitoring of borrowers. Since the banks were tightly linked to the stockholder’s other businesses, it was reasonable to keep their banks stable and safe from additional risks. The reputation of being a safe lender enabled banks to absorb outside investors, who supplied capital and sources of bank funds.

4. Bank Lending Practices—Evidence from Micro-level Studies

A full understanding of the banking practices in these two regions requires extensive and detailed studies at the individual bank level. Recent developments in
banking history uncovered more of such information. While more comprehensive evidence is still lacking, existing literature does provide a sketch of the lending practices across different regions. The following analysis focuses on clientele and the duration of bank loans.

The foremost distinction between New England and Mid-Atlantic banks lies in the extent of insider lending. Wright (1999) analyzes the records of several Mid-Atlantic banks in antebellum period, including two Philadelphia banks, and found different banking practices in both ownership and lending policy. Banks in the Mid-Atlantic region tended to be larger in size with a relatively diverse group of stockholders. Their clienteles also mimicked the stockholder profiles; these banks lent to a diverse group of outsiders. This is not to say that early banks in Mid-Atlantic region were completely impersonal, arm-length lenders. However, the extent of insider lending was much less than New England banks. Wright argues that the large size of the bank and the dispersion of stocks made it difficult for a small group of insiders to control bank lending policies.

Another major distinction between the lending practices of banks in Boston and Philadelphia was the duration of loans. While extensive evidence at the individual bank level is lacking, existing literature shed some light on the major differences. Davis found that the long-term capital market in Boston, as opposed to the short-term market, was disjointed from the rest of the country. Banks in the Boston area often lend long-term, with large number of renewals. Lamoreaux (1994) finds that New England banks frequently renewed outstanding loans, making them de facto long-term. For example, eighty two percent of loans in Meldon Bank were renewals of previous loans. Wang
(2008) also shows that in the first thirty years of Plymouth Bank (between 1803 and 1832), the average duration of loans was 664 days, again through frequent renewals of 60-day loans. The prevalence of long-term loans is thus consistent with the hypothesis that New England banks played a more significant role in providing long-term capital. In contrast, existing evidence on the banks outside of New England demonstrates a considerably different pattern. Adams (1972) analyzed loan records from the private bank of Stephen Girard in Philadelphia and finds that in roughly the same period, only 16% of loans lasted for more than 6 months. Without studies on state banks in Philadelphia, it is difficult to ascertain if this observation is representative. However, Adams does argue that the lending policy of Stephen Girard intentionally followed state banks in the region closely. Other studies, such as Bodenhorn (1999), also confirm the relatively short loan terms outside of New England. Using data from Black River Bank in New York between 1846 and 1856, he finds that only less than 10% of the loans lasted for more than 120 days. Bodenhorn (2000) further analyzed the loan duration of three banks outside of New England, and found that the average duration ranges from 65 days to 80 days. Moreover, there was little difference in loan duration for borrowers of different occupations. The renewal of loans also occurred less frequently. This suggests that these banks tended to extend short-term credit.

While the durations of bank loans were different in Boston and Philadelphia, the interpretation of such observation on industrial development has been the center of debate. In explaining the unique banking practice in New England, previous literature focuses on the role of banks in the provision of fixed capital vis-à-vis working capital.
Davis (1960) finds that the major New England textile mills borrowed extensively from both institutional and non-institutional sources. Sokoloff (1984) finds that even for the largest New England manufacturing establishments, the demand for working capital was far greater than that for fixed capital investment. Bodenhorn (1999) argues that the functions of a mercantile, real-bills bank and a Schumpeterian bank may not be incompatible; a bank could focus mainly on mercantile credit while still extending long-term loans to support capital formation. For my purpose, such distinction is less crucial. In the Waltham-Lowell system, the working capital sometimes would be tied up in inventories and if the revenues from selling houses did not come in time, the company would need cash to finance their daily operations. As business grew, the amount needed for short-term credit capital exceeded the willingness of the selling houses to invest more. The large inventory of raw material they kept and the short run credits of selling houses generated strong demand for bank credit. Thus external finance was crucial for the continuation of large-scale production. While banks in Philadelphia region could potentially played important roles in the expansion of specific textile firms, the relatively small aggregate bank credit limited the scope of their impact.

Thus recent developments in banking literature suggest that the banking practices were different in Massachusetts and Pennsylvania. Massachusetts developed a financial system with a large number of smaller banks, which extended long-term credit to their directors. While insider lending could have denied credit access to outsiders, the liberal chartering policy complemented the lending practice. The large aggregate amount of bank capital enabled relatively easy credit access. The large, vertically integrated textile
manufacturers reflected the developments in credit markets. On the other hand, Pennsylvania had limited number of larger banks, which focused more on short-term credit to diverse groups. The relatively scarce capital, as reflected in bank loans per person, is consistent with small proprietors accumulating earnings to expand. The divergent paths of financial markets and industry structure formed multiple equilibria.

While the research shows promise, several challenges remain. First, although existing literature explored possible explanation, a complete economic analysis of the causal relationship between financial development and industrialization is still absent. In analyzing the formation of Philadelphia’s proprietary firms, Shumate (2004) argues that Philadelphia merchants were reluctant to hold stakes in local textile industry. As with other regions, merchants in Philadelphia heavily invested in banks. If merchants were able to invest in textile industry, the information advantage may have allowed them to channel funds through banks, as the New Englanders did. However, such connections were never exploited. Without the network of the merchants, proprietors could not secure long-term credit through banks. In any case, the proprietary textile industry thrived in Philadelphia throughout most of the 19th century. Why were profit-seeking merchants unwilling to participate in a growing industry? Further research is necessary to fully explain their incentives.

Perhaps more importantly, the comparison also demonstrates the intricacy of the potential causal relationship between finance and industrial growth. In the very least, the unique banking policy and practice in Massachusetts was a contributing factor in the formation of early large-scale manufacturers. However, this is not to say that the causal
relationship is singular. To be sure, the difference between these two cities was not limited to method of production and financial markets. Bartzell (1979), Dalzell (1987), Doerfinger (1986) all examine the emergence of the merchant class in either or both cities. The distinction extended to culture and social mobility. External factors such as social mobility and norms invariably influence cost and benefits in decisions for banks and entrepreneurs alike. It may have been less costly to borrow from existing networks, if the network is reliable and stable enough. Both industry structure and banking practices could have been the outcome of cost-benefit calculations, subjecting to underlying institutions. Social mobility, labor forces, immigration may all have played a role.

5. Conclusion

The comparison between Boston and Philadelphia demonstrates the interplay between financial development and economic development. If one views the New England region as the model for American industrial growth, what roles did the institutions play? Sylla, Legler and Wallis (1987) argue that the government finance and tax structure played an essential role in the regulation of early banks. Facing different incentives, Massachusetts and Pennsylvania took decidedly different paths to the chartering of banks. As a result, the banking practices evolved in these two regions. The New England model successfully fostered the large industrial firms by integrating both formal (banks) and informal (kinship networks) institutions, while the Philadelphian failed to do so. Taken at face value, this seems to suggest that the freer entry policy of New England had a stronger impact on industrial growth.
Upon a closer look, the comparison between Philadelphia and Boston suggests that this was not necessarily the case. While the Philadelphia textile industry did not follow the New England model of mass production, they over time were able to develop a niche that differentiated themselves from their northern competitors. They compensated the lack of access to bank credit by accumulating retained earnings, producing higher quality goods, and a skilled workforce. This suggests that the impact of financial system on economic development does not necessarily lie in the rate of economic growth, but the trajectory thereof. Under different sets of financial regulations and environments, different regions took distinct paths to growth. On a different note, if one views the Pennsylvania financial system as failed experiment towards the Schumpeterian banking ideal, the proprietors in Philadelphia apparently was able to overcome such setbacks. The proprietors in Philadelphia succeeded in developing despite the lack of bank credit access. While both regions at one time experienced the liberal charter policy of banks, the results in providing long-term credit source was different. Interestingly, the success story of New England does not necessarily support that argument that aggressive chartering of state banks promoted industry. If anything, the gradual growth of banks from de facto free entry of Massachusetts can be viewed as passive responses to market demands. Moreover, the underlying causes for the relative scarcity of bank capital in Philadelphia could simply be the unfortunate timing, when the region was hit relatively hard by the 1819 crisis. It could also be the role of underlying institutions. At the heart of the New England institution was a group of entrepreneurs closed tied by marriages and their efforts to maintain the longevity of such networks. This was not seen in Philadelphia’s
textile industry. A further exploration of this issue is beyond the scope of this paper. However, it does suggest that the intricacy in the relationship between finance and growth; more context-specific analysis is needed to further explore such relationships.

While this paper does not argue that financial system was the only determinant in shaping the development in Boston and Philadelphia, the comparison between these two cities does shed light on the interaction between institution and economic development. The success stories of both cities suggest that financial market regulations and development does not necessarily deter or promote the outcome of economic development. However, as a supporting institution, it does have strong implications on the trajectory thereof. Different institutions in financial markets helped form the path of industrial growth in these regions.
References


Table 1. Per capita bank capital and loans, Massachusetts and Pennsylvania, 1820-1860

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Figure 1. Average bank capital for Massachusetts and Pennsylvania, 1800-1860

- Blue line: Massachusetts
- Red line: Pennsylvania
Figure 2. Total bank loans for Massachusetts and Pennsylvania, 1800-1860