

Early U.S. Financial Development in Comparative Perspective: New Data, Old Comparisons

by

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Abstract

Recent research suggests that financial system development causes, or at least leads, economic growth. This paper adds to that growing literature by presenting new estimates of the assets of U.S. financial intermediaries and the number and authorized capitalization of U.S. corporations. It also compares the U.S. financial system to that of Great Britain and New York State's financial system to that of Canada, two contiguous entities with similar populations. Available quantitative data confirm narrative evidence that New York's financial development was decades ahead of that of Canada. Available data and narrative evidence also suggest that, by about 1830, the U.S. financial system compared favorably with that of Britain. Finally, it is shown that by 1990 many nations had yet to reach the level of financial "depth" (defined assets of financial intermediaries/GDP) achieved by the U.S. financial system before 1830.

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Many scholars now argue that financial development was a crucial, leading factor in economic growth. (For extended discussions of that literature, see Bodenhorn [2000] and Levine [2003]). Some even argue that -- in some sense of the word -- financial development actually *causes* economic growth. Led by Sylla (1999, 1998), several financial historians have noted that the connection between financial development and economic growth is not a new one. The predictions of the finance-led growth hypothesis are born out in the historical record, at least in a general way. The Dutch, British, American, Canadian, Japanese, and German economies all experienced political and financial “revolutions” before real per capita aggregate output growth rates increased to modern levels. Acceptance of this new view has been slowed, however, by the entrenched notion that businesses in the early stages of industrialization were small and simple and hence able to finance operations and expansions with retained earnings.

Businesses did “plough back” profits to fuel expansion, and indeed continue to do so to this day, but it is increasingly clear that they also demanded external financing. Small, medium, and large firms alike found it necessary to borrow short-term to meet payroll, pay suppliers, or provide credit to customers. Almost all firms found it necessary to finance expansions or reorganizations at least in part with debt and/or equity.

Institutions arose to supply the external financing that early businesses demanded. By 1820, American entrepreneurs could overcome the liquidity and capital constraints facing their firms in largely modern ways. They could borrow short-term from commercial banks or long-term from mutual savings banks, building and loan associations, life insurance companies, or individual mortgage lenders. They could also raise short-term funds from broker-dealer mediated

money markets for promissory notes, inland bills, and foreign exchange. Larger firms could issue negotiable bonds, equities, or even hybrid securities like convertible bonds and preferred shares. Firms of all sizes could also hedge against a variety of risks, including fire, death, and transport losses (Wright 2002a, b).

The importance of external finance and scale economies was not lost on early nineteenth century writers. Henry English (1827:33), for instance, argued that the IPOs of British joint stock companies, “where the object is legitimate, and when carried into effect by honourable means ... is beneficial to the capitalist, and to the nation.” English defended joint stock companies and other large enterprises because he realized that when it came to economic efficiency, bigger was often better. “We are indebted” to relatively big businesses, he argued, “for many of the comforts we enjoy.”

Was English correct? Did finance matter? If so, how much did it matter? At present, a dearth of data prevents financial historians from running statistical tests of the finance-led growth hypothesis like those recently published by Ross Levine and others using post-World War II comparative time series data (Levine, Loayza, and Beck 2000; Levine and Zervos 1998). Scholars of early nineteenth century political economy can never hope to have such relatively complete, accurate data. This paper is a tentative effort to collect, assess, and interpret the data that do exist. Some of the data presented here appear quite solid. Other series represent little more than educated guesswork. Those guesses, it is hoped, will be replaced with stronger data as research in the field progresses.

For instance, definitive time series data regarding the number and authorized capitals of U.S., Canadian, and British corporations must await further research by the author, Richard Sylla, Robin Pearson, and others. Similarly, corporate dividend records do exist but remain

scattered. Time, money, and hard work are all that is required to collect them. (Those inputs have already yielded an important new database of prices, often on a weekly basis, of bonds and equities that traded in the major early markets, to wit Boston, New York, Philadelphia, Baltimore, Northern Virginia, Charleston, and New Orleans. That database [Sylla, Wilson, Wright 2003] is now available at ICPSR.)

For now, the claims made here should be treated as strictly preliminary. The author believes, however, that the signs and magnitudes are more or less correct, making a general discussion of the study's conclusions not only possible but highly desirable. (Suggestions are of course heartily welcomed. Due to space limitations, detailed tables and descriptions of data sources and estimation methodologies have been relegated to a working paper, "Financial Data Estimations: Canada, New York, the United States, and Great Britain, 1790-1850," available at <http://pages.stern.nyu.edu/~rwright/>.) Despite the limitations of the extant data, the author asserts with confidence that by 1830 the U.S. possessed a well-developed financial system, comparatively speaking. Compared to what? By some measures, like assets of financial intermediaries to aggregate output, compared to most of the world's nations until the 1990s. Section 1.0 makes that case. Section 2.0 compares New York State with "Canada" (Ontario, Quebec, and the Maritimes), two demographically, geographically, historically, and politically similar entities. Data presented here confirm narrative evidence that Canada lagged New York financially and economically over the period 1820 to 1840. Section 3.0 compares the entire U.S. to Great Britain (England, Wales, and Scotland). Though not clearly superior to Britain, by 1830 Columbia was in John Bull's league in a number of important financial and economic categories.

1.0 U.S. Financial Depth to 1830 in Comparative Perspective

“Financial depth” is defined here as the assets of financial intermediaries as a percentage of aggregate output. As summarized in Table 1 and Figures 1 and 2, by 1830 the estimated assets of U.S. financial intermediaries totaled \$566 million, some \$40 per capita, and over 60 percent of GNP. (Unless otherwise noted, all figures are in current dollars, i.e. are not adjusted for changes in the price level.) Those are significant figures.

First, assets were conservatively estimated. Left out were the assets of unincorporated financial intermediaries and intermediaries of secondary importance, like merchant bankers. The assets of secondary intermediaries were nontrivial, either because the firms were large, as was the case of merchant banks, because the firms were numerous, as was the case with brokerages, or because the firms were numerous and occasionally large, as was the case with private banks. Stephen Girard’s private bank rivaled many urban, commercial banks in size; Branch & Sons of Petersburg, Virginia was sizable by contemporary standards; local studies indicate the existence of many private banks. The almost complete lack of systematic data, however, made any attempt to estimate the numbers or assets of such intermediaries almost complete guesswork (Adams 1978a, b; Bodenhorn 1997; Larson 1931; Hidy 1949; Hidy 1979; Perkins 1975; Stevens 1955; Sylla 1975).

Second, 60 percent is a significant figure compared to the financial assets of intermediaries as a percentage of output in 1785, which was nearly zero. Clearly, the formal financial sector grew at a much faster pace than the rest of the economy. In at least that sense, it literally “led” the economy.

Third and most importantly, the ratio of intermediaries’ assets to aggregate output in the U.S. in 1830 was high compared to the same ratio in many countries as late as 1990 when the

assets of commercial and investment banks, insurance companies, pension funds, mutual funds, and brokerage houses significantly topped 60 percent of aggregate output only in a few high income nations like Australia, Canada, Denmark, Finland, Germany, Italy, Japan, the Netherlands, Singapore, Spain, Sweden, the United Kingdom, and, of course, the United States. (The average of those countries was 240 percent of GDP.) In low income countries like Bangladesh, Egypt, Ghana, Guyana, India, Indonesia, Kenya, Nigeria, Pakistan, Zaire, Zambia, and Zimbabwe, assets of intermediaries equaled on average about 50 percent of output in 1990. In that year financial intermediaries in middle income countries like Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, the Dominican Republic, El Salvador, Greece, Guatemala, Jamaica, the Republic of Korea, Malaysia, Mexico, Paraguay, the Philippines, Taiwan, Thailand, Tunisia, Turkey, Uruguay, and Venezuela owned assets worth on average 75 percent of aggregate output, only slightly higher than the highest level the U.S. achieved by 1830 (Levine 1997:716). Given the likely underestimation of the early U.S. figures, U.S. financial depth by 1830 could very well have been higher than that achieved in over 150 nations by 1990.

Direct comparisons between the U.S. and other economically advanced nations in 1830 using this yardstick are not yet possible. It is known, however, that the assets of Canadian financial intermediaries did not exceed 50 percent of Canada's aggregate output until about 1880 (Neufeld 1972: 22, 590-92). It is also known that by 1850 Americans held significantly more of their wealth (30.0 percent) in the form of financial assets (precious metals, loans, mortgages, bonds, corporate equity) than did people in France (16.2 percent), Germany (15.2 percent), or Italy (16.9 percent in 1861). Only Britons (35.8 percent) held more of their wealth as financial assets than did Americans in that year. Also by 1850, the U.S. led all other nations save Great

Britain in the ratio of its financial to tangible assets, a measure of the relative size of an economy's financial sector (Goldsmith 1985:16-17, 43-45, 216, 225, 232-233, 250, 300-301).

Although the details remain shrouded, indeed always have been unknown,¹ the general outline of the growth of assets controlled by U.S. financial intermediaries is growing clearer. Between 1790 and 1830, formal financial intermediaries emerged essentially modern in form. They grew rapidly in number, authorized capitalization, asset size, per capita importance, and diversity of specialization. More compelling still, the level of financial "depth" that the early U.S. achieved was high by contemporary standards and respectable even by modern international standards.

2.0 Yanks over Canadians, 1820-1840

Today, by some estimates, Canadians enjoy a higher standard of living than do Americans. Such was not always the case. In the early nineteenth century, the Canadian economy was clearly inferior to that of the U.S. and even to that of New York, with which it shared much in common (Young 1955:80-81). In 1822, Canadian Robert Gourlay argued that the comparison between New York and Canada was a fair one Gourlay (1822:243). "The neighbouring state of New York," he wrote, "furnishes a fair comparison and example. The northern and western districts of that state resemble the adjacent districts of Upper Canada in respect to soil, climate, and markets." Despite those similarities, Gourlay intimated, Canadians envied New Yorkers because "land of similar quality and corresponding situations, although once very cheap there [in New York], now bears a price four times as high among them as among their neighbours in this province" (Gourlay 1822:243). Nor was Gourlay exaggerating: in

¹ "Under the circumstances," Krooss and Blyn (1971:19) argued, "the best that even contemporaries could do was to make a rough guess as to the number of banks, their capital, circulation, and deposits."

1825 New York State boasted some \$273 million of real and personal property (Wright 1997:992, 1019) while that same year Canadian tax assessments totaled only \$9 million (Hincks 1849:29). Even adjusting for differences in population sizes and assessment techniques, Gourlay's claim was clearly no hyperbole. Nor was it a transient phenomenon. In the early 1840s, Lord Durham noted that Canadians envied New Yorkers because otherwise comparable farms fetched "*several hundred per cent*" more in the Empire State. Like Gourlay, Durham did "not believe that the universal difference in the value of land can any where be fairly attributed to natural causes" (Emphasis added. Lucas 1970, 2:158, 215-216).

The enormous differences between Canada and New York puzzled many observers because before the American Revolution Canada looked very much like the American colonies both politically and economically (Lanctot 1933; Altman 1988). Yet by the nineteenth century even those parts of Canada with pretty much the same physical factor endowments as neighboring portions of the U.S., like the Niagara Peninsula, had fallen behind (Hall 1829, 1:237). By about 1830, for example, the population density on the American side of the Niagara River was 30 persons per square mile, while the density on the Canadian side was only 6 (Stuart 1833, 1:109).

Numerous knowledgeable observers pointed to Canada's relatively backward financial system as the main reason it fell behind. John Duncan traveled through Canada and the United States in 1818 and 1819. He noted that in America "scarcely has an infant settlement numbered a hundred houses, till a corporation for the manufacture at least of bank notes, if it be nothing more, is immediately set on foot" (Duncan 1823:51-52). "The commercial capital of Canada, on the other hand, with a population of about twenty thousand, and a trade employing annually about 150,000 tons of shipping," he noted, had just formed its first bank. Duncan thought the

Americans more commercially precocious than the merchants of Montreal but noted too that high illiteracy rates made banking in Quebec a challenge. “As an expedient to assist those who cannot read,” Duncan noted, the new Canadian bank “exhibited a row of dollars upon the margin of each of their notes, corresponding in number to its amount.”

In the 1820s, James Buchanan, the British consul in New York, also noted Canada’s relative “torpidity, and indolence.” He explicitly attributed the difference to Canada’s immature financial system [quoted in Hubbard 1995:71-72]. In 1833, George Hebert, another British observer, also lamented the sorry state of Canada’s economy. He too attributed the dearth of intermediation facilities as a major cause of the north country’s economic backwardness. “Bank notes circulate very little beyond the towns in Lower Canada [Quebec],” he noted, adding that by forbidding interest payments “the Catholic clergy” induced the faithful to hoard specie rather than to suffer “the risk of lending it for nothing.” Steep discounts of 20 to 25 percent for cash payments indicated high implicit interest charges on book accounts, Hebert noted (Hebert 1833:152-153). “Money is so scarce in Upper Canada [Ontario],” he further explained, “that most of the farmers are obliged to pay their labourers with grain.” It is not likely that Hebert exaggerated. According to another source, the money supply of Upper Canada in 1825 was only £135,000 Canadian currency (i.e. \$540,000² or \$3.58 per capita³ [McIvor 1958:36]). Before the mid-1830s Upper Canada was but, in the words of one contemporary, “a limb of the monetary system” of the United States (as quoted in Breckenridge 1895:84. See also Shortt 1986:274).

² Technically, Canadians used three different ratings of the dollar, “Halifax currency” (\$1 = £.25 or 5s to \$1), “Quebec currency” (\$1 = £.3) and “York currency” (\$1 = £.4 or 8s to \$1), the rating of colonial New York. In most official documents, Canadians used Halifax currency, rating the dollar at 5 shillings (Gourlay 1822:215-217; McIvor 1958:42; McCullough 1984:292; Shortt 1986:211, 213, 217, 226, 238; White 1958:224). So £1 Canadian currency equaled \$4. Canadian banking histories are therefore rife with references like the following: “The stock ... was limited to £250,000, or \$1,000,000 in shares of £25, or \$100 each” (Shortt 1986:17).

Early 1840s traveler William Thomson also noted that Canada lagged behind New York in “wealth, cultivation, and internal communication,” but argued that the colony compared favorably with “the western and more recently-settled States” (Thomson 1842:135). John Robert Godley thought that foreign investment made all the difference: the U.S. could attract it but Canada could not (Godley 1844:148-150). “The prosperity of America, her railroads, canals, steam navigation, and banks, are the fruit of English capital,” he argued. “England,” he claimed, “has sunk nearly £40,000,000 in the States.” “On the other hand,” Godley lamented, “hardly a shilling of English capital has found its way into this province.”

To explain the embarrassing differences between colonial Canada and independent America, Lord Durham also blamed the province’s backward financial system. He fingered French influences in Quebec as the major barrier to development, a popular argument (Ryerson 1837:21-27; White 1958:217-218). In his famous *Report on the Affairs of British North America*, Durham argued that

The English population ... looked on the American provinces as a vast field for settlement and speculation. ... They wished to form themselves into companies for the establishment of banks, and the construction of railroads and canals. ... The applications for banks, railroads and canals were laid on one side. ... In all these decisions of the Assembly ... the English population perceived traces of a desire to repress the influx and success of their race (Lucas 1970, 2:48-50).

³ Based on Upper Canada’s population of 151,097 in 1824 (Hincks 1849:27). Gourlay (1822:139) estimated the population of Upper Canada circa 1820 at only 77,000, but admitted that his figure may have been too low given Heriot’s 1806 estimate of 80,000.

Indeed, influential French-Canadian politicians like Louis-Joseph Papineau regularly attacked banks as tools of anti-French political forces (Oullet 1980:244; Shortt 1986:269). French-Canadian politicians may also have slowed the proliferation of other Anglo-American financial innovations, including insurance companies, savings banks, and building societies, all of which appeared in Canada soon after their introduction to New York, but in much smaller numbers (Neufeld 1972:35). Not until 1835 did the first French-controlled bank appear (Rudin 1985:47).

Due at least in part to the French anti-bank influences, Canada's early banking system remained stunted and corrupt. Indeed, Durham took special note of the "evils of the banking and monetary systems" of the colony, especially the corrupt practices of the "all-powerful" cliques that controlled its few chartered banks (Lucas 1970, 2:141, 148, 170). Durham advised Canada to try to emulate the United States, marveling that the state of New York was able to construct "its own St. Lawrence from Lake Erie to the Hudson, while the Government of Lower Canada could not achieve, or even attempt, the few miles of canal and dredging which would have rendered its mighty rivers navigable almost to their sources" (Lucas 1970: 2:99-100). Ultimately, Anglo-Canadians had only themselves to blame for not bringing the French to heel. In a stunning passage, Durham pointed out that Americans had quickly co-opted the French indigenous to Louisiana. He also noted that New York State too had successfully absorbed the laws and human capital of a Continental people, to wit the Dutch (Lucas 1970: 1:264; 2:299-303).

New York enjoyed far more commercial banks than did Canada, and did so far earlier. (For a general overview of Canadian banking, see Hammond [1957:631-670] and Shortt [1986].) Canadians, backed by British merchants, attempted to establish banks of issue and deposit in 1792, and again in 1808 and 1811, but all their efforts quickly failed. Not until 1817 did the Bank of Montreal form, but, as Table 2 shows, its success did not usher in a flood of entry into

the sector (McIvor 15-26, 59). Canadian banks enjoyed branching privileges, a right denied to most New York banks, so the number of banks *per se* is not as telling as the per capita bank capital, money supply, and credit figures. As shown in Table 2, Canada severely lagged New York in each of those measures.

The recession that followed the panic and rebellion of 1837 slowed Canada's development but the Union of 1840, the long-awaited political ascendance of Ontario, and Britain's trade liberalization policies finally tipped the balance in the 1840s, when Canada's economy began to show signs of development (Hincks 1849; McLean 1894). As early 1829 British traveler Basil Hall had argued that the first step towards improving Canada's economy would be "a hearty political union between the upper and lower provinces" (Hall 1829, 1:227-230). Political unity indeed brought improved public credit and more foreign investment. In 1843 the new colonial government issued bonds in London guaranteed by the Mother Country (Evans 1850:97). It used the proceeds to jumpstart internal improvement projects, which fueled expansion of the commercial sector (Tucker 1936). Improved infrastructure, further development of the financial system, and movement out of the relatively inefficient agricultural sector (Hincks 1849:29) spurred growth in manufacturing in the 1850s (Cross and Kealey 1982).

The Canadian financial system improved in the 1840s and 1850s but continued to trail that of New York. As late as 1849, Canadian companies still found it difficult to attract British capital (Dixon 1849:167-169). And Canada's domestic securities markets lagged the major U.S. markets by decades. In 1857, the Montreal and Toronto stock markets combined listed only 37 issues (Neufeld 1972:45-6). Those markets were not organized by exchanges until the 1860s and remained small and thin until the 1880s and 1890s (Michie 1988; Whiteside 1985). By contrast, in 1857 some 300 securities were listed on the New York Stock Exchange. One has to go back

almost four decades, to 1820, to find a year when fewer than 37 different securities traded in New York (Werner and Smith 1991:158; Sylla, Wilson, Wright 2003). Even Baltimore's securities market was far larger than that of Canada. In 1857, more than 100 different securities traded in that city. The two major Canadian securities markets most closely resembled the market of Charleston, South Carolina, which in 1857 mustered just over a score of traded securities. That was not saying much, especially in per capita terms. In 1861, Canada's population topped 3 million (McInnis 2000:373), while South Carolina's 1860 population -- including slaves -- was only around 700,000.

But when it came to economic growth, it was better to be like antebellum South Carolina than like pre-Revolution France. Canadian economic growth accelerated from a likely average of well under 1 percent per year to modern levels, 3.38 percent on average, between 1850 and 1870 (Firestone 1960:222). In the second half of the nineteenth century, Canada's financial sector continued to develop and growth proceeded apace. By the early twentieth century, Canadians enjoyed one of the world's richest economies.

3.0 Columbia and John Bull Stand Toe to Toe, 1820-1850

In the 1770s, America needed the aid of France to achieve its independence. In the 1810s, the United States fought an admittedly beleaguered Britain to a draw. By the 1860s, the former Mother Country did not dare side with half the United States against the other, more developed half. The economic reasons underlying those outcomes are clear. By 1820, U.S. manufacturing productivity was already well ahead of that of Britain (Broadberry 1997:36). By 1835, the U.S. enjoyed just 150 fewer miles of railroads and canals *than all of Europe combined* (Chevalier 1839:466). By 1860, U.S. output rivaled that of Britain. As the finance-led growth hypothesis

predicts, America's financial sector compared favorably with that of Britain long before then, perhaps, if the admittedly tentative data presented in Table 3 stand scrutiny, as early as 1830. Moreover, were the data disaggregated by region, we would likely find that the relatively better-developed, northeastern part of the U.S. achieved financial parity with Britain at an even earlier date.

Perhaps the British financial sector was qualitatively superior to that of the U.S.?
Perhaps, but probably not. Much recent scholarship shows that "wildcat banks" and other infamous early U.S. financial schemes and shenanigans were the exception, not the rule. Judging the early U.S. financial system based on its few failures is tantamount to assessing the current system based on the recent problems at Enron. The system was imperfect. But even as Enron disintegrated, millions of Americans obtained home mortgages, student, automobile, and other loans, and millions received timely dividend and coupon payments. Similarly, for every American who lost money in a wildcat bank, a thousand others benefited from their dealings with the financial system. Moreover, as we learn below, the nineteenth-century British financial system was far from flawless.

Clearly, the early U.S. financial sector was not so primitive or inefficient as to frighten British or Dutch investors away. Starting in the early 1790s, foreigners imbibed heavily of U.S. government bonds. Admittedly, early nineteenth century investors bought the sovereign debt of many nations with weak financial sectors. But, importantly, foreign investors also purchased U.S. corporate securities, including shares in the Bank of the United States and the securities of numerous other U.S. corporations, and did so in prodigious quantities. In 1838, for instance, English investors owned \$3 million of Farmers' Loan and Trust 5s, \$1.5 million of New York Life 5s, \$1 million each of American Life 5s and Mississippi Bank stock, \$800,000 of Tennessee

Bank stock, \$2 million of Camden and Amboy Railroad bonds, and over \$14 million of other U.S. corporate securities (*The Financial Register of the United States: Devoted Chiefly to Finance and Currency, and to Banking and Commercial Statistics*, Vol. II, July 1838 to December 1838:141).

According to Spackman (1842:70-72), British investors in 1840 owned some \$146 million of U.S. securities, mostly state and corporate bonds. But he noted that “it is very difficult to form an accurate estimate of the quantity [of U.S. securities] held in this country.” This is not to argue, of course, that *all* U.S. corporate securities found a market overseas as Spackman also noted that “a great variety of other Stocks exist in the United States; but these are wholly confined to the American Market, and are but little known in this country.” Clearly, however, foreign investors found at least some U.S. securities worthy of purchase. Foreigners, including Americans, also invested heavily in British securities, of course (Brezis 1995). The Dutch, in particular, were eager to invest in both America and Britain (Neal 1990:207-218; Riley 1978; Van Winter 1977; Wilkins 1989).

U.S. and British commercial banks differed in several respects. U.S. banks were rarely allowed to form branch offices, so they tended to be smaller than their chartered British counterparts. But they were also more likely to take the joint-stock form, especially in the early years covered by this study. U.S. banks were also more likely to be able to issue notes than their British counterparts. Scottish banks maintained open accounts with overdraft privileges while U.S. banks discounted promissory notes or bills of exchange. What real impact, if any, those differences made is difficult to discern.

If failure rates serve as the criterion of quality, U.S. banks were less likely to fail than English banks but slightly more likely to go under than Scottish banks. So overall, U.S.

commercial banks were more stable than their British counterparts (Sylla 1985:118-119). As early as 1825, Canadian banker J. H. Boulton pointed out that U.S. banks, even the numerous small ones, were much less likely to fail than English banks. He thought better “constitutions,” i.e. corporate governance rules, and not “the better character of the parties” managing the banks explained the superior stability of the American institutions (Shortt 1986:245-246). McCulloch and Vethake (1840, 1:101) noted that “numerous failures” of English private banks made depositors wary. So those institutions paid “from 2 to 3 per cent. on money deposited,” a rate still generally insufficient to attract a sizable base of deposits. Early U.S. commercial banks, on the other hand, rarely had to offer interest in order to attract deposits. Gallatin (1841:82) also took note of “the numerous failures of country bankers in England, in particular years.” He contrasted the 16 percent failure rate in Britain during its worst decade, 1815 to 1825, with the 2.25 percent failure rate experienced by New York in its worst decade, the 1830s. Gallatin argued that U.S. banks were better governed, better regulated, and more highly capitalized than English private banks.

Other financial intermediaries are so little studied that making trans-Atlantic comparisons is difficult. At the balance sheet level anyway, there appears to have been little difference between U.S. and British marine, fire, or life insurers or savings banks. This should not be surprising given that it is generally accepted that the U.S. copied or inherited those institutions from the Mother Country, making such alterations as necessary to meet local circumstances.

U.S. securities markets were not clearly inferior to their British counterparts, although the British markets appear to have supported more brokers per capita. In 1802, the London Stock

Exchange (LSE) boasted some 500 founding members,⁴ far more than the number of brokers who established stock exchanges in Philadelphia (10) and New York (24) in the late eighteenth century (Barnes 1911; Werner and Smith 1991:20). In 1816, a British directory (*Holden's Annual Directory, 1816-1817, for England, Wales, Ireland, and Scotland*) listed some 760 brokers while in that same year U.S. directories listed only about 70 (sundry city directories and newspapers, 1816: Baltimore, Boston, Charleston, S.C., New York, Philadelphia). The two figures may not be comparable, however, because many of the British brokers may have been “bill brokers” engaged primarily in discounting promissory notes and bills of exchange. Only 294 of the listed British brokers explicitly called themselves stockbrokers. Moreover, well over 100 brokers of unspecified specialization hailed from Liverpool but we know from a more specific local directory (*Gore's Liverpool Directory*) that as late as the mid-1830s Liverpool was home to only “about half a dozen full time dealers in shares” and fluctuating numbers of part-timers (Thomas 1973:16-17). At their peak in 1846, Britain's numerous provincial exchanges boasted over 500 total members, but after the railroad boom petered out that number shrank to just over 400 by 1850 (Thomas 1973:72).

After about 1807, the LSE restricted membership to only full-time stockbrokers; every partner in a brokerage firm had to be a member (Michie 1999:38, 43). If time series data on the number of LSE brokers exists, however, I have yet to find it. By 1836 London alone boasted 1,074 brokers (*A List of the Brokers of the City of London, at Michaelmas, 1836*. London: Arthur Taylor, 1836). Again, however, the *List* did not distinguish between stock, insurance, bill, or other types of brokers. (For those interested in such matters, Jewish brokers are explicitly identified.) In 1837, New York was home to only 55 *bona fide* stockbrokers (*The Classified*

⁴ Reader (1979:10) and Thomas (1973:3) claim 550, while Michie (1999:38) counts 498.

Mercantile Directory for the Cities of New York and Brooklyn, 1837). A similar problem plagues Spackman's (1847) figures, which show that in 1841, a census year, 4,622 brokers of "all branches" were in business in Britain. Tracking down each broker to discover precisely what he did would be a monumental task even if the study limited itself to, say, only brokers in New York and London.

Moreover, comparing New York to London is not satisfactory because neither enjoyed a monopoly on securities trading in the period under study. As Table 4 shows, New York, Philadelphia, and Boston (Martin 1975) vied for supremacy, at least in terms of the number of listed securities, until the Civil War (Garg 2000:2; Michie 1987:171). Moreover, the U.S. enjoyed fairly robust regional exchanges in Baltimore, Richmond, Charleston, New Orleans, and, later, Cincinnati and San Francisco. London was Britain's leading securities market in terms of size and price leadership, but, as in the U.S., numerous provincial exchanges thrived (Michie 1981; Michie 1987:7; Thomas 1973). Due to the relative parity of the U.S. exchanges, the four largest dwarfed the British provincials. In 1836, for instance, the Liverpool Stock Exchange listed just 15 securities (Thomas 1973:15), compared to the 50 plus listed in Baltimore (Sylla, Wilson, Wright, 2003).

Though in the period under study they were mostly oriented toward domestic securities (Michie 1987:34-42), London and the U.S. markets differed markedly in emphasis in terms of asset classes traded. In the first half of the nineteenth century, sovereign debt dominated the London Stock Exchange. In 1840, only 11 percent of the total nominal volume of securities traded on the exchange had not been issued by some government or another, and even most of that took the form of the securities of quasi-public corporations like the Bank of England and the East India Company (Michie 1987:4). In 1853, the nominal value of securities quoted on the

exchange totaled over £1.2 billion, £923 million of which was British and foreign public debt (Michie 1987:52; Michie 1999:88). Railroad securities composed most of the remainder, but even during the investment boom in the mid-1840s, just a handful of London brokers and dealers handled all the railroad securities traffic on the LSE (Thomas 1973:4).

After about 1800, in contrast, corporate securities generally reigned supreme in the U.S. markets. Philadelphia broker Andrew Summers, for example, traded over \$1.2 million of equities between 1798 and 1808. Over that same period, he traded less than \$200,000 of government bonds. Similarly, from 1830 to 1835 and 1841 to 1847, Philadelphia broker Alexander Lardner traded \$2.99 million worth of equities and \$650,000 worth of corporate bonds but only \$350,000 worth of government bonds (Alexander Lardner Daybook, 1830-1831; Journal, 1832-1834; Ledger, 1841-1844; Journal 1844-1846; Journal 1846-1847, Historical Society of Pennsylvania). Those brokers were representative of the larger market. Each year from 1834 to 1842, the Philadelphia Stock Exchange handled thousands of stock trades but only hundreds of bond transactions (Wright 2002a:149-150, 158). Similarly, between May and August 1844, the Philadelphia Stock Exchange handled 957 bond transactions (563 government, 394 corporate) but over 1,800 stock trades (Wright 2002b:112-115). Total bond trading over that period amounted to \$2.59 million (at par value), while stock trading totaled \$7.48 million (at market value) (Henry Ewing Account Book, Philadelphia Stock Exchange, 1844, Historical Society of Pennsylvania).

In this regard, the U.S. markets more closely resembled Britain's provincial markets, which, unlike the LSE, tended to focus upon corporate securities. From 1833 to 1836, for instance, Edinburgh brokerage John Robertson & Co. handled £508,000 of business, 99 percent of which consisted of equities. Additionally, 91 percent of that firm's total business involved the

exchange of local bank, insurance, utility, or transportation companies, and 8 percent of non-local but still Scottish securities (Michie 1981: 73; Michie 1987:5-7). Indeed, some of the provincial exchanges arose mainly to trade local railroad shares (Thomas 1973:28, 50), much as the San Francisco exchange formed largely to trade local mining stocks (King 1975).

In both countries, the price integration of securities that traded simultaneously in more than one market was incomplete, and largely a function of time, distance, and cost of communication (Michie 1987:8-11, 171-172; Garg 2000; Wright 2002a:91-94). Figure 3, for instance, charts the difference in the same-day New York and Philadelphia bid prices of Camden and Amboy Railroad shares over the course of 1834. Those two markets, which were about a day apart unless the expensive express or semaphore systems were used, were only partially integrated. (Readers should note that C&A stock traded between \$117 and \$142 in 1834, so differences as a percentage of price were less pronounced than the dollar differences plotted on the graph.)

Both the British and U.S. securities markets were important primarily as secondary markets, not primary markets. So proxies of liquidity, like transaction costs and the volume of trading, are important. Lower bound estimates of equity trading volumes in New York, Philadelphia, and Boston are provided in Table 5. The figures represent only that portion of trading captured by the stock exchanges or recorded in newspapers. Even in the case of listed stocks, considerable trading took place “out of doors” or “at the curb.” The same phenomenon occurred in Britain (Thomas 1973:18, 23, 80). Apparently, no one has yet tried to estimate trading volume on the LSE or the provincial exchanges for the period under study, save for Michie (1981:107, 224-227; 1987:18) who provides time series data on annual trading on the

Aberdeen Stock Exchange, 1846-1900. One reason for this may be that the exchanges mostly concerned themselves with tracking prices, not volumes (Thomas 1973:80).

Transaction costs generally declined over the period of the study. In both countries, investors could choose between brokers and dealers. For a commission that generally ranged from .125 to .25 percent, brokers looked for a suitable counterparty and a good price, no matter how long it took. Dealers, on the other hand, bought or sold shares immediately, but at the cost of a lower selling price (or higher buying price), to wit the spread between the dealers' bid and ask prices. Garg (2000) shows that intense competition between the Boston, New York, and Philadelphia securities markets reduced bid-ask spreads beginning in the latter part of the 1840s, after some limited telegraphic connections between those major cities had been established. New York eventually won the battle by lowering its average bid-ask spreads the most, to well under 5 percent.

Geographical and occupational patterns of stock ownership were also comparable. Detailed data on stock ownership in Maine corporations from the late 1830s to the early 1850s provided in Wright (2002a:100-120) are quite similar to data provided in Evans (1936) and other studies of British securities ownership (Broadbridge 1969:112-150; Cottrell 1980:80-103; Reed 1975:122-192). Data from both sides of the Atlantic show nontrivial holdings of securities by corporations and foreign or out-of-region investors. Figure 4 graphically depicts the considerable geographical spread of stockholders in Maine's banks in the mid-1840s.

Maine was no aberration; stockholders and bondholders were often spread over considerable geographical distances. The Philadelphia and New York markets were especially important in this regard. By the early 1830s, the bonds of other states and distant western corporations regularly traded in Philadelphia. In 1833, for instance, Ohio state bonds and shares

of the Commercial Bank of Cincinnati, the New Orleans Canal Bank, the New Orleans City Bank, the Union Bank of Tennessee, the Bank of Louisville, New York Columbian Steamboat, and Baltimore People's Line traded in Philadelphia frequently enough to be included in that city's newspaper securities lists. That same year, Mississippi and Alabama state bonds traded in New York, as did shares of the Louisiana Bank, the New Orleans Canal Bank, the New Orleans City Bank, the Mechanics' and Traders' Bank of New Orleans, the Commercial Bank of New Orleans, the Bank of Mobile, the City Bank of New Haven, the Planters' Bank of Mississippi, and the Franklin Bank of Cincinnati. Out-of-state railroad securities also abounded, of course (Sylla, Wilson, Wright 2003).

As in Britain, U.S. securities markets and financial intermediaries both competed with and complemented each other. Commercial banks and insurance companies, for instance, raised capital by selling shares. Those same companies often held government securities as liquid "secondary reserves." By the 1830s, bankers' balances increased stock market liquidity by being put out as call loans. In addition, a wide variety of securities served as collateral for loans. Until the mid-1830s, government bonds and national bank stock were the most numerous and heavily traded securities, and hence the most frequently used to secure loans. Generally speaking, however, U.S. lenders were not picky about which securities were hypothecated, so long as the proffered collateral traded enough that its market value could be accurately judged. Stock, money, and land broker Jonas Philips, for instance, advertised in 1796 that he would "Discount Notes on Deposits or other securities" (*Finlay's Commercial Register*, 15 March 1796). By the 1840s the use of securities as collateral for loans was so widespread that judges were reluctant to impair the practice in any way (Wright 2002a:172).

Both American and British corporations and governments attracted considerable numbers of investors -- when they wanted to (Thomas 1973:6, 16, 31, 39, 43, 169; Michie 1981:74). Even Maine's teeny Megunticook Bank, capitalized at only \$49,000, boasted almost four score stockholders in 1839. Maine's most widely held bank, the Canal Bank, which was capitalized at \$400,000, had 217 different owners in 1839, 220 in 1841, and 263 in 1853. Similarly, Pennsylvania's numerous turnpike companies had hundreds of stockholders each. The Harrisburg, Carlisle, and Chambersburg Turnpike, for instance, boasted 580 stockholders (Majewski 2000:51). Railroads and large, urban commercial banks also enjoyed hundreds and later thousands of stockholders.

Of course, the claim here is not that British and American securities markets were identical (Michie 1987:xiii), merely that they were broadly comparable in development, closer to each other than either was to securities markets elsewhere. In the period under study, the only other nations with securities markets in the same league as those of Britain and the U.S. were Holland and France (Michie 1987:34).

Overall, however, French financial system development appeared to lag that of Anglo-America. The most compelling evidence of that comes from *French* traveler/diplomat Michael Chevalier. During his extensive travels in America in 1834-1835, Chevalier found many differences between America and Britain, but not where it came to matters of money and finance. Perhaps most importantly, Chevalier was struck by the degree of monetization in the Anglo-American world. "When I was in England," he noted, "I was surprised at the number of notices in the docks, threatening, for instance, a fine for certain offences, with a promise of half to the informer." "The maxim here" in America, he explained, "is that everything is to be paid for." "The American," he further explained, "is always bargaining. ... The Yankee will sell his

father's house, like old clothes and rags." Chevalier deprecated the Anglos for their money-lust but recognized its two underlying causes -- that Britain and the U.S. enjoyed higher per capita *effective* money supplies than France and that wealth was more equally distributed, at least in America. "The ratio of conditions [i.e. wealth holdings], which in Paris is as one to forty, is here not more than one to eight," the Frenchman argued (Chevalier 1839:292-302). In both the U.S. and Scotland, he further noted, "all persons have an account with the banks, and are thus freed from the necessity of keeping any considerable sums on hand." "They hardly keep enough in the house," he claimed, "to defray the expenses of the household for a few days, and payments are made by checks on a bank" (Chevalier 1839:447). France, by contrast, had put about \$750 million of coins in circulation, of which about a quarter had been exported. An unknown but sizable quantity of the remainder, however, was "out of circulation ... buried in the coffers of individuals or in the pockets of the poor, who do not dare trust their savings to any person or institution" (Chevalier 1839:453).

Chevalier also noted that the Anglo-American world was characterized by what Schumpeter would later call "creative destruction." "If the movement and the quick succession of sensations and ideas constitute life, here one lives a hundred fold more than elsewhere," he argued. "An irresistible current sweeps away everything, grinds everything to powder, and deposits it again under new forms" (Chevalier 1839:308). The fount of this mighty stream of change was the fact that every Anglo enjoyed "a passion for work and the means of gratifying it." Those who wished to farm could obtain land; a man who wished to manufacture "has no difficulty in getting credit" (Chevalier 1839:345). And because "Anglo-Americans have reached wealth through their political liberty" they did not have to fear losing their "competency," their "independence," at the hands of a rapacious government (Chevalier 1839:348). The situation in

France was quite different. “We work from necessity and not from choice,” Chevalier admitted (Chevalier 1839:348).

In the Anglo-American world, Chevalier continued, a valuable project quickly raises “capital enough to construct it.” “The construction of the work” provides employment for laborers, manufacturers, merchants, and engineers, each of whom “consumes freely, because he gains freely, [and] has no fears for the morrow.” The result was a dynamic economy. In France, by contrast, the lack of credit condemned “the most useful projects [to] remain on paper” and hands and minds to remain idle (Chevalier 1839:349). “The average rate of interest on all transactions of all kinds” in France, Chevalier claimed, “is at least 15 or 20, perhaps, 25 per cent” (Chevalier 1839:354). If the interest rate could somehow be lowered, he correctly intuited, the French economy would boom. But Chevalier was a realist. “It will be a long time,” he lamented, “before we shall be in a condition, in France, to enjoy such a system of credit as exists in the United States or England” (Chevalier 1839:351).

4.0 Conclusions

Recent theoretical and empirical studies suggest that the finance-led economic growth hypothesis is worthy of closer scrutiny. The hypothesis predicts that nations that achieve modern growth rates will first develop a modern financial sector. Generally speaking, the historical record bears out that prediction. The next step is to test if measures of financial sector development correlate with and Granger-cause economic growth. But before such tests can be run, comparative data must be assembled and, where necessary, reconstituted from original sources. This paper is a preliminary attempt at that endeavor. The data collected thus far appear to be in line with the finance-led growth hypothesis: New York developed financially and

economically before Canada; the U.S. financial system compared favorably with that of Great Britain by about 1830. Much interesting narrative evidence provided by British and French travelers bolsters both claims.

5.0 Figures and Tables

Detailed descriptions of the sources, assumptions, and methods used in the creation of these figures and tables can be found in my working paper, “Financial Data Estimations: Canada, New York, the United States, and Great Britain, 1790-1850,” available at <http://pages.stern.nyu.edu/~rwright/>.

Figure 1: Growth of Institutional Intermediation in the U.S., 1785-1830

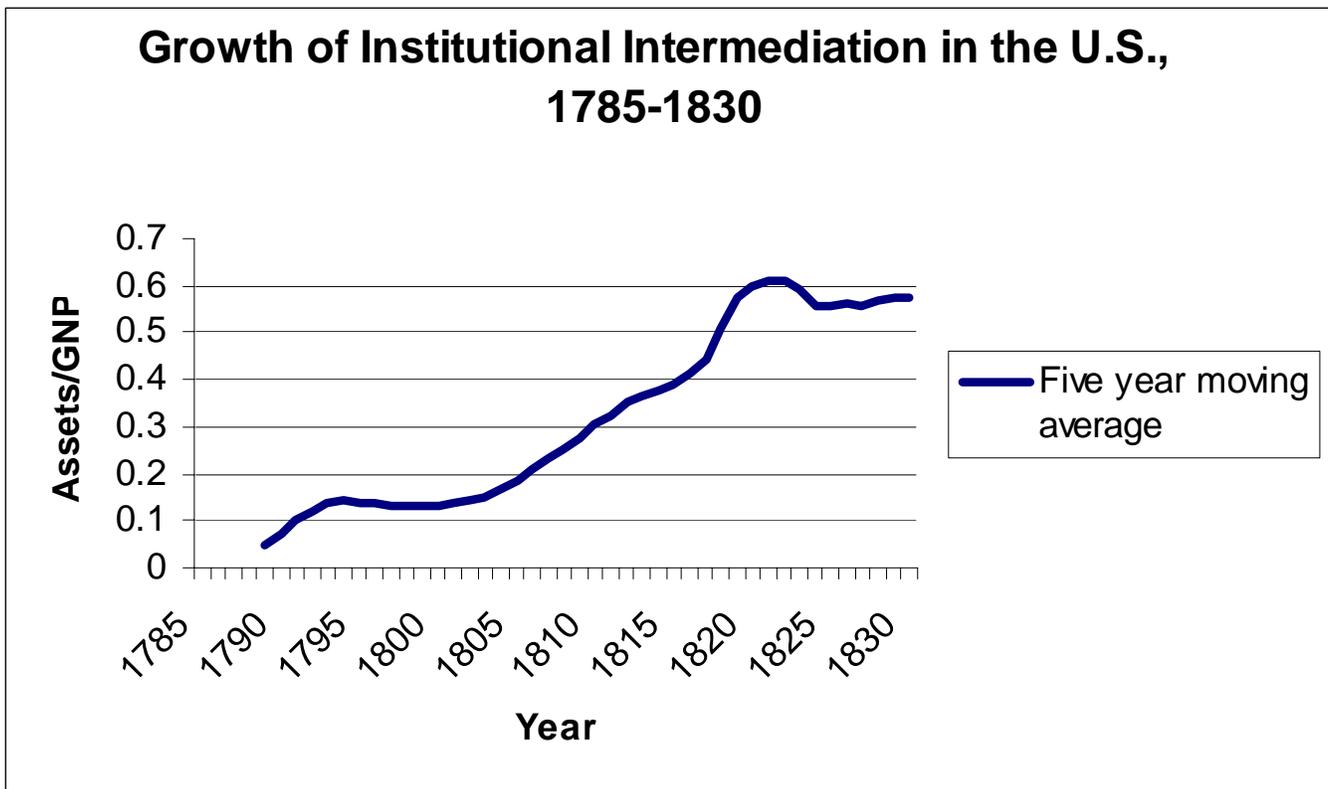


Figure 2: Growth of Per Capita Institutional Intermediation in the U.S., 1790-1830

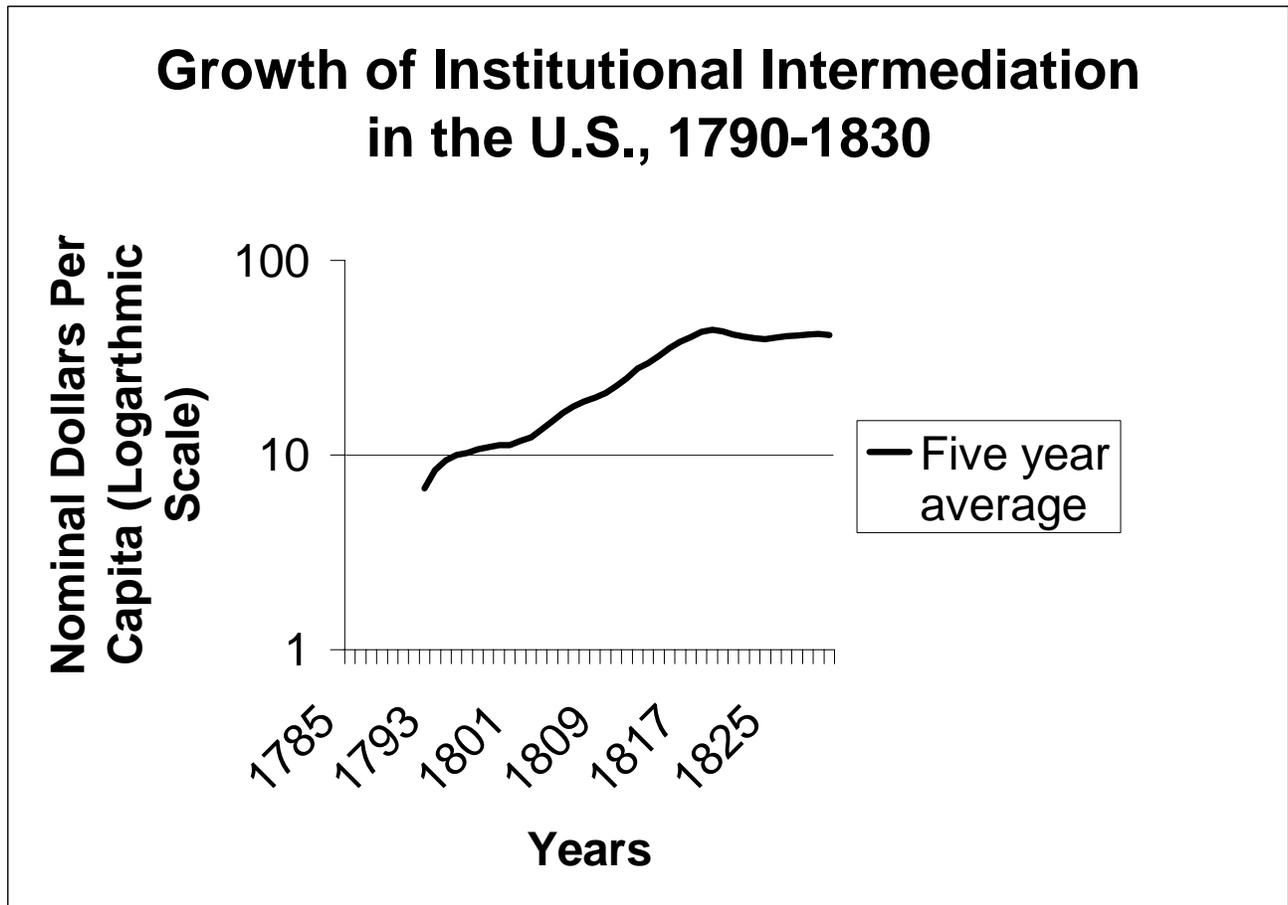


Figure 3: Camden and Amboy R.R. Bid Prices, New York and Philadelphia, 1834

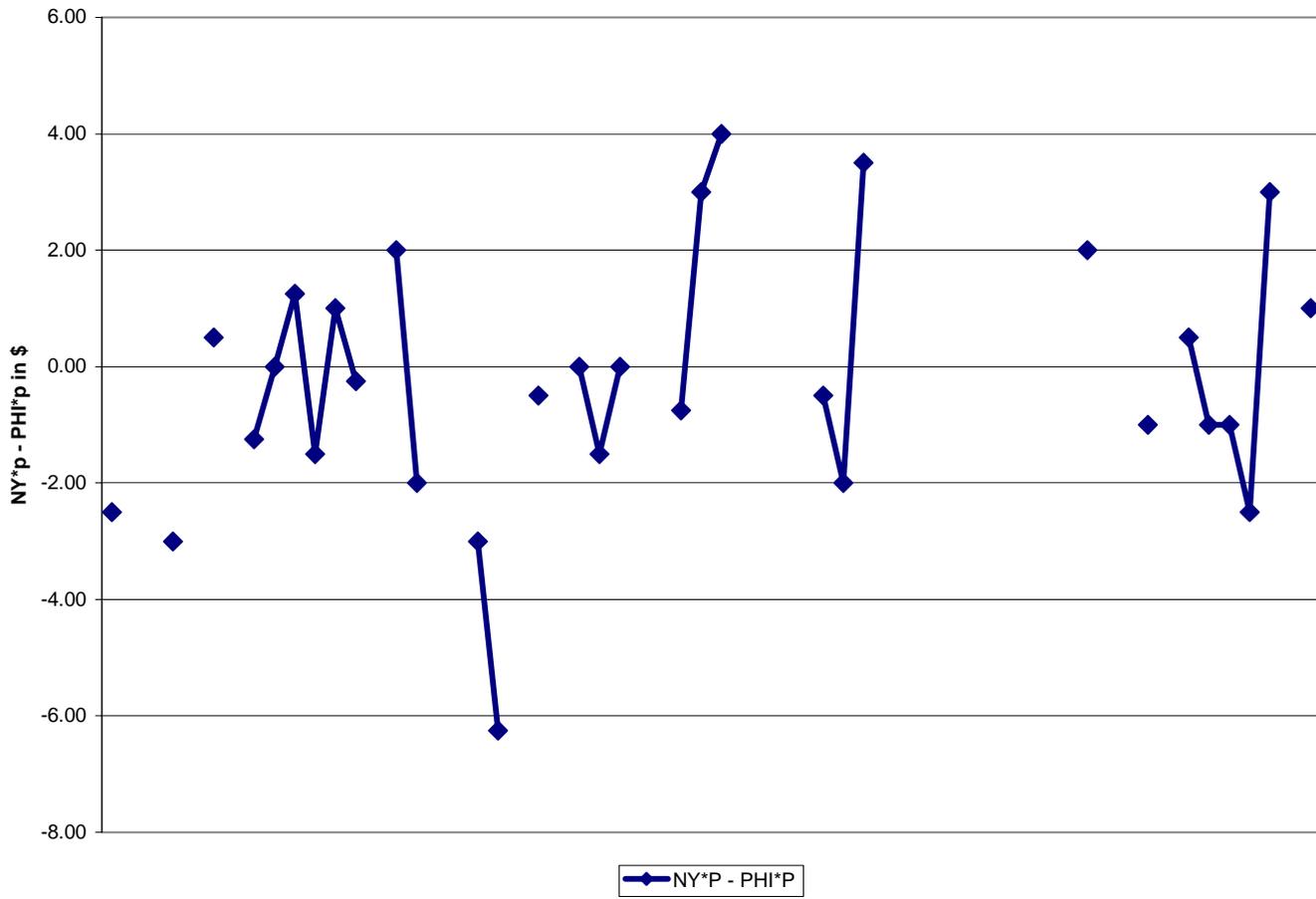


Figure 4: Bank Stock Ownership in Maine, 1841

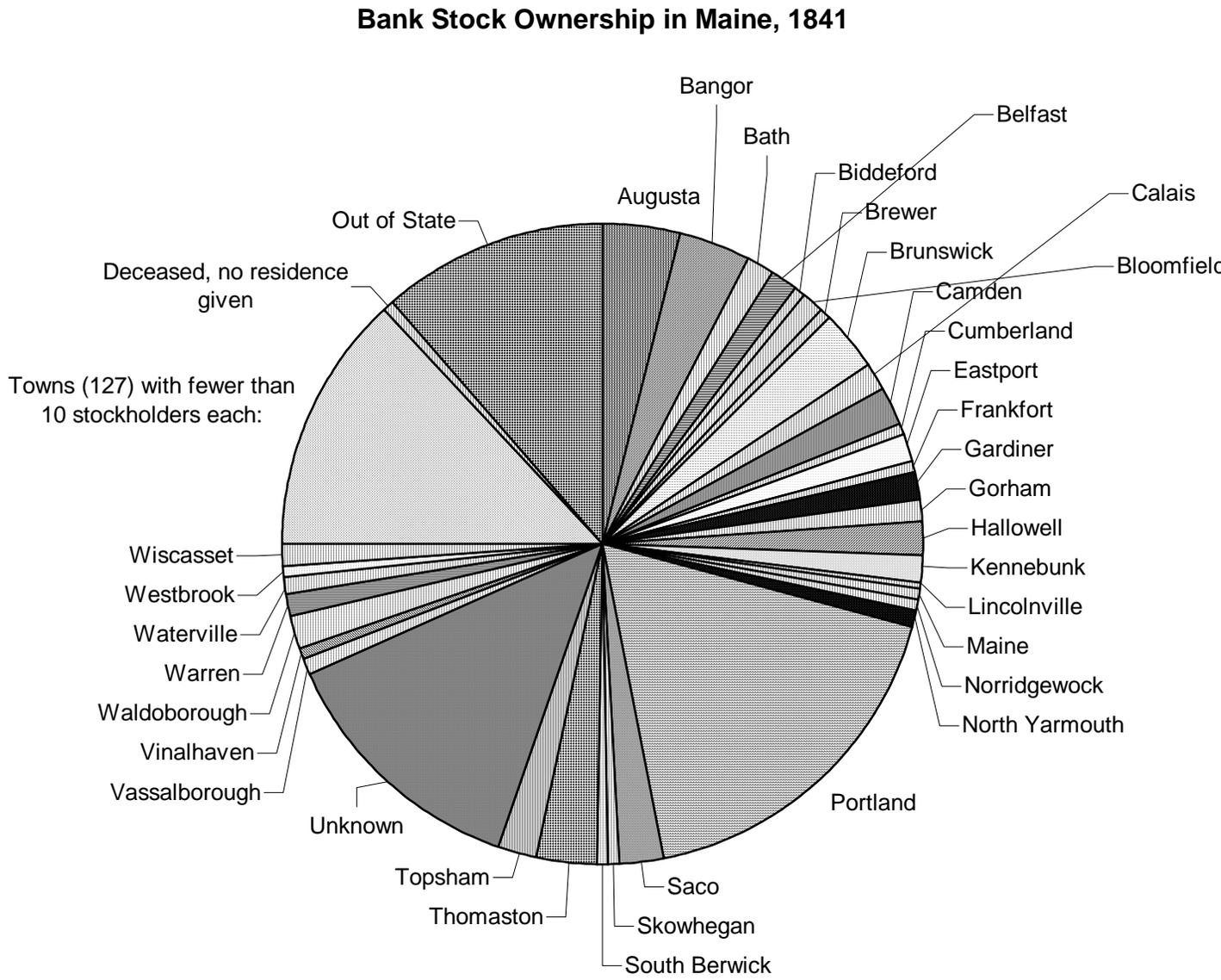


Table 1: Total Estimated Assets of U.S. Financial Intermediaries, 1785-1830

Year	Commercial Bank Assets	Savings Bank Assets	Insurance Co. Assets	Total Assets (in millions)	Nominal GNP (in millions)	Percentage of Total Assets to GNP	Total Assets Per Capita
1785	3.50	0	0	3.50	146.1	2.39%	
1786	2.26	0	0	2.26	149.1	1.52%	
1787	5.14	0	0	5.14	152.1	3.38%	
1788	4.12	0	0	4.12	155.2	2.65%	
1789	6.54	0	0	6.54	158.4	4.13%	
1790	7.51	0	0	7.51	188.2	3.99%	1.91
1791	20.54	0	0	20.54	199.4	10.30%	5.05
1792	33.86	0	1.2	35.06	227.2	15.43%	8.34
1793	36.57	0	1.8	38.37	239.3	16.04%	8.84
1794	40.06	0	2.4	42.46	291.1	14.59%	9.48
1795	41.51	0	5	46.51	352.2	13.21%	10.07
1796	43.37	0	6	49.37	403.8	12.23%	10.38
1797	48.21	0	6.6	54.81	397.4	13.79%	11.20
1798	45.40	0	6	51.40	380.6	13.51%	10.21
1799	52.27	0	8	60.27	420.6	14.33%	11.66
1800	49.74	0	10	59.74	459.1	13.01%	11.25
1801	52.66	0	12	64.66	527.8	12.25%	11.75
1802	50.00	0	15	65.00	490.2	13.26%	11.41
1803	58.69	0	18	76.69	487.9	15.72%	13.03
1804	67.07	0	20	87.07	534	16.30%	14.32

1805	82.39	0	24	106.39	592.4	17.96%	16.96
1806	94.11	0	30	124.11	609	20.38%	19.19
1807	90.47	0	36	126.21	563.6	22.46%	19.01
1808	92.04	0	38	130.49	460.6	28.33%	19.04
1809	100.23	0	41	141.13	501.6	28.14%	20.03
1810	108.87	0	44	152.39	588.1	25.91%	21.05
1811	142.65	0	46	188.94	580.2	32.57%	25.26
1812	161.89	0	49	211.19	568.6	37.14%	27.36
1813	187.23	0	52	239.69	623.3	38.45%	30.11
1814	233.53	0	57	290.17	701.2	41.38%	35.39
1815	197.16	0	59	256.57	812	31.60%	30.40
1816	270.30	0	63	333.52	853.5	39.08%	38.43
1817	316.47	0	67	383.73	846.7	45.32%	43.02
1818	331.41	0	72	403.18	816	49.41%	44.02
1819	349.66	0	76	426.05	754	56.50%	45.33
1820	341.42	1.14	81	423.86	655.7	64.64%	43.98
1821	345.93	1.42	87	433.88	606.7	71.51%	43.56
1822	307.86	1.70	92	401.67	708.6	56.69%	39.06
1823	283.10	1.98	98	383.15	698.7	54.84%	36.13
1824	328.16	2.26	104	434.84	751.2	57.89%	39.79
1825	347.65	2.54	112	462.33	849.5	54.42%	41.10
1826	349.60	3.42	120	472.99	883.7	53.52%	40.87
1827	379.03	4.31	129	512.04	868.4	58.96%	43.05
1828	344.56	5.20	137	487.05	881.2	55.27%	39.87
1829	349.72	6.09	146	502.10	905	55.48%	40.04
1830	403.45	6.97	156	566.57	932.6	60.75%	44.05

Table 2: Canada vs. New York, 1820-1840

Canada									
Year	Population (millions)	Active Banks at Year End	Authorized Bank Capital (\$millions)	Per Capita Bank Capital (\$)	Total Bank Credit (\$mill.)	Per Capita Bank Credit (\$)	Total MS (\$mill.)	Per Capita MS (\$)	Per Capita Output (\$)
1820	0.70	4	2.30	3.29					65.62
1821	0.72	5	2.70	3.75	2.80	3.89			65.75
1822	0.76	5	2.70	3.57	4.48	5.93	1.62	2.14	65.88
1823	0.79	5	2.70	3.41	5.56	7.02	1.79	2.27	66.01
1824	0.83	5	2.70	3.26	8.08	9.76	1.62	1.96	66.14
1825	0.86	6	2.76	3.19	9.16	10.60	1.79	2.07	66.27
1826	0.90	6	2.76	3.07	7.24	8.04	2.63	2.92	66.40
1827	0.94	6	2.76	2.95	6.44	6.88	1.45	1.55	66.53
1828	0.97	6	2.76	2.84	7.24	7.45	3.00	3.09	66.66
1829	1.01	6	2.76	2.74	8.16	8.10	3.34	3.31	66.79
1830	1.04	6	2.76	2.64	3.24	3.10	4.27	4.09	66.92
1831	1.08	6	2.76	2.56	2.44	2.26	5.06	4.68	67.05
1832	1.14	7	3.16	2.78	2.40	2.11	5.15	4.54	67.18
1833	1.19	8	3.56	2.99			5.94	4.99	67.31
1834	1.25	11	5.46	4.39	3.08	2.47	6.72	5.40	67.44
1835	1.30	14	5.91	4.55			7.73	5.94	67.57
1836	1.36	21	6.31	4.66	5.72	4.22	10.27	7.58	67.70
1837	1.41	19	11.17	7.92	4.16	2.95	11.60	8.22	67.83
1838	1.47	18	11.17	7.63	4.72	3.22	9.11	6.22	67.96
1839	1.52	17	11.17	7.35			11.72	7.71	68.09
1840	1.58	16	11.17	7.09			11.00	6.98	68.22

New York									
Year	Population (millions)	Active Banks at Year End	Authorized Bank Capital (\$millions)	Per Capita Bank Capital (\$)	Total Bank Credit (\$mill.)	Per Capita Bank Credit (\$)	Per Capita MS (\$)	Per Capita Output (\$)	
1820	1.38	32	26.18	18.97	4.90	3.55	2.55		
1821	1.43	33	26.68	18.61	10.74	7.49	5.34		
1822	1.49	33	26.68	17.93					
1823	1.54	34	27.28	17.69	11.40	7.39	5.62		
1824	1.60	38	29.03	18.19	19.87	12.45	9.73		
1825	1.65	41	30.18	18.29	17.30	10.48	5.42		

1826	1.70	41	30.18	17.71	39.32	23.07	12.49	
1827	1.76	41	30.18	17.17				
1828	1.81	41	30.18	16.66	17.15	9.47	6.30	
1829	1.87	52	32.53	17.43	15.27	8.18	6.63	
1830	1.92	61	33.98	17.70	24.18	12.59	10.13	70.87
1831	1.97	70	35.03	17.77	46.41	23.55	13.98	
1832	2.02	77	36.48	18.04	50.72	25.09	15.15	
1833	2.07	85	38.43	18.54	57.53	27.75	17.44	
1834	2.12	93	41.23	19.41	68.10	32.06	20.65	
1835	2.18	93	41.23	18.96	78.62	36.15	26.42	
1836	2.23	86	31.3	14.06	72.50	32.57	26.18	
1837	2.28	98	37.1	16.29	79.12	34.75	17.57	
1838	2.33	95	36.6	15.72	63.14	27.12	13.32	
1839	2.38	95	36.6	15.38				
1840	2.43	96	36.8	15.14	52.80	21.73	9.35	79.00

Table 3: Great Britain vs. the United States, 1820-1850

Great Britain													
Yr.	Pop. (millions)	Listed Securities	Corp. #	Corporate Capital (\$millions)	Per Capita Corp. Capital	Bank Offices	Auth. Bank Capital (\$millions)	Per Capita Bank Capital (\$)	MS (\$mill.)	Per Capita MS (\$)	GNP (\$millions)	GNP per capita (\$)	\$/£ at Mint Parity
1820	13.87	135				750	30.38	2.19	209.00	15.07	1383.53	99.77	4.75
1821	14.10	138				765	35.20	2.50	363.75	25.80	1412.78	100.20	4.85
1822	14.32	141				780	40.02	2.80			1423.04	99.40	4.81
1823	14.53	144	127	495.40	34.09	795	44.84	3.09			1450.28	99.80	4.82
1824	14.75	147	283	726.50	49.26	810	49.66	3.37			1472.04	99.81	4.82
1825	14.96	150				825	54.48	3.64			1484.30	99.19	4.78
1826	15.18	153				840	59.30	3.91			1513.49	99.70	4.80
1827	15.40	156				855	64.12	4.16			1535.04	99.70	4.79
1828	15.61	159				870	68.94	4.42			1562.45	100.08	4.80
1829	15.83	162				885	73.76	4.66	297.60	18.80	1585.98	100.20	4.80
1830	16.04	165				900	78.58	4.90			1613.61	100.57	4.82
1831	16.26	168				955	83.40	5.13	946.44	58.21	1626.87	100.05	4.78
1832	16.49	171				1010	88.22	5.35			1680.46	101.93	4.78
1833	16.71	174	300	655.96	39.25	1065	93.04	5.57	854.58	51.14	1757.21	105.15	4.85
1834	16.94	177		862.84	50.94	1120	97.86	5.78	587.87	34.71	1804.25	106.52	4.83
1835	17.16	220		880.70	51.31	1175	102.68	5.98	619.70	36.10	1874.28	109.20	4.87
1836	17.39	294		898.56	51.67	1230	107.50	6.18	668.95	38.47	1928.84	110.92	4.87
1837	17.62	297		916.42	52.02	1285	112.32	6.38	678.93	38.54	1983.39	112.59	4.87
1838	17.84	300		934.28	52.36	1340	117.14	6.57	731.68	41.01	2036.19	114.12	4.87
1839	18.07	303		952.14	52.70	1395	121.96	6.75	708.96	39.24	2090.69	115.71	4.87
1840	18.29	306		970.00	53.02	1450	126.78	6.93	733.58	40.10	2145.20	117.26	4.87
1841	18.52	309		987.86	53.34	1474	131.60	7.11	737.13	39.80	2201.16	118.85	4.87
1842	18.75	312		1005.72	53.64	1498	136.42	7.28	753.97	40.21	2235.72	119.24	4.87
1843	18.98	315		1023.49	53.92	1522	141.24	7.44	758.11	39.94	2270.27	119.61	4.87
1844	19.21	641	947			1546	146.00	7.60	750.86	39.09	2304.82	119.98	4.87
1845	19.44	1131	971			1570	151.84	7.81			2339.37	120.34	4.87
1846	19.67	811	995			1594	157.68	8.02	733.55	37.29	2373.93	120.69	4.87
1847	19.90		1019			1618	163.52	8.22	770.54	38.72	2408.48	121.03	4.87
1848	20.13		1043			1642	169.36	8.41	809.39	40.21	2443.03	121.36	4.87
1849	20.36		1067			1666	175.20	8.60	847.95	41.65	2477.59	121.69	4.87
1850	20.59		1091			1685	181.04	8.79	888.65	43.16	2512.14	122.01	4.87

U. S.

Yr.	Pop. (mill.)	Listed Secs.	Corps #	Corporate Capital (\$millions)	Per Capita Corporate Capital	Banks	Auth. Bank Capital (\$mill.)	Per Capita Bank Capital (\$)	MS (\$mill.)	Per Capita MS	GNP (\$millions)	Per Capita GNP (\$)	US Securities Held Abroad (\$millions)
1820	10.04	139	1,312	973.01	96.91	328	194.60	19.38	85.00	8.47	841.00	83.76	

1821	10.32	142	1,096	906.16	87.85	274	181.23	17.57	96.00	9.31	806.00	78.14	30.00
1822	10.59	146	1,072	887.66	83.82	268	177.53	16.76	81.00	7.65	889.00	83.95	31.00
1823	10.87	159	1,100	868.37	79.92	275	173.67	15.98	88.00	8.10	873.00	80.35	
1824	11.14	193	1,204	928.75	83.37	301	185.75	16.67	88.00	7.90	894.00	80.25	38.00
1825	11.42	205	1,324	955.40	83.70	331	191.08	16.74	106.00	9.29	1014.00	88.83	
1826	11.69	212	1,328	954.90	81.68	332	190.98	16.34	108.00	9.24	967.00	82.72	
1827	11.97	209	1,336	962.57	80.45	334	192.51	16.09	101.00	8.44	980.00	81.91	
1828	12.24	199	1,424	987.07	80.64	356	197.41	16.13	114.00	9.31	1016.00	83.01	
1829	12.52	224	1,480	1005.32	80.33	370	201.06	16.07	105.00	8.39	1046.00	83.58	
1830	12.79	243	1,528	1027.02	80.30	382	205.40	16.06	114.00	8.91	1053.00	82.33	
1831	13.21	295	1,696	1102.90	83.49	424	220.58	16.70	155.00	11.73	1126.00	85.24	
1832	13.63	309	1,856	1214.75	89.12	464	242.95	17.82	150.00	11.01	1213.00	88.99	
1833	14.05	335	2,068	1425.60	101.47	517	285.12	20.29	168.00	11.96	1312.00	93.38	50.00
1834	14.47	278	2,232	1553.90	107.39	558	310.78	21.48	172.00	11.89	1333.00	92.12	
1835	14.89	346	2,816	1716.90	115.31	704	343.38	23.06	246.00	16.52	1574.00	105.71	
1836	15.31	328	2,852	2353.05	153.69	713	470.61	30.74	276.00	18.03	1817.00	118.68	
1837	15.73	345	3,152	2357.65	149.88	788	471.53	29.98	232.00	14.75	1781.00	113.22	
1838	16.15	351	3,316	1588.20	98.34	829	317.64	19.67	240.00	14.86	1800.00	111.46	110.00
1839	16.57	355	3,360	1635.65	98.71	840	327.13	19.74	215.00	12.98	1944.00	117.32	
1840	16.99	334	3,604	1792.20	105.49	901	358.44	21.10	186.00	10.95	1725.00	101.53	200.00
1841	17.60	325	3,136	1568.05	89.09	784	313.61	17.82	174.00	9.89	1759.00	99.94	
1842	18.21	338	2,768	1300.85	71.44	692	260.17	14.29	158.00	8.68	1636.00	89.84	189.64
1843	18.82	388	2,764	1144.30	60.80	691	228.86	12.16	194.00	10.31	1613.00	85.71	
1844	19.43	409	2,784	1054.35	54.26	696	210.87	10.85	214.00	11.01	1737.00	89.40	
1845	20.04	365	2,828	1030.25	51.41	707	206.05	10.28	241.00	12.03	1896.00	94.61	
1846	20.65	360	2,828	984.45	47.67	707	196.89	9.53	267.00	12.93	2020.00	97.82	
1847	21.26	354	2,860	1015.35	47.76	715	203.07	9.55	281.00	13.22	2320.00	109.13	
1848	21.87	364	3,004	1024.20	46.83	751	204.84	9.37	267.00	12.21	2140.00	97.85	
1849	22.48	382	3,128	1036.55	46.11	782	207.31	9.22	329.00	14.64	2264.00	100.71	
1850	23.05	430	3,296	1086.60	47.14	824	217.32	9.43	399.00	17.31	2556.00	110.89	220.00

Table 4: Securities Listed in Each Market

Year	Richmond	New Orleans	Charleston	Baltimore	Boston	Philadelphia	New York	TOTAL
1820	5	6	12	29	14	37	36	139
1821	5	4	10	30	15	38	40	142
1822	4	4	11	31	15	39	42	146
1823	5	4	12	31	18	39	50	159
1824	6	4	11	31	36	39	66	193
1825	8	9	10	28	34	48	68	205
1826	4	8	9	29	40	47	75	212
1827	3	5	11	29	40	53	68	209
1828	3	7	11	32	38	54	54	199
1829	4	9	13	43	37	54	64	224
1830	3	9	14	44	40	66	67	243
1831	3	0	14	48	43	115	72	295
1832	3	0	12	52	51	118	73	309
1833	4	0	13	53	52	122	91	335
1834	4	0	13	49	49	83	80	278
1835	4	0	15	49	50	138	90	346
1836	3	0	11	57	47	133	77	328
1837	3	0	12	59	56	135	80	345
1838	2	0	10	57	60	133	89	351
1839	6	0	8	56	62	133	90	355
1840	6	0	7	51	66	110	94	334
1841	7	0	12	49	64	100	93	325
1842	5	0	16	46	64	107	100	338
1843	5	0	15	43	109	101	115	388
1844	5	12	17	42	133	110	90	409
1845	6	12	18	38	114	100	77	365
1846	11	13	15	39	109	100	73	360
1847	10	13	13	40	107	95	76	354
1848	10	11	13	41	113	101	75	364
1849	10	11	15	50	122	99	75	382
1850	15	11	14	44	137	101	108	430

Table 5: Securities Trading Volumes in Three U.S. Markets, 1820-1844 (000 shares)

Year	New York	Philadelphia	Boston
1820	47		
1821	91		
1822			
1823			
1824	383		
1825	332		
1826			
1827			
1828	50		
1829	47		
1830	137		
1831	215		
1832	321		
1833	460		
1834	870	101	
1835	2542	507	
1836	1786	505	
1837	1251	244	14
1838	768	127	15
1839	1152	163	15
1840	1280	192	24
1841		141	20
1842		34	
1843			
1844		639	

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(Note: The references listed here include only those explicitly cited in this paper. For the sources used to compile the tables, see this study's extensive data appendix, "Financial Data Estimations: Canada, New York, the United States, and Great Britain, 1790-1850," which can be downloaded at <http://pages.stern.nyu.edu/~rwright/>.)

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