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5 Regional Interest Rates in Antebellum America

Howard Bodenhorn and Hugh Rockoff

5.1 The Debate Over the Short-term Capital Market

In one of the most famous papers in the literature of economic history, Lance Davis showed that short-term regional interest rates in the United States varied widely in the immediate postbellum years and converged slowly.[1] This paper stirred enormous interest among economic historians because it challenged the conventional wisdom that financial markets quickly and completely eliminate price differentials among assets bearing the same risk. A number of explanations of the pace and degree of convergence have been offered. Davis stressed the extension of the commercial-paper market; Richard Sylla, increased competition in banking and especially the provision for smaller national banks in the Gold Standard Act of 1900; Gene Smiley, risk and uncertainty as well as developments in the commercial-paper market; John James, the revival of free banking; Jeffrey Williamson, changing demands for capital; and Marie Elizabeth Sushka and Brian W. Barrett, the development of the stock market; and one of the authors of this paper, a number of years ago, argued that the risk of bank failure was a crucial determinant of the differences in the rate of return to bank capital.[2] Various attempts have also

The authors wish to thank Michael Bordo, Stanley Engerman, John James, Richard Keehn, Gene Smiley, Richard Sylla, and Eugene White for numerous helpful comments on previous drafts. As usual, any remaining errors are our responsibility.

1. Lance Davis, "The Investment Market, 1870–1914: Evolution of a National Market," *Journal of Economic History*, 25 (Sept. 1965), pp. 355–99.

2. Richard Sylla, "Federal Policy, Banking Market Structure, and Capital Mobilization in the United States, 1863–1913," *Journal of Economic History*, 29 (Dec. 1969), pp. 657–86; Gene Smiley, "Interest Rate Movements in the United States, 1888–1913," *Journal of Economic History*, 35 (Sept. 1975), pp. 591–620; John James, "The Development of the National Money Market," *Journal of Economic History*, 36 (Dec. 1976), pp. 878–97; Jeffrey G. Williamson, *Late Nineteenth Century American Development: A General Equilibrium History* (New York, 1974), chap. 6, pp. 119–45; Marie Elizabeth Sushka and Brian W. Barrett, "Banking Structure and the National Capital Market 1869–1914," *Journal of Economic History*, 44 (June 1984), pp. 463–77;

been made to refine Davis's estimates, as well as to see whether a similar phenomenon can be observed within a given state or in other countries.[3] Barry Eichengreen has examined the degree of integration in the mortgage market in 1890.[4]

But so far no attempt has been made to ask whether a related pattern held in the United States before the Civil War. Such an effort is important for several reasons. For one thing, the standard interpretation of the postbellum years may be misleading. The divergent character of rates in the aftermath of the Civil War may be a product of the disruption of the capital market during the war. This is most likely to be the case for the South, a major contributor to the impression that rates were divergent until late in the nineteenth century, and for the Pacific Coast which was left with a different monetary standard until specie payments were resumed in 1879.

If this conjecture were true, it would shed new light on the controversy over the convergence of the postwar rates. If interest rate differentials were the result of irrational prejudices against investing in capital-poor regions, we would expect the late antebellum period to exhibit the same interest rate profile as the early postbellum period. But if, for example, the postbellum pattern was the result of the disruptions caused by the war, including the local bank monopolies fostered by the National Banking Act (Sylla's thesis), then we would expect to see prewar rates close together, or at least exhibiting a different pattern of divergence. In any case, the war caused major disturbances to the normal functioning of the capital market. By looking at the antebellum rates we can establish a better benchmark for our examination of postbellum trends.

Antebellum rates would also be relevant to an issue that has been of special interest to Robert Fogel. One of the questions explored in *Time on the Cross* is whether slavery was profitable in the conventional business sense of the term. After the profitability of slavery is measured, the question becomes, With what alternative investment should we compare slavery? In *Time on the Cross*, Fogel and Stanley Engerman compare the rates of return to slavery

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Hugh Rockoff, "Regional Interest Rates and Bank Failures," *Explorations in Economic History*, 14 (Winter 1977), pp. 90–95. This list is not intended to be complete. The point is simply to illustrate the wide range of work stimulated by Davis's paper.

3. For the former, see Gene Smiley, "Interest Rate Movements"; and John James, "Banking Market Structure, Risk, and the Pattern of Local Interest Rates in the United States, 1893–1911," *Review of Economics and Statistics*, 58 (Nov. 1976), pp. 453–62. For studies on the latter, see Richard Keehn, "Market Power and Bank Lending: Some Evidence from Wisconsin, 1870–1900," *Journal of Economic History*, 35 (Sept. 1975), pp. 591–620; Kenneth A. Lewis and Kozo Yamamura, "Industrialization and Interregional Interest Rate Structure: The Japanese Case, 1889–1925," *Explorations in Economic History*, 8 (Summer 1971), pp. 473–99; and David F. Good, "Financial Integration in Late Nineteenth-Century Austria," *Journal of Economic History*, 37 (Dec. 1977), pp. 890–910.

4. Barry Eichengreen, "Mortgage Interest Rates in the Populist Era," *American Economic Review*, 74 (Dec. 1984), pp. 995–1015.

with those to northern textile mills and southern railroads. Robert Evans presented data on short-term financial instruments and northern and southern railroads. Alfred H. Conrad and John R. Meyer relied on the rate of return on government bonds in their pioneering research.[5] Banking was an institution with which southern planters were familiar, and it provided a reasonable alternative for a planter seeking to shift some of his wealth into financial assets. So antebellum rates of return constructed from the type of data explored in the literature on postbellum regional rates could help clarify where slavery fell in the spectrum of available returns.

For these reasons we have combined information from a variety of sources to create a portrait of regional interest rates in the United States in the four decades before the Civil War. We discuss possible measures of interest rates from a theoretical point of view in section 5.2. The data and methods we use to derive our estimates follow in section 5.3. We present our basic interest rate series in section 5.4. These series, we believe, provide strong evidence that the interregional short-term capital market was integrated well before the Civil War. In section 5.5 we take a closer look at a cross section of states in the early 1850s, when additional data are available, which reinforces the conclusions drawn from the longer time series. In section 5.6 we tentatively reject an alternative explanation of the finding that regional interest rates were close together before the Civil War, that rates were held to the same level by usury laws. We examine evidence on the rate of return to bank capital, a long-term rate relevant to the debate over the profitability of slavery, in section 5.7. In section 5.8 we examine the impact of the Civil War on the regional dispersion of rates. Lastly, in section 5.9 we summarize our major findings and conclusions.

5.2 Measures of Interest Rates Derived from Bank Data

In the postbellum period the reports required by the National Banking Act provided data on bank earnings and earning assets. So it is relatively simple to derive a measure of short-term interest rates by taking a ratio of the two. It is true that this variable is not identical to an average of the rates specified in loan agreements. It is only a proxy for this purpose. But the net earnings ratio is more relevant than the average interest rate on loan agreements to decisions to allocate capital within the banking system. The net earnings ratio, in other words, is the right variable to use in a test for capital market integration.

Only limited sorts of data are available for the antebellum period, so it is necessary to consider in some detail how the surviving records can be used to

5. Robert W. Fogel and Stanley L. Engerman, *Time on the Cross: The Economics of American Negro Slavery* (Boston, 1974), vol. 1, p. 70; Robert Evans, Jr., "The Economics of American Negro Slavery," in *Aspects of Labor Economics: A Conference of the Universities–National Bureau Committee for Economic Research* (Princeton, 1962), pp. 203–08; Alfred H. Conrad and John R. Meyer, "The Economics of Slavery in the Ante Bellum South," *Journal of Political Economy*, 66 (Apr. 1958), pp. 43–92.

compute net earnings measures analogous to those computed for the postbellum period. Typically, we can find balance sheets for banks or groups of banks, usually on an annual basis, and, more rarely, dividend rates. From these bits of information several rates of return can be calculated. A typical antebellum balance sheet is given below.

Assets	Liabilities
Specie	Circulation
Notes of Other Banks	Deposits
Due from Other Banks	Other Liabilities
Loans and Discounts	Contingent Fund
Bonds	Surplus
Real Estate and Other Assets	Capital

The specie of the bank is the bank's gold and silver reserve and, of course, earns no interest. "Notes of Other Banks" and "Due from Other Banks" stand next to specie in terms of liquidity, and we have treated them as if they typically bear no interest. Some bankers' balances paid interest, but we do not know of any evidence on actual rates paid. In any case, bankers' balances would have paid a relatively low rate and were typically a small proportion of assets. "Loans and Discounts" are the main earning assets of the banks. The term "discount" was used frequently because a typical method of lending was the discounting of promissory notes. A bank might also own municipal, state, federal, railroad, or canal bonds. These could be sold on a national market and bore a lower rate of interest than loans to individuals. The last item, "Real Estate and Other Assets" includes the building, the flagpole, and any earning properties the bank owned. We have treated this item, normally rather small due to legal restrictions, as a non-earning asset.

On the liability side of the balance sheet we find the bank's "Circulation." This is the currency the bank issues which then "circulates" from hand to hand as money. Bank notes bore no interest. Deposits may be either interest bearing or non-interest bearing, although our limited information for New England suggests that the proportion of interest bearing deposits was normally rather small.

The final entries consist of the equity accounts. Paid-in capital is the amount of capital stock of the corporation outstanding. It is the "Contingent Fund" and "Surplus" accounts that are of importance in this study. In modern vernacular, these funds are equivalent to loan-loss and retained earnings accounts, respectively. In some states the legislative charters required the banks to retain a contingent fund to be used against future bad debts, or uncollectible loans or discounts. In other cases, banks adopted the practice as part of a sound banking policy.[6] The surplus or profit-and-loss account is equivalent to

6. After the collapse of the Bank of the Commonwealth in 1834–35, the legislature required that the banks could not pay dividends unless a contingent fund equal to 2 percent of the capital

a modern retained earnings fund. Any current net earnings not paid out as current dividends were transferred to this account to be paid out at a later date.

From these balance sheet items, and from the dividends paid to shareholders, we can construct several rates of return. Below we concentrate on two measures. First, we view the matter from the point of view of a bank manager and compute the ratio of dividends plus change in surplus less interest on bonds divided by loans. These measures address the issue of whether local net-lending rates were equalized by competition among banks and other intermediaries. Second, we view the matter from the point of view of a bank investor and measure the ratio of dividends plus retained earnings to capital plus surplus.

Equalization of one of these rates across regions, of course, is neither necessary nor sufficient to prove that the capital market was efficient. Risk, uncertainty, the costs of acquiring information about borrowers, and other costs of banking might differ from region to region. This is the burden of George Stigler's criticism of Davis's work.[7] Our basic response is to take a comparative approach, to see whether the differences we observe in the antebellum period are large or small when compared with differences observed in markets (generally at a later date or within a region) that qualitative evidence suggests we should regard as unified.

But how should differences between interest rates be measured? Should we look at the relative difference in rates or the absolute difference? For example, assume that initially the rate in region A was 8 percent and in region B, 10 percent. Later the rate fell to 2 percent in A and 3 percent in B. In absolute terms the gap has narrowed from 2 percent to 1 percent. But in relative terms it has widened from 22 percent in the initial period (2/9) to 40 percent (1/2.5) in the later period.

The consensus in the literature is that absolute differences are what count. Smiley's use of the coefficient of variation to measure dispersion, for example, was criticized by both Sylla and James whose argument is simply that a dollar is a dollar.[8] If arbitrageurs can make additional profits by moving money from region A to region B, they will do so, and the supply response will depend on the size of the gain. We must confess to some uneasiness about this argument. It seems to neglect the declining marginal utility of further gains when interest

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stock was maintained ("Statement of the Bank of Kentucky and Branches," *Journal of the House of Representatives of Kentucky* [1859–60], pp. 296–97).

Although no law was found stating that banks were required to hold a contingent fund, most of the Virginia banks reported such a fund separately, as did several of the Philadelphia banks.

7. George Stigler, "Imperfections in the Capital Market," *Journal of Political Economy,* 75 (June 1967), pp. 113–22, reprinted in *The Organization of Industry* (Homewood, 1968), p. 116.

8. Richard Sylla, "Financial Intermediaries in Economic History: Quantitative Research on the Seminal Hypotheses of Lance Davis and Alexander Gerschenkron," in *Recent Developments in the Study of Business History: Essays in Memory of Herman E. Krooss,* Robert E. Gallman, ed., *Research in Economic History,* supplement 1 (1977), p. 68; John James, "The Development of the National Money Market," pp. 879–80.

rates are already high. Will an investor in region A be as likely to move capital to region B in response to a small absolute gain when the rate in region A is 8 percent as when it is only 2 percent? But, in the analysis below, we will concentrate on absolute differentials to maintain comparability with postbellum studies.

5.3 The Sources of the Data and the Computation of the Rates

As all students of American banking history are aware, bank data for the antebellum period are scarce and scattered. One advantage of the National Banking Act is that uniform bank reports were collected and published by the Comptroller of the Currency. During the antebellum period, states were the regulators of the banks within their jurisdictions. Most states required that banks return quarterly or annual reports of condition to the legislature. These reports were typically then printed in the state's legislative documents or journals and often found their way into contemporary journals, such as *The Bankers' Magazine,* Hunt's *Merchants' Magazine and Commercial Review,* and local newspapers. Most of the data used here, however, are from the original sources—state legislative reports and documents. In some cases it was necessary to use the Reports of the Secretary of the Treasury of the United States as reported in the *House Executive Documents.*[9] The results reported here are calculated from data for eight states for the period 1815 to 1860.[10] No claim is made that the data assembled are exhaustive, but they should reasonably reflect the regional pattern of interest rates from 1815 through 1860. Further research could add more series to the present study, but it is unlikely that they would contradict the findings reported here.

We included at least one state from each of the four regions east of the Mississippi defined by Davis: New England, Middle Atlantic, South, and the Old Northwest. Our data come primarily from Massachusetts, Rhode Island, New York City, Pennsylvania, Virginia, South Carolina, Tennessee, Kentucky, and Indiana. The Indiana figures are those of the State Bank of Indiana, which was a state-owned, statewide banking monopoly until 1856. The South Carolina figures are those of the state-owned Bank of the State of South Carolina. Although the South Carolina bank was not a monopoly, it had three branches and was the largest institution in the state. Kentucky, too, had a state-owned, state-branched bank—The Bank of the Commonwealth—until its liquidation began in 1835.

9. The Secretary of the Treasury of the United States collected the data for several years, from 1834 to 1862, but the reporting is sketchy in the early years, and no reports were collected or published during the Polk administration (i.e., the 27th and 28th congresses).

10. Reporting dates varied widely across states and even within states from year to year. The reports used here were those closest to year-end when a choice of dates was possible. In a few cases, linear interpolation was used to develop statements not available, but this was kept to an absolute minimum.

The annual net profit of the individual bank is calculated as dividends paid out in the past year plus changes in the surplus and contingent fund accounts since the last annual statement. This figure is then corrected in two respects. Bank portfolios included government securities, railroad and canal securities, and in some cases, direct loans to the state.[11] To obtain an accurate proxy for bank lending rates, income from these sources is subtracted. The simplest method is employed here, by subtracting 5 percent of each bank's reported holdings of public and private securities. Most federal, state, and city bonds as well as private bonds were issued with a nominal interest rate of 4 to 6 percent throughout the antebellum period.[12] Actual yields varied depending on the price paid for the security, but bank statements rarely revealed the type of security nor the price paid for them so more sophisticated adjustments are not possible.

The second adjustment made was the addition of taxes paid by the banks. Tax rates and taxing systems varied widely across states, but some general statements can be made. States adopted one of two schemes or some combination thereof. The New England states placed an annual tax on the paid-in capital of the bank, while states in the Middle Atlantic region and the South imposed taxes on dividend payments. For a statement of tax schemes and rates in various states, see Table 5.1.

The calculation of the interest rate proxies is then:

$$\text{Rate of Return on Earning Assets} = \text{Net Earnings}_{(t)}/\text{Earning Assets}_{(t-1)}$$

where $\text{Net Earnings}_{(t)} = [\text{Dividends}_{(t)} + \text{Surplus}_{(t)} - \text{Surplus}_{(t-1)} - \text{Securities Earnings}_{(t)} + \text{Taxes}_{(t)}]$; Earning Assets = Discounts + Bills of Exchange.[13]

A number of potential refinements are possible in this measure. But experiments with data from the 1850s suggest that such refinements do not significantly alter the results. It could be argued, as we noted above, that interest paid on deposits should be added to the numerator since it is part of the gross earnings of a bank. We were able to make such an adjustment for Massachu-

11. In most Pennsylvania bank charters, a clause was inserted requiring the bank to loan to the state at short notice during fiscal emergencies at 5 percent annual interest. See Anna J. Schwartz, "The Beginning of Competitive Banking in Philadelphia, 1782–1809," *Journal of Political Economy,* 55 (Oct. 1947), pp. 417–31.

12. Sidney Homer, *A History of Interest Rates* (New Brunswick, 1963), chap. 16, pp. 274–326.

13. For the calculation of Net Earnings, New York City was one exception. We have been unable to determine the tax rate, if any, on New York banks. Therefore, we have not added in the tax component; neither have we subtracted out the security earnings term. This may introduce some bias, but our experience with the other states indicates that the two terms are about equal.

For Earning Assets, we followed the example of John James, "Banking Market Structure," p. 461, so that the divisor is the value of Earning Assets lagged one period. James argues that using a contemporaneous value of the divisor biases the calculation during periods of either rapid expansion or contraction. Alternative specifications using contemporaneous values and averages of (t) and $(t-1)$ values altered the results very little.

Table 5.1 **Bank Tax Schemes and Rates by State**

State	Years	Rate	Base
Massachusetts	1820–60	1%	Paid-in capital
Rhode Island	1820–47	0.125	Paid-in capital
	1848–60	0.667	Paid-in capital
Pennsylvania	1815–34	8	Annual dividend
	1835–60	8–50	Annual dividend
Virginia	1820–60	0.5	Paid-in capital
Kentucky	1835–60	1	Paid-in capital

Note: The Pennsylvania tax rate from 1835 to 1860 was a graduated scale depending on the dividend percentage. Dividends of 6 percent of capital were taxed at 8 percent, with rates increasing to 50 percent with dividends of 12 percent or more.

Sources: N. S. B. Gras, *Massachusetts First National Bank of Boston* (Cambridge, Mass., 1937); Rhode Island *Acts and Resolves*, 1820–1860; J. Van Fenstermaker, *The Development of American Commercial Banking, 1782–1837* (Kent, Ohio, 1965); *Virginia House Documents*, 1820–1860; and *Kentucky Legislative Documents*, 1841–1860.

setts and Rhode Island, and this adjustment made almost no difference in the results; the proportion of deposits bearing interest was small and declining. In some cases the month in which balance sheets are reported differ from year to year. But again, experiments for the 1850s showed that interpolating all balance sheet data to June dates did not significantly alter the results. All bonds were assumed to pay interest at 5 percent. This rate is appropriate for government bonds, but it is conceivable that some securities held by banks—canal bonds, railroad bonds, some state bonds, and so on—paid somewhat higher rates. This would more likely be the case in the western and southern states, so our assumption biases the computations against finding interregional integration. But in any case, the ratio of bond holdings to loans was too small in all of the states we looked at for such adjustments to materially affect the rates of return.

5.4 The Results

The results of our computations are reported in Table 5.2 and Figures 5.1–5.4. The figures (which show three-year moving averages) reveal a remarkable degree of interregional financial integration before the Civil War.[14] Interest rates in most of the states shown were close to, and varied around, the rate in New York City, the nation's emerging financial center. The pattern holds, moreover, from the mid–1830s when most of our time-series begin. Indeed, in a few cases where we have the data, the pattern seems to have held even in the 1820s. We take these results to mean that the business of banking was

14. New England includes Rhode Island and Massachusetts. The Middle Atlantic includes New York and Pennsylvania. The South includes South Carolina and Virginia. The West includes Indiana, Kentucky, and Tennessee.

Table 5.2 Net Rates of Return on Earnings Assets

Year	Boston	Massachusetts (except Boston)	Rhode Island	New York City	Philadelphia	Pennsylvania (except Philadelphia)
1815					4.62%	
1816					5.70	
1817					3.69	
1818					5.55	
1819	5.48%	4.99%			3.84	
1820	6.12	5.34			5.60	4.24%
1821	5.61	4.76			4.78	4.16
1822	4.28	4.61			5.65	4.52
1823	4.70	4.65			3.42	4.35
1824	n.a.	n.a.			5.21	3.92
1825	n.a.	n.a.			4.24	4.48
1826	n.a.	n.a.			5.86	4.32
1827	4.05	5.50			4.95	4.28
1828	4.64	5.08			5.82	4.62
1829	4.93	5.07			4.58	4.37
1830	4.88	n.a.			4.97	5.89
1831	5.42	n.a.			5.15	5.19
1832	4.05	n.a.			4.48	5.61
1833	4.94	5.21		5.03%	6.54	5.95
1834	4.31	5.07		5.69	3.41	4.04
1835	4.52	5.19	6.24%	5.11	6.12	5.69
1836	4.56	5.28	5.78	6.82	5.74	6.35
1837	5.09	5.53	4.88	5.91	4.75	4.96
1838	5.21	5.30	5.27	5.33	5.47	4.05
1839	6.09	4.94	5.46	4.24	3.44	4.78
1840	5.45	4.83	4.39	5.57	5.73	4.34
1841	5.46	n.a.	5.80	5.27	4.41	4.81
1842	5.51	n.a.	5.34	3.95	2.50	n.a.
1843	4.89	n.a.	4.86	5.37	3.72	3.40
1844	4.28	n.a.	3.94	5.80	5.18	5.13
1845	4.31	4.34	5.40	5.21	4.20	4.82
1846	5.25	5.00	6.03	4.69	6.39	4.13
1847	4.51	4.92	5.57	5.04	5.21	4.08
1848	5.87	5.10	4.58	5.32	4.83	4.97
1849	6.02	5.49	6.18	7.17	6.35	4.48
1850	5.15	5.16	5.31	5.62	6.47	4.79
1851	5.14	5.23	5.58	6.32	4.69	5.07
1852	5.13	5.42	5.24	7.23	5.56	4.07
1853	5.73	5.92	5.94	4.99	5.10	5.50
1854	5.57	5.47	5.82	4.98	5.31	5.84
1855	5.87	5.75	5.20	5.87	5.70	5.96
1856	6.11	5.90	5.18	6.09	4.45	6.19
1857	6.01	5.59	5.81	5.45	3.16	5.28
1858	4.75	5.58	5.53	4.95	6.46	5.32
1859	4.67	5.18	5.49	4.62	4.32	6.04

(*continued*)

Table 5.2 (continued)

Year	Virginia	South Carolina	New Orleans	Kentucky	Tennessee	Indiana
1815		8.55%				
1816		5.55				
1817		5.45				
1818		8.35				
1819		4.23				
1820		4.36				
1821		4.34				
1822	4.08%	5.77		6.33%		
1823	3.81	4.86		4.42		
1824	4.14	4.62		4.01		
1825	4.61	4.15		3.93		
1826	3.97	2.53		3.00		
1827	4.97	7.81		3.12		
1828	3.97	4.50		3.83		
1829	4.23	4.09		3.51		
1830	4.45	4.14		5.02		
1831	4.84	4.49		3.48		
1832	6.28	4.24		3.35		
1833	8.02	4.37		2.85		
1834	3.75	3.54	6.82%	n.a.		
1835	4.43	4.12	7.54	5.89		7.97%
1836	7.22	4.37	7.16	7.97		7.60
1837	5.70	6.11	11.28	6.03		8.50
1838	4.41	6.00	7.68	5.93		8.35
1839	6.78	5.11	10.15	4.38		n.a.
1840	5.43	3.10	9.01	3.30	6.85%	n.a.
1841	4.21	5.75	8.86	4.91	5.48	7.65
1842	4.20	5.97	8.85	6.88	7.41	5.05
1843	4.12	6.20	n.a.	6.02	4.85	2.85
1844	4.15	6.03	n.a.	6.41	6.99	5.74
1845	5.10	5.76	n.a.	6.29	4.24	7.86
1846	3.95	5.42	n.a.	5.72	5.66	n.a.
1847	4.99	7.11	n.a.	5.44	4.92	6.32
1848	4.43	5.07	7.73	7.57	5.62	8.36
1849	4.19	6.03	4.84	5.02	5.50	7.77
1850	4.53	9.28	7.42	6.22	4.01	9.45
1851	4.72	7.67	7.79	7.00	6.08	5.95
1852	5.53	6.38	7.91	7.01	4.77	6.81
1853	4.46	6.71	7.38	5.80	4.38	6.37
1854	5.04	5.57	8.50	5.00	5.19	7.70
1855	5.18	6.03	12.81	8.42	4.65	10.89
1856	4.29	6.30		4.80	7.35	9.25
1857	3.88	5.93		4.96	7.46	
1858	2.92	5.98		5.78	6.79	
1859	5.96	6.76		6.25	4.48	

Notes: All values are simple averages for all reporting banks in each year for which sufficient information existed to make the rate of return calculations. For a complete list of all banks used in the sample, see Howard Bodenhorn, "Banking and the Integration of Antebellum American Capital Markets, 1815–1859" (Ph.D. dissertation, Rutgers University, 1990), appendix C. n.a. = not available.

Table 5.2 (continued)

Sources: **United States Documents**: U.S. House of Representatives, *Executive Document*, No. 105, 22d Cong.; Nos. 498 and 190, 23d Cong.; No. 65, 24th Cong.; Nos. 79, 471, and 227, 25th Cong.; No. 172 and 111, 26th Cong.; Nos. 226 and 120, 29th Cong.; No. 77, 30th Cong.; No. 68, 31st Cong.; Nos. 122 and 66, 32d Cong.; Nos. 102 and 82, 33d Cong.; Nos. 102 and 87, 34th Cong.; Nos. 107 and 112, 35th Cong.; Nos. 49 and 77, 36th Cong. **Massachusetts**: "A True Abstract of the Statements of Several Bank Corporations in the Commonwealth of Massachusetts," broadsides printed by order of the Senate, 1819, 1820, 1822–23, 1827–29. **Rhode Island**: "Returns of the Several Banks made to the General Assembly," *Acts and Resolves*, 1834, 1837–45, 1848. **New York State Documents**: *Assembly Documents*, 1832–33, 1835–37, 1839–48, 1856, 1858–59; "Report of the State Banking Department," 1860. **Pennsylvania**: "Report of the Auditor General, Accompanied with a Statement of Certain Banks," *Senate Journal*, 1814–17, 1819–31, 1833–38, 1841–52; *House Journal*, 1818, 1832, 1840; *Legislative Documents*, 1853–60. **Virginia**: *House Journal*, 1822–24, 1827–31; *House Documents*, 1825, 1826, 1832–60. **South Carolina**: *Reports and Resolutions of the General Assembly of South Carolina*, 1844, 1852–54, 1860; *Compilation of all the Acts, Resolutions, Reports and Other Documents in Relation to the Bank of the State of South Carolina, Affording Full Information Concerning that Institution* (Columbia, 1848). **Kentucky**: *House Journal*, 1822, 1825, 1832–33, 1860; *Senate Journal*, 1823–24, 1826–32, 1834–38, 1840; *Legislative Documents*, 1841–51, 1856, 1858. **Tennessee**: *House Journal*, 1845, 1848–49, 1851, 1853–55, 1859; *Senate Journal*, 1842–43, 1849. **Other Sources**: Norman Scott B. Gras, *The Massachusetts First National Bank of Boston, 1784–1934* (Cambridge, Mass., 1937), pp. 711–40; J. Mauldin Lesesne, *The Bank of the State of South Carolina: A General and Political History* (Columbia, South Carolina, 1970), pp. 185–86; Joseph G. Martin, *Twenty-One Years in the Boston Stock Market* (Boston, 1927); Nicholas B. Wainwright, *History of the Philadelphia National Bank* (Philadelphia, 1953), pp. 244–45; Lawrence Lewis, Jr., *A History of the Bank of North America* (Philadelphia, 1882), pp. 152–53; William F. Harding, "The State Bank of Indiana," *Journal of Political Economy*, 4 (Dec. 1895), pp. 1–36 and appendix; *Albany Daily Argus* (Albany), various issues, 1849–52; *Bicknell's Counterfeit Detector, Banknote Reporter and General Prices Current*, various issues, 1830–57; *Philadelphia Price Current*, various issues, 1827–30; *Commercial and Shipping List and Philadelphia Price Current*, various issues, 1830–59; *New Orleans Price Current*, various issues, 1835–59; *Daily Picayune*, various issues, 1834–60; *New York Herald Tribune*, various issues, 1842–60; *Banker's Magazine and Statistical Register*, various issus, 1848–60.

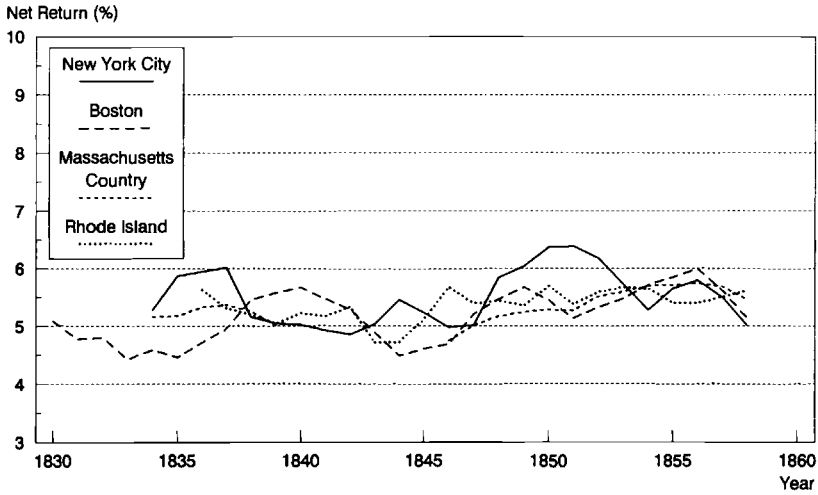

Fig. 5.1 Returns on the Earnings Assets of Banks: New England Region
Note: Returns are three-year moving averages.
Source: See Table 5.2.

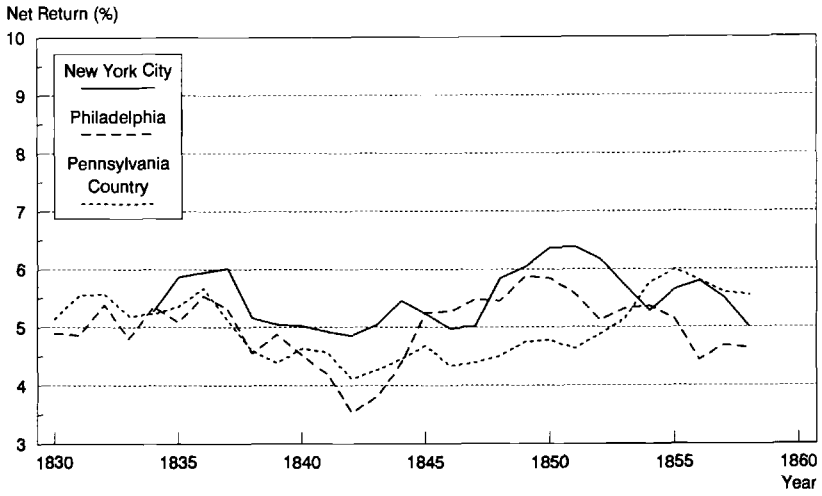

Fig. 5.2 Returns on the Earnings Assets of Banks: Middle Atlantic Region
Note: Returns are three-year moving averages.
Source: See Table 5.2.

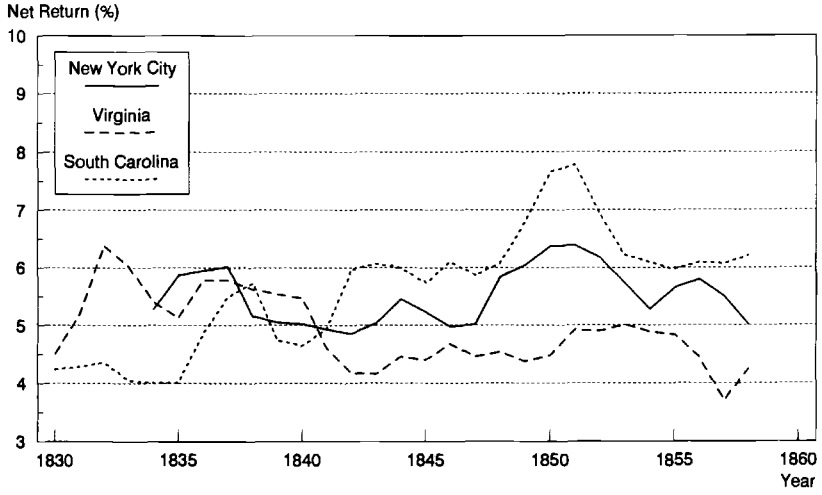

Fig. 5.3 Returns on the Earnings Assets of Banks: South Atlantic Region
Note: Returns are three-year moving averages.
Source: See Table 5.2.

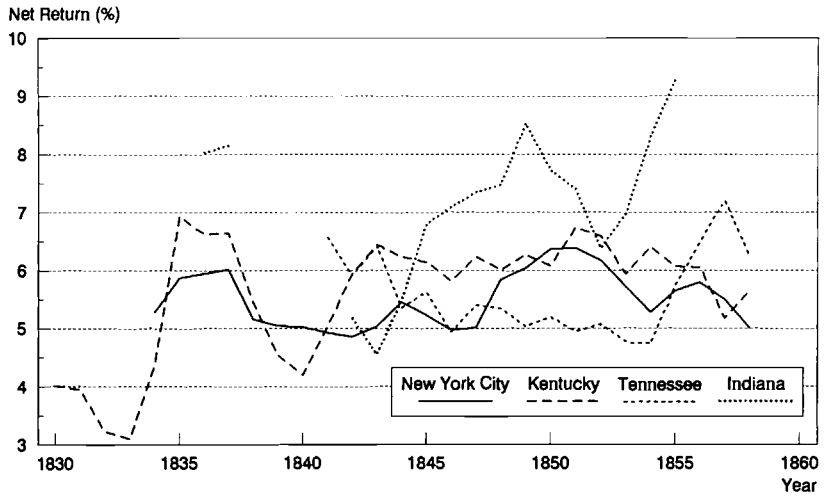

Fig. 5.4 Returns on the Earnings Assets of Banks: Western and Southwestern Regions
Note: Returns are three-year moving averages.
Source: See Table 5.2.

similar in developed regions of the country (risks and administrative costs were similar) and that short-term capital was reallocated until returns were roughly equalized.

Some of the results are, perhaps, to be expected. Boston, Philadelphia, and New York City were all thriving financial centers. Merchants and bankers in these cities would have been informed of market conditions and could have readily moved funds from one city to another. Nor is it surprising that rates within New England were fairly close together and consistent with New York City (Figure 5.1). A strong case can be made that if any region of the country constituted a unified capital market before the Civil War, it was New England. Even by the 1850s, banking had a long history in the region, and its banks, moreover, were subject to the Suffolk system of note redemption.[15] Banking regulations (including usury laws) were similar from state to state. There was very little in the way of free banking in New England, but it has been argued that legislatures in this region were relatively free in granting charters.[16] Even the accounting frameworks within New England seem to have been similar. But such considerations are only part of the story. More important was that

15. The Suffolk was a bank in Boston. By agreement of the Boston banks, all out of city notes were turned over to the Suffolk for redemption. This arrangement had the effect of keeping New England notes at par.

16. See Richard Sylla, "Early American Banking: The Significance of the Corporate Form," *Business and Economic History,* 14 (Mar. 1985), pp. 105–23. Schwartz, "The Beginning of Competitive Banking," demonstrates that competition can take hold quickly, even in a system that requires a legislative charter for each new bank.

New England was a long-settled region with limited variation in its legal, political, and cultural institutions. Surely networks of businessmen and bankers existed—former classmates at Bowdoin or Harvard —through which capital could move from one part of New England to another. The differences in interest rates among states in New England, in other words, were as low as the technology and varying risks and business conditions of the time would allow.

The results for the South, however, are somewhat unexpected. As shown in Figure 5.3, short-term rates in South Carolina and Virginia seemed to be tied in with those in New York City throughout the antebellum period. In the 1850s, rates in Virginia averaged about 100 basis points less than rates in New York City, and rates in South Carolina about 100 basis points more.[17] But the main point is simply that the differences between the South and New York City were not very great. Differences of this magnitude appear in Davis's data after 1900, when there is considerable reason to believe the capital market was substantially unified. At that time, even with the costs of acquiring information much reduced by improved communication and National Banks operating within a common regulatory framework, rate differentials of 75 to 100 basis points were still common between regions. Over the period 1908 to 1914, for example, net rates of return for non-reserve-city banks in the region containing South Carolina and Virginia averaged almost 70 basis points more than those in New York City.[18]

It would be useful to have a long series for bank rates in New Orleans, but we have not been able to locate many dividend rates. Table 5.2 shows the rate for the Canal Bank. The rate earned by this bank appears to have been somewhat higher than the others we have been examining. But the Canal Bank also received income from its Canal Company, and the computations may not adjust fully for the income from this source. We also found dividend rates for all banks in New Orleans in 1858.[19] In that year, the dividend to earnings asset ratio was 6.16 percent, a rate that might be expected in the West. It is possible that net earnings were lower than dividends. The gap between assets and liabilities in the balance sheets in *De Bow's Review* declined from + $1,636 in September 1857 to − $664,993 in August 1858.[20] Adjusting for this decline would make the net return on earnings assets 3.57 percent. But the absence of complete balance sheets and a longer time-series make it hard to draw firm

17. To some extent this might be accounted for by regulatory differences. The South Carolina rates were produced by a state-owned banking system, while the Virginia rates were produced by a system that was highly competitive owing to the presence of branch banking.

18. Davis, "The Investment Market," p. 365.

19. *De Bow's Review,* 18 (1858), p. 562.

20. George D. Green, *Finance and Economic Development in the Old South: Louisiana Banking, 1804–1861* (Stanford, 1972), p. 204, shows a total for all of Louisiana, "other liabilities," that includes capital accounts. This item declines from $2.21 million in December 1857 to $0.46 million in January 1859.

conclusions about New Orleans. On the whole we are inclined to believe that rates there may have been somewhat higher than the eastern norm.

The finding that the older states of the South were integrated financially with the North, we should add, is only surprising if it is assumed that capital markets were fragmented before the Civil War and that the South was a separate region, poor in capital and lacking in entrepreneurial skills. The results are not so surprising when we start from the more recent view that the antebellum South had a rational, albeit morally abhorrent, economy.[21]

When we turn to the West (Figure 5.4), the results are similar although less clear-cut. In Kentucky (perhaps as much a southern as a western state) the rates are similar to those in the East. The Kentucky rate conforms to the New York City rate from the time our New York City rate becomes available in the 1830s. In the 1850s the Kentucky rate averaged only about 50 basis points more than the New York City rate. The Kentucky rates for the 1820s seem unusually low, and there is an interesting story behind them. The Panic of 1819 was particularly devastating for the farmers of Illinois, Tennessee, and Kentucky. In response, the three legislatures formed banks with the express purpose of relieving the "distresses of the community."[22] For example, the Bank of the Commonwealth of Kentucky was required by charter to extend low-interest loans to farmers and planters throughout the state. That the legislature was successful is evidenced by the relatively low rates during the period.

In Indiana, by way of contrast, rates appear to have been significantly above those in the East during the 1830s and 1840s. To some extent this may have been due to the monopoly position of the State Bank of Indiana. Note that in the mid–1850s, when the State Bank was challenged by banks established under a free-banking law, the rate appears to have fallen substantially. The high rates for 1855 and 1856, moreover, may be misleading since we are unable to separate current earnings from the realization of capital gains produced by the winding up of the affairs of the State Bank.[23] In short, we cannot rule out the possibility that there was a frontier premium in Indiana during part of our period. But in any case, rates in Indiana were approaching the eastern norm by the early 1850s.

21. Charles W. Calomiris and Larry Schweikart have reached a view of southern banking similar to ours based on balance sheet data and the performance of the southern systems in financial crises. See "Was the South Backward? North-South Differences in Antebellum Bank Performance during Normalcy and Crises" (manuscript, Northwestern University, 1988).

22. This section follows J. Van Fenstermaker, *The Development of American Commercial Banking, 1782–1837* (Kent, 1965), pp. 25–26. The quote is from p. 26.

23. Some of the earlier rates may also be overstated. There were several items on the balance sheet that we could not positively identify. These may have been short-term loans to the state. Deducting an interest allowance for these assets would further reduce the measured return on loans and discounts. The 5 percent rate we use for the return on stocks and bonds in the bank's portfolio may also be an understatement.

The question that naturally follows is how well the rates we have calculated reflect actual commercial bank lending rates. It is not necessary, to reiterate a point made above, that net returns mimic lending rates for net returns to provide us with useful information about the integration of the financial markets. But for many purposes, rates paid by borrowers are at issue. A few bits of data are available. Donald Adams has investigated Stephen Girard's private bank that operated in Philadelphia between 1812 and 1831. He calculated the average monthly discount rate charged by Girard's bank from January 1812 through October 1831, and Table 5.3 reproduces his results. Comparisons with our rates for Philadelphia reveal a near equality in most years. Results this close are somewhat unexpected, because the Girard Bank figures are gross while the Philadelphia numbers are net. But Stephen Girard was generally very conservative, investing heavily in government securities and "prime double-name paper."[24] The chartered Philadelphia banks, however, could not be as selective. Charter clauses mandated that the Philadelphia banks (and all Pennsylvania banks generally) make loans equaling at least 20 percent of their paid-in capital to farmers and mechanics in the state.[25] Since agriculture is traditionally risky and real estate security would have to be taken, these loan rates were probably higher than those for prime commercial paper.[26] Provided that default rates were low, both the gross and net returns would be higher if a substantial portion of a bank's portfolio was held in higher return assets.

We also examined the discount rates in New York City, Philadelphia, Boston, and New Orleans on various commercial instruments as reported in *Bankers' Magazine* and in local newspapers. These figures provide further evidence that the bank rates we calculate represent fairly accurately the pattern of financial integration in early America from the borrower's point of view. Table 5.4 shows the quotes on prime or first-class paper in all four cities. The discount rate on "prime paper" in New York City is closely followed by changes in the rates on similar instruments in the other cities. The only real exception is in 1858, when New York City rates were 3 percent while New Orleans reported an 8 percent rate.[27]

24. See Donald R. Adams, Jr., *Finance and Enterprise in Early America: A Study of Stephen Girard's Bank, 1812–1831* (Philadelphia, 1978). In 1815 almost 75 percent of the Girard Bank's earnings assets was in government debt. In 1816 and 1817 the figures were 45 and 46 percent, respectively (table 2, p. 33).

25. Van Fenstermaker, *The Development of American Commercial Banking*, p. 18.

26. The Philadelphia Bank operated an agent in Wilkes-Barre, probably for the purpose of extending loans primarily to farmers, to comply with the condition of its charter. The Pennsylvania Bank operated a branch at Easton for several years, as well. The debts outstanding at these branches were generally secured by bonds and mortgages ("Auditor General's Report on Banks," *Pennsylvania House Journals*, 1825–1829).

27. Borrowing rates might also differ from the net rates we examine because of cost differences among regions. But we have not found sufficient data to address this issue.

Table 5.3 Average Discount Rates at Girard's Bank, Philadelphia: 1815–1831

Year	Quarter I	Quarter II	Quarter III	Quarter IV
1815	6.07%	6.15%	5.39%	5.50%
1816	5.69	5.84	5.78	5.75
1817	5.79	5.36	5.62	5.85
1818	5.42	5.48	5.52	5.33
1819	5.45	5.35	5.81	5.63
1820	5.43	5.54	5.41	5.24
1821	5.07	5.43	5.53	5.43
1822	5.55	5.60	5.47	5.59
1823	5.40	5.64	5.54	5.63
1824	5.37	5.84	5.14	5.97
1825	5.32	5.88	5.57	5.62
1826	5.19	5.46	5.51	5.67
1827	5.88	5.47	5.80	5.43
1828	5.34	5.23	5.15	5.00
1829	4.92	5.47	5.03	5.90
1830	5.91	6.06	6.14	6.02
1831	5.12	5.95	5.45	n.a.

Source: Donald R. Adams, Jr., *Finance and Enterprise in Early America: A Study of Stephen Girard's Bank* (Philadelphia, 1978), p. 107. Used by permission of the author.

n.a. = not available.

5.5 A Cross Section for the First Half of the 1850s

Table 5.5 shows the rates earned for a list of states, including both those examined above and some additional states for which we have data for only a few years or data that are not strictly comparable. In New England we have added rates for Maine. These appear to be in line with the other rates and strengthen the picture of a unified capital market along the east coast. For the period 1850 to 1854, the rate in Maine averaged 4.73 compared with 5.83 in New York City. In the South we have added a few observations for the banks of Baltimore where the rates seem to have been low.

In the West we have added data for Ohio from Charles Clifford Huntington's classic history which contains earnings of Ohio banks in 1850, 1851, and 1853.[28] Table 5.5 presents rates based on these data for the years 1850 to 1853 by class of bank. The banking situation in Ohio was confused by the presence of four regulatory systems: the State Bank, the chartered banks, the independent banks, and free banks. The State Bank (a federation on the Indiana model) and the older chartered banks were relatively unconstrained in their selection of assets. The independent banks and the free banks, on the other hand, had bond-secured note issues. Our calculations for the latter two

28. Charles C. Huntington, *A History of Banking and Currency in Ohio Before the Civil War, Ohio Archaeological and Historical Publications*, vol. 24 (Columbus, 1915), pp. 440–41.

Table 5.4 **Commercial-Paper Rates at Selected Cities, 1841–1859**

Year	New York City	Philadelphia	Boston	New Orleans
1841	7%	8%	6%	
1842	7	9	8	
1843	3	5	4	
1844	4	5	5	
1845	5	6	6	
1846	7	7	9	
1847	5	6	6	
1848	8	7	18	
1849	5	6	9	
1850	5	7	7.5	
1851	6	7	7	
1852	4	6	5.5	
1853	5	7	8	8.5%
1854	8	12	11	10
1855	5	6	6	6
1856	6	7	8	6
1857	8	9	8	12
1858	4		4.5	6
1859	6		7	6

Note: Rates on high-grade paper. All observations are closest to the end of June of each year. When a spread was given in the source, the lower quote is reported in the table.

Sources: New York Herald Tribune, various issues, 1841–60; *New York Journal of Commerce,* various issues, 1841–60; *Bicknell's Counterfeit Detector, Banknote Reporter, and General Prices Current,* various issues, 1831–57; New Orleans *Daily Picayune,* various issues, 1853–59; and Frederick R. Macaulay, *The Movements of Interest Rates, Bond Yields and Stock Prices in the United States since 1856* (New York, 1938), pp. A248–A250.

classes are unusually sensitive to the assumption made about the interest paid on the bonds. According to Huntington, the bonds deposited normally bore 5 to 6 percent interest, but the banks often borrowed the securities, paying the owner 1 or 2 percent for their use.[29] In our calculations we have assumed a net return of zero, assuming, in other words, that income earned on bonds was offset in the aggregate by interest paid to lenders of the securities. Altogether, the Ohio rates during the period appear similar to, perhaps a bit below, the rates in Indiana and Kentucky, and are not substantially higher than rates in the eastern financial centers.

Finally, we have added some rates for California. Because these are not bank rates, they are not strictly comparable with the others we have computed. It seems likely that rates on the assets normally acquired by banks would have been lower. Nevertheless, the sketchy evidence we have found suggests that rates in California were extraordinarily high in the early 1850s. According to Hubert H. Bancroft, the interest rate "ruled at ten percent per month even after

29. Ibid., p. 441.

Table 5.5 A Cross-Section of Rates, 1850–1854

	1850	1851	1852	1853	1854	Average
New York City	5.62%	6.32%	7.23%	4.99%	4.98%	5.83%
Prime paper	6.00	6.00	4.50	7.00	8.00	6.30
Boston	5.15	5.14	5.13	5.73	5.57	5.34
Prime paper	7.00	6.25	5.00	6.00	n.a.	6.06
Massachusetts (except Boston)	5.16	5.23	5.42	5.92	5.47	5.44
Rhode Island	5.31	5.58	5.24	5.94	5.82	5.58
Maine	4.29	4.94	3.97	5.20	5.24	4.73
Philadelphia	6.47	4.69	5.56	5.10	5.31	5.43
Prime paper	7.00	7.00	6.00	8.00	12.00	8.00
Pennsylvania (except Philadelphia)	4.79	5.07	4.07	5.50	5.84	5.05
Baltimore	3.86	3.47	n.a.	n.a.	n.a.	3.67
Virginia	4.53	4.72	5.53	4.46	5.04	4.86
South Carolina	9.28	7.65	6.38	6.71	5.57	7.12
Tennessee	4.01	6.08	4.77	4.38	5.19	4.89
New Orleans[a]	7.42	7.79	7.91	7.38	8.50	7.80
Prime paper	n.a.	n.a.	n.a.	8.50	10.00	9.25
Indiana	9.45	5.95	6.81	6.37	7.70	7.26
Ohio						
State	5.46	5.91	6.07	6.23	n.a.	5.87
Chartered	7.00	5.00	n.a.	n.a.	n.a.	6.00
Independent	2.30	5.16	4.96	4.76	n.a.	4.07
Free	n.a.	n.a.	n.a.	6.52	n.a.	6.52
Kentucky	6.22	7.00	7.01	5.80	5.00	6.21
California	213.84	213.84	55.80	34.49	n.a.	129.49

Sources: **Maine**: *Annual Reports* of the Secretary of the Treasury on the Banks (see the House documents listed in Table 5.2). **Baltimore**: Dividends 1849–51—*Banker's Magazine*, vol. 6, p. 749; dividends 1852—vol. 7, p. 166; balance sheets: *Annual Reports* of the Secretary of the Treasury on the Banks. **Ohio**: Charles C. Huntington, *A History of Banking and Currency in Ohio Before the Civil War, Ohio Archaeological and Historical Publications*, vol. 24 (Columbus, 1915), pp. 440–41. **California**: Hubert Howe Bancroft, *History of California*, vol. 7 (San Francisco, 1890), pp. 161–62. The remaining rates are from Tables 5.2 and 5.4.

[a]Canal Bank.

n.a. = not available.

1849, or even double that for short loans. In 1852 it declined to three and soon after to two and a half percent per month, at which it stood for some time, while operations adjusted themselves more and more to eastern forms."[30] Sidney Homer records a number of private transactions in California at rates of 60 percent and more per year, and a loan on which the city of San Francisco paid 24 percent per year.[31] To some extent this state of affairs may have been

30. Hubert Howe Bancroft, *History of California*, vol. 7 (San Francisco, 1890), pp. 161–62.
31. Homer, *A History of Interest Rates*, p. 323.

due to legal restrictions. California's constitution prohibited the state from chartering note-issuing banks, and subsequent legislation made clear that the prohibition on note issue applied to private banks as well. Although this restriction may have been violated at times, it may have served to restrict the supply of loanable funds. But Bancroft's emphasis on "the enterprise stirred by the fast-developing resources of a new country" may well be the right one. The demand for capital was high and firms, and sometimes whole industries, lacked the track record that made fine calculations of risk possible.[32]

5.6 Usury Laws and the Antebellum Pattern of Interest Rates

A potential alternative explanation for the observed pattern of interest rates is that usury laws placed a binding ceiling on the rates banks could charge. The pattern of rates seen in Figures 5.1–5.4, in other words, might be the result of usury ceilings and the cost functions of banks, rather than market integration. A cursory glance at Table 5.6, which shows legal interest rates in 1841, would seem to confirm the contention that usury laws explain the pattern of antebellum interest rates. Most of the states had rates of 6 or 7 percent. The effectiveness of these laws, it might then be argued, is reflected in the net rates reported in Table 5.2, which are concentrated around 5½ to 6 percent.[33]

But before we can attribute a causal role to usury laws in producing the pattern of antebellum interest rates, we need to consider how effective they were. Legal rates were often ignored when economic conditions warranted higher rates. On 19 August 1851, the "Money Market" column in *Bicknells' Counterfeit Detector, Banknote Reporter, and General Prices Current* quoted the going rate on first-class paper at 1 percent per month and noted that it was twice the legal rate. Banks, moreover, were among those lending at these extraordinary rates. In New York City, to take another example, the legal rate was 7 percent, but in June 1848 the going rate for prime paper was 12 to 18 percent. If debtors were litigious, such lending would be a courageous act since the penalty for a usurious contract was forfeiture of both principal and interest. It is also apparent that money was lent at higher than legal rates from the rate of return figure for New York City in 1849. The average net rate of return was 7.17 percent. In 1852, it was 7.23 percent.

There were, as well, legal methods of collecting interest in excess of rates

32. Adam Smith would not have been surprised that interest rates were higher in the regions of new settlement (*An Inquiry into the Nature and Causes of the Wealth of Nations* [New York, 1937; orig. pub. 1776], pp. 92–93).

33. A number of the usury laws in the frontier states, however, contained an important escape clause, perhaps reflecting higher rates in this region. Here the laws allowed for higher rates of interest if specified in the contract. In Wisconsin, for example, if no mention were made on the promissory note of the rate to be paid, the maximum legal discount rate was 7 percent. If a special clause were inserted specifying the rate to be charged, the maximum allowable rate was 12 percent. Similar laws prevailed in Indiana (the State Bank of Indiana, however, appears to have been restricted to 6 percent), Illinois, Missouri, Mississippi, Arkansas, and Iowa.

Table 5.6 Legal Interest Rates and Usury Penalties, 1841

State	Legal Rate	Usury Penalty
Maine	6%	Forfeiture of debt
New Hampshire	6	Three times the usury
Vermont	6	Recovery of usury, with costs
Massachusetts	6	Three times the usury
Rhode Island	6	Forfeiture of interest
Connecticut	6	Forfeit interest and principal
New York	7	Contract unenforceable
New Jersey	6	Forfeit interest and principal
Pennsylvania	6	Forfeit interest and principal
Delaware	6	Forfeit interest and principal
Maryland	6	Contract void
Virginia	6	Two times the usury
North Carolina	6	Two times the usury
South Carolina	7	Forfeit interest, with costs
Georgia	8	Three times the usury
Alabama	8	Forfeit interest and usury
Mississippi	8	Forfeit the usury, 10% legal
Louisiana	5	Contract void. Bank rate, 6%
Tennessee	6	Contract void
Kentucky	6	Forfeit usury, with costs
Ohio	6	Contract void
Indiana	6	Two times the usury, 10% legal
Illinois	6	Three times the interest
Missouri	6	Forfeit interest
Michigan	7	Forfeit usury and one-fourth principal
Arkansas	6	Forfeit usury, 10% legal
Florida	8	Forfeit interest and usury
Wisconsin	7	Three times usury, 12% legal
Iowa	7	Three times usury, 12% legal

Note: A percentage listed in the penalty column means that if both parties agreed to the interest rate in writing, it could be as high as the percentage indicated.

Source: Hunt's *Merchants' Magazine and Commercial Review,* vol. 4 (1841), p. 268.

allowed under the usury laws. One method was by overcharging for the so-called sight exchange. One common way of borrowing was through the bill of exchange. Consider, to make the argument concrete, a bill of exchange drawn by a tobacco factor in Philadelphia on the Bank of Kentucky, payable in sixty days to a Philadelphia commission merchant. As the Philadelphia merchant was unlikely to travel to Louisville in sixty days to collect on the bill, he would rediscount it at a bank or exchange broker in Philadelphia. The discount charged by the bank or exchange broker would include an amount beyond the opportunity cost of the money that reflected the cost of collection—the "sight exchange." The going rate for sight exchange (it might range from ¼ percent to 3 percent or more, depending on the time and date) was widely reported in the commercial press. With a 1½ percent sight exchange (a typical

charge for exchange between Louisville and Philadelphia), the banker or exchange broker would value the $100 bill at $98.50 and then charge an additional discount to reflect the interest on the sixty-day loan.

The effective discount, therefore, on bills of exchange can be broken down into two parts—the interest rate and the sight exchange, or the cost to bring the money home.[34] It was through the use of sight exchange that usury laws could be effectively circumvented. If usury were alleged by a borrower, the creditor could claim that only the legal interest rate was charged and any excess represented the cost of collection.[35] According to one authority, "it was widely possible by the time of the Civil War to arrange usurious transactions in such a way as to entirely avoid running afoul of the usury laws."[36]

Further evidence against the usury explanation is provided in Table 5.7 which reports Spearman rank-correlation tests for various periods for rates between New York City or Philadelphia and Virginia, South Carolina, Kentucky, and Rhode Island.[37] If usury laws were the source of the apparent conformity of rates and the markets were not integrated, then regional rates should move independently. The correlations, however, show that the direction of influence was from the eastern financial centers—New York City and Philadelphia—to other regions.

While this evidence does not rule out some effect from usury laws, we doubt that they can explain much of the congruence in the regional interest rate series.

5.7 The Rate of Return to Equity

The rate of return to bank equity has received less attention in the literature on postbellum rates than the short-term rate. But the return to equity is presumably the determinant of the allocation of bank capital. Investors could have figured out where returns were highest, in part by relying on the same data that we have, and tried to earn the high returns by investing in bank stock (although higher stock prices would have capitalized high returns if widely anticipated) or by actually organizing a bank. The net rates of return to equity by quinquennia are displayed in Table 5.8. While outliers exist (the Pennsylvania and Kentucky rates in the 1850s, and the Tennessee rates in the late 1850s), the overall impression is that most rates were in the 7 to 8 percent range. There is little evidence here of a regional gradient.

This table, we should point out, provides evidence relevant to the contro-

34. This section is developed largely from Hugh Rockoff, "Origins of the Usury Provision of the National Banking Act," (manuscript, Rutgers University, 1988), pp. 17–18.

35. This method of applying the usury law was accepted in Maine. See ibid., p. 18.

36. Morton J. Horwitz, *The Transformation of American Law* (Cambridge, Mass., 1977), p. 244, quoted in ibid., p. 18.

37. Conventional parametric correlations, however, were not statistically significant, possibly because of the distorting effects of the very high rates in certain cities during financial crises.

Table 5.7 Spearman Rank-Correlation Coefficient Tests

	Virginia	South Carolina	Kentucky	Rhode Island
1825–59				
Philadelphia (−1)	0.38**	0.28*	0.14	
1830–59				
Philadelphia (−1)	0.37**	0.28*	0.22	
1835–59				
Philadelphia (−1)	0.58***	0.39**	0.19	0.11
New York (−1)	−0.09	0.28	0.00	0.13
1840–59				
Philadelphia (−1)	0.50**	0.53**	0.11	0.27
New York	−0.13	0.30	0.04	0.55**

Notes: (−1) denotes a one-period lag.

Source: Table 5.2

*Denotes significance at the 90% level.

**Denotes significance at the 95% level.

***Denotes significance at the 99% level.

Table 5.8 Antebellum Rates of Return to Bank Equity

	1830–34	1835–39	1840–44	1845–49	1850–54	1855–59
New York City	8.85%	8.36%	5.17%	8.54%	8.28%	7.20%
Boston	7.03	7.06	7.29	9.10	9.29	8.29
Massachusetts (except Boston)	7.60	7.32	n.a.	8.00	8.58	8.64
Providence	n.a.	6.71	5.95	6.77	7.30	7.05
Philadelphia	8.46	7.31	5.39	7.03	9.94	8.08
Pennsylvania (except Philadelphia)	8.21	7.72	6.83	7.85	9.17	9.58
Virginia	7.93	9.11	5.43	7.01	8.40	8.36
South Carolina	7.24	6.64	4.52	6.67	7.64	6.58
New Orleans	n.a.	7.13	6.17	n.a.	5.98	n.a.
Kentucky	n.a.	6.66	4.00	8.19	9.43	9.08
Tennessee	n.a.	n.a.	6.88	5.94	7.22	10.10
Indiana	8.85	8.36	5.17	8.54	8.28	7.20

Sources: See Table 5.2.

n.a. = not available.

versy about the profitability of slavery. Fogel and Engerman estimated that slave owners earned about 10 percent on their investment.[38] Slave owners could have moved their capital into banking, but as the rates for South Carolina, Virginia, Kentucky, and Tennessee show, it would not have been profitable to do so. A definitive comparison would have to make risk adjustments to both the returns to slaveholding and banking. But the unadjusted figures confirm Fogel and Engerman's claim that the rates of return earned by slave-

38. Fogel and Engerman, *Time on the Cross*, p. 70.

holders were equal to or higher than the rates that could have been earned with alternatives.

Antebellum rates of return to bank equity appear to have been no more dispersed than similar postbellum rates; indeed the antebellum rates may have fallen within a narrower band. Some long-term averages for the postbellum period are shown in Table 5.9, which is based on data published by Keith Powlison in 1931. Evidently there were substantial interregional differences even in the period 1904 to 1914. Whatever the explanation for the persistence of differences in the returns to equity, the main point for our purposes is that a wide dispersion in this measure existed even after the turn of the century, when the consensus is that the short-term market was effectively integrated.[39] So the small number of outliers in the prewar period cannot be a basis for doubting that the short-term antebellum market was integrated.

5.8 The Impact of the Civil War

There are two regions that are outliers in the picture of postbellum interest rates: the South and the Pacific Coast. In both cases the explanation for the high rates prevailing in these regions in the immediate postbellum years can be traced, at least in part, to disruptions caused by the Civil War. The case of the South is obvious, for it suffered enormous losses of human, physical, and financial capital. Many southern banks, heavily invested in Confederate government securities fell with the Confederacy.[40] The Bank of the State of South Carolina, for instance, held over $6,813,000 in Confederate securities and notes in October 1865, which accounted for 41 percent of its total assets, and much of the remainder was held in South Carolina securities. Only 12 percent of assets were in discounted notes and bills of exchange.[41] William Royal cites the same reason for the failure of the Virginia banks.[42] In South Carolina, only the Bank of Charleston survived the Civil War and Reconstruction.[43] None of Virginia's twenty-two banks survived. Only Missouri appears to have escaped relatively unscathed, and this was due, in large part, to the survival of the Bank of the State of Missouri. Virginia recovered rather quickly in terms of the number of banks, but in terms of paid-in capital it, too, was far worse off than it was in 1860. Louisiana, North Carolina, and South Carolina were the hardest hit. In 1867 South Carolina had recovered only 4 percent of its prewar

39. See Rockoff, "Regional Interest Rates," for one explanation of the persistence of these differentials based on regional differences in the rates of bank failure.

40. William Royal, *A History of Virginia Banks and Banking Prior to the Civil War* (New York, 1907), p. 39.

41. "Report of the President and Directors of the Bank of the State of South Carolina," *Reports and Resolutions of the General Assembly of the State of South Carolina* (1865), pp. 55–65.

42. Royal, *A History of Virginia Banks*, p. 39.

43. James G. Lindley, *South Carolina National: The First 150 Years* (New York, 1985) p. 7. The bank continues to this day to operate as the South Carolina National Bank.

Table 5.9 Postbellum Rates of Return to Bank Capital

Region	1870–91	1891–1904	1904–14
New England	6.99%	5.32%	7.26%
Middle Atlantic	8.09	8.25	8.88
South	9.90	8.48	10.50
Middle West	9.94	7.76	9.21
West	13.63	8.12	13.55
Pacific Coast	13.78	8.64	11.64

Notes: *New England*: Maine, Vermont, New Hampshire, Massachusetts, Connecticut, and Rhode Island. *Middle Atlantic*: New York, New Jersey, Pennsylvania, Delaware, and the District of Columbia. *South*: Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, Arkansas, Kentucky, and Tennessee. *Middle West*: Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, and Missouri. *West*: North Dakota, South Dakota, Nebraska, Kansas, Wyoming, Colorado, New Mexico, Oklahoma, and the Indian Territory. *Pacific*: Washington, Oregon, California, Idaho, Utah, Nevada, and Arizona.

Source: Hugh Rockoff, "Regional Interest Rates and Bank Failures, 1870–1914," *Explorations in Economic History*, 14 (Winter, 1977), p. 92; based on Keith Powlison, *Profits of the National Banks* (Boston, 1931), pp. 105–6.

banking capital in nominal terms (prices were multiplied by a factor of about 1.75); Louisiana, only 7 percent; and North Carolina, 9 percent.[44]

So it is not surprising that rates were higher in the South than in the North during the immediate postbellum years. The relatively long time it took the South to fall in line, however, is more surprising. The difficulties in reestablishing an effective banking system within the constraints imposed by the National Banking Act appear to be the answer, as has been documented by Sylla and James.

The less obvious case is the Pacific Coast. During the Civil War the United States left the gold standard. In the East the greenback dollar became the unit of account and gold, now useful mostly as foreign exchange or to pay customs duties, went at a premium which varied over time with market conditions. On the Pacific Coast, however, the reverse occurred. The gold dollar remained the unit of account and the greenback went at a discount. The United States consisted of two currency areas linked by a fluctuating exchange rate. This situation prevailed until 1879 when specie payments were resumed. For an eastern investor contemplating investment on the Pacific Coast, the expected change in the exchange rate and the risk of fluctuations in that rate became important factors to be taken into account. Since the greenback was appreciating over most of this period (the gold price of greenbacks was rising), an eastern investor considering an investment on the Pacific Coast would have regarded the

44. Paid-in bank capital for 1860 are from U.S. Census Office, Eighth Census, 1860, *Population of the United States in 1860* (Washington, D.C., 1864), p. 292; for 1867, *Report of the Comptroller of the Currency* (Washington, D.C., 1867), p. 1. The numbers for 1867 may be slight underestimates because the Comptroller's Report included only national banks.

potential change in the exchange rate as a loss to be deducted from any gain from moving funds. In equilibrium, in other words, interest rates on the Pacific Coast from 1862 to 1879 would have exceeded interest rates in the East by the expected appreciation of the greenback. This is, of course, an oversimplification that does not allow for the risk associated with fluctuations in the exchange rate. In fact, the gold price of greenbacks rose fairly steadily after the Civil War, but it might have risen or fallen in any given year.

Table 5.10 contains the data needed to assess the role of greenback appreciation. It shows the interest rates in New York City and the Pacific Coast, the differential, the appreciation of the greenback in terms of gold, and the net differential. The appreciation of the greenback on average explains almost half the differential during the period prior to resumption (compare the gross with the net differential), and the negative net differentials in some years suggest that exchange risk was also a factor capable of deterring interregional capital movements in this period.

In both the South and the Pacific Coast, to sum up, regional differentials in the immediate postwar period were distorted by the Civil War. To that extent, an analysis that begins in 1870 gives an exaggerated picture of the extent to which the market was naturally fragmented.

5.9 Summary and Conclusions

Our most important findings are illustrated in Table 5.11 which shows the difference between the rate in each of four regions and New York City at five-year intervals from 1835 to 1914. It is clear at once that three of the regions—New England, the Middle Atlantic, and the South—were (by the usual standard of a narrow differential) integrated with New York City before the Civil War. The differentials in 1850, 1855, 1859, or even earlier are similar to those realized in 1900, 1905, or 1914. The South, for example was 39 basis points higher than New York City in 1850, 20 basis points higher in 1855, and 124 basis points higher in 1859; but it was 134 basis points higher in 1900, 241 basis points higher in 1905, and 24 basis points higher in 1914. Yet most financial historians would probably agree that the capital market was integrated after the turn of the century. Indeed, one would expect smaller differentials at the later dates due to the impovements in communication and transportation. The conventional portrait of increasing integration in the postbellum era is sharply colored by the large differentials realized in the years immediately following the Civil War. A few of our series, moreover, cover the 1820s; the Philadelphia and South Carolina series, the longest, begin in 1815. Even at these early dates the simplest interpretation of the data is that the market was integrated.

The same cannot be said for our midwestern rate because it is consistently higher than the New York City rate during the antebellum period. For this region, however, we have had to rely primarily on the returns of the State

Table 5.10 Rates on the Pacific Coast and Appreciation of the Greenback

Year	New York City	Pacific Coast	Gross Differential	Appreciation of Greenback	Net Differential
1869	6.32%	12.52%	6.20%	1.80%	4.40%
1870	5.78	8.81	3.03	10.90	−7.87
1871	5.36	18.62	13.26	8.99	4.27
1872	5.33	15.24	9.91	0.62	9.29
1873	5.50	7.40	1.90	−2.83	4.28
1874	5.41	9.17	3.76	2.38	1.38
1875	4.91	10.25	5.34	−0.62	5.96
1876	3.87	8.36	4.49	−1.15	5.64
1877	3.29	8.55	5.26	5.50	−0.24
1878	3.03	5.92	2.89	5.13	−2.24
1879	2.84	7.48	4.64	2.47	2.17
1880	3.51	6.90	3.39	.00	3.39
1881	3.70	8.53	4.83	.00	4.83
1882	3.37	6.84	3.47	.00	3.47

Sources: Interest rates: Lance Davis, "The Investment Market, 1870–1914: Evolution of a National Market," *Journal of Economic History*, 25 (Sept. 1965), p. 365, col. I (1), VI (1). Gold price of the greenback: James K. Kindahl, "Economic Factors in Specie Resumption," in *The Reinterpretation of American Economic History*, Robert W. Fogel and Stanley L. Engerman, eds. (New York, 1971), p. 472, col. (4).

Table 5.11 Interest Rate Differentials with New York City

Year	New England	Middle Atlantic	South	Midwest
1835	0.21%	0.80%	−0.30%	2.86%
1840	−0.68	−0.54	−0.90	2.03
1845	−0.53	−0.70	0.14	2.44
1850	−0.41	0.01	0.39	3.83
1855	−0.26	−0.04	0.20	5.02
1859	0.49	0.56	1.24	n.a.
1870	2.29	1.13	3.93	1.67
1875	1.59	1.14	1.33	1.99
1880	−0.20	−0.44	0.00	0.29
1885	0.37	0.92	1.59	1.77
1890	0.18	0.51	1.65	0.78
1895	0.57	1.23	1.09	0.79
1900	0.57	1.00	1.34	0.40
1905	0.48	0.44	2.41	0.82
1910	−0.31	−0.54	0.24	−0.70
1914	−0.05	−0.16	0.80	0.09

Sources: 1835–59: See Table 5.2. For this period we used an average for all states and cities on which we had data. 1870–1914: Lance Davis, "The Investment Market, 1870–1914: The Evolution of a National Market," *Journal of Economic History*, 25 (Sept. 1965), pp. 362–65. For this period we used average of the rates for reserve-city and non-reserve-city banks. Definitions of the regions are given in Table 9.5.

Bank of Indiana. It may be that this bank enjoyed some monopoly power. Its rates were somewhat lower in the mid–1850s when there was competition from free banks. And the rates in Ohio in the early 1850s and Kentucky over a long run of years were somewhat lower than at the State Bank of Indiana and not much higher than in New York City.[45] But we cannot rule out the possibility that rates in this region were somewhat higher than in the eastern financial centers due to a frontier effect.

By integrated we do not mean that rates were everywhere the same. Differentials could and did exist for a variety of reasons—the monopoly power of certain banks, differences in risk, or bad times that led to differences in the realized yields measured here. Nor do we want to claim that developments after the Civil War had no impact on the market. The view we reject is one in which interregional differences were large, persistent, and hard to explain except on the basis of irrational fears and prejudices.

We have not explored here the institutional structure that permitted antebellum financial markets to achieve such unity. But it is evident that beneath the tables and figures we present there lay a structure of banks, private bankers, and bill brokers, who were in constant communication. Assets of similar risk would not trade for long at large premiums or discounts. The story of how these institutions functioned—how individuals communicated, valued risks, and so on—is an important and potentially fascinating part of the story, but must be left for another paper.

The finding that antebellum American financial markets were well integrated should come as no surprise to students of the history of international capital and financial markets. Studies by Larry Neal have shown that the London and Amsterdam stock markets were integrated as early as 1723.[46] Only wars and severe financial panics pulled them apart. The markets examined by Neal reintegrated quickly after a war which Neal attributes to their being unfettered by government restrictions.[47] American markets, in contrast, were forced to reintegrate after the Civil War under the strain of a monetary policy aimed toward gradual resumption and fettered by the National Banking Act. As desirable as these policies may have been on other grounds, it is clear that they hampered the smooth return of the capital market to its prewar pattern of regional integration.

45. The rates for Ohio presented here suggests the need to revise the conclusion drawn by one of us, Hugh Rockoff, "The Free Banking Era: A Reexamination," *Journal of Money, Credit, and Banking*, 6 (May 1974), pp. 159–60, that the introduction of free banking in Ohio had a substantial impact.

46. Larry Neal, "Integration of International Capital Markets: Quantitative Evidence from the Eighteenth to Twentieth Centuries," *Journal of Economic History*, 45 (June 1985), pp. 219–26; "The Integration and Efficiency of the London and Amsterdam Stock Markets in the Eighteenth Century," *Journal of Economic History*, 47 (Mar. 1987), pp. 97–116; and *The Rise of Financial Capitalism: International Capitalism in the Age of Reason* (New York, 1990).

47. Neal, "The Integration and Efficiency of the London and Amsterdam Stock Markets," p. 115.

Most of the rates examined here, we should also note, come from states within the frontier. Capital markets on the Pacific Coast may truly have been different. Scattered evidence for California, we noted previously, suggests that rates there may have been fabulously high. Beyond the frontier the costs of acquiring information about potential investments, and the costs of supervising them, may have effectively prevented rate-equalizing capital flows.

Historians have long believed that changes in financial markets that took place during the Civil War, in particular the National Banking Act, were crucial to postwar economic development. Action by the federal government, in other words, was needed to create a unified currency to permit rapid economic expansion. The evidence assembled here disputes that view. The National Banking Act, whatever its plusses and minuses, was not needed to knit together regional capital markets. Capital would have found its way to profitable ventures even in the absence of a partial centralization of the bank regulatory environment.

Instead, it appears that the Civil War, and to some extent the National Banking Act, were disruptive elements that separated the South (because of the destruction of its banking system) and the Pacific Coast (because of the separation of the currency) from the eastern capital market. The slow reintegration of the short-term capital market after the Civil War noted by a number of scholars was a return to the status quo ante bellum.

This summary leads us to a final question. At what date did the capital market first became integrated? While more work is needed to push our measures of interest rates back in time and across a wider range of locations, it may make sense to assume, at least tentatively, that capital markets in the United States have always been integrated. The idea of separate centers of savings and investment emerging on a wide plain of settlement and then being knit together is probably the wrong way to view the evolution of the capital market in the United States. Instead, settlement proceeded because capitalists made decisions to invest funds in new regions. The frontier separated those regions in which investment decisions could be based on a long experience with similar investments from regions where rates of return, although potentially very high, were a matter of conjecture. The frontier, to use Frank Knight's terminology, was the line that separated risk from uncertainty.[48]

48. A model of separate markets being gradually knit together, however, may make more sense for other countries. See, for example, Good, "Financial Integration in Late Nineteenth-Century Austria."