Federal Policy, Banking Market Structure, and Capital Mobilization in the United States, 1863-1913

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THE success with which capital funds are mobilized and transferred to industrial and related activities is widely regarded as a critical determinant of both the timing and the pace of industrialization in the modern era. Gerschenkron, for example, has suggested that institutional developments which increased this type of capital mobility played an important role in the varying degrees of industrial progress of nineteenth-century European countries.[1] A functionally similar development, resulting from government intervention at the time of the Civil War, occurred in American banking and provided a powerful capital-supply stimulus for the United States's postbellum industrialization. This study deals with the origins of this banking development, presents an analysis of its potential effects on patterns of capital movement, and tests the hypotheses arrived at in the theoretical analysis using banking data derived primarily from the *Reports* of the Comptroller of the Currency.

The overall argument of the study may be summarized as follows. Two major effects of the Federal government's wartime interventions in banking, which resulted in the National Banking System, were to restrain the growth of banking over large areas of the United States for several decades, and to link the country's banks together through a reserve system that provided a formal, legally sanctioned mechanism for transferring funds between banks. The first effect left many of the country's bankers in relatively monopolistic positions where they could charge high interest rates, restrict loan output in local markets, and practice price discrimination. The second effect, within this framework of wide variations

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[1] Alexander Gerschenkron, *Economic Backwardness in Historical Perspective* (Cambridge: Harvard University Press, 1962), especially ch. 1, pp. 5-30 and Postscript, pp. 353-64.

in the degree of banking competition, promoted an efficient allocation of loanable funds. In practice, this meant a transfer of bank funds from predominantly agricultural to predominantly industrial uses, as well as from the banking system to the country's open capital markets where lumpy investments in railroads and large-scale industry were increasingly financed.

GOVERNMENT POLICY AND THE RISE OF BANK ENTRY BARRIERS

To understand fully the restrictive impact of Federal banking legislation on later banking development it is important to recall how unrestricted entry into banking had become in the last antebellum decade. After the Independent Treasury Law of 1846, the Federal government had ceased to concern itself with the country's banks, leaving banking questions entirely in the hands of individual states. In the early 1850's incorporated banking was prohibited in a number of states and territories, either by the laws or by the sentiments of state legislatures. These included Arkansas, California, Florida, Illinois, Iowa, Minnesota, Oregon, Texas, and Wisconsin; and in Indiana and Missouri banking was restricted to state-controlled monopolies.[2] But these laws and sentiments were soon altered. As Bray Hammond notes, "The area from which banking was barred was probably as great in 1852 as at any time; and by 1863, when it was entirely opened up to banking under federal law, all the states but Texas and Oregon had abandoned prohibition, mostly for free banking."[3]

The trend toward free banking, which began in New York and Michigan in the late 1830's, became a major factor in the decline of politically inspired barriers to bank entry. Before free banking, if banking had any legal sanction at all, it was given through specific legislative acts granting charters to individual banks. In states already having incorporated banks, free banking laws were a response to popular revulsion at the frequent corruption involved in older chartering procedures in which politicians accepted bribes or political favors from interested parties in return for allowing the establishment of new banks, and from previously established banks

[2] Bray Hammond, *Banks and Politics in America, from the Revolution to the Civil War* (Princeton: Princeton University Press, 1957), p. 605.

[3] *Ibid.*, p. 606.

for not doing so. In states without chartered banks, the new laws were more a response to economic needs as reflected in popular opinion. Free banking laws made the chartering of banks an administrative rather than legislative function of state governments.

The Federal banking laws of 1863 and 1864 which established the National Banking System were modeled on state free-banking laws, especially the New York law of 1838, and in a nominal sense they represented the extension of free banking to the entire country. This extension, however, was not a major objective of the laws. Congress enacted the legislation primarily to increase the government's borrowing power during the war by requiring all national banks to invest a portion of their capital in government bonds, and to promote the longer-term objective of giving the country a uniform national banknote currency secured by government bonds. It was thought at the time that existing state banks would aid the government in the achievement of both objectives by simply converting into national banks. Since free banking on a national scale was not a major goal, it is perhaps not surprising that the Federal legislation involved departures from the theory and practice of free banking under earlier state laws. Some of these departures created entry barriers that made the National Banking System incapable of becoming *the* banking system of the United States, a goal that its founders had intended to achieve.

Two entry barriers—minimum capital requirements and loan restrictions—were written directly into the Civil War banking laws. The Banking Act of 1864 provided that a national bank's minimum capital stock was to be $50,000 in towns under 6,000 in population, $100,000 in cities of from 6,000 to 50,000 in population, and $200,000 in cities with more than 50,000 in population.[4] This provision remained in effect until 1900. Capital provisions of the earlier state free banking laws were not so stringent, nor were they enforced as strictly as under the National Banking System.

Table 1 presents information gathered to show why national bank minimum capital requirements constituted a serious barrier to national bank entry in some parts of the country as well as an important reason why the American dual banking pattern of na-

[4] A. T. Huntington and Robert J. Mawhinney, compilers, *Laws of the United States Concerning Money, Banking and Loans, 1778-1909* (National Monetary Commission publication. Washington: Government Printing Office, 1910), p. 333.

TABLE 1
AVERAGE CAPITAL AND CAPITAL-DEPOSIT RATIOS OF NATIONAL AND NON-NATIONAL COMMERCIAL BANKS IN THE UNITED STATES, BY REGIONS, IN 1900

	Average Capital ($ thousand)		*Capital-Deposit Ratios*	
Region[a]	*National*	*Non-national*	*National*	*Non-national*
New England	244	166	0.44	0.11
Middle Atlantic	205	225	0.19	0.16
South	113	39	0.33	0.28
East North Central	152	40	0.24	0.15
West North Central	112	28	0.29	0.24
Mountain-Pacific	137	81	0.19	0.15
United States	167	59	0.25	0.17

[a] The regional groupings of states are: New England (Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut); Middle Atlantic (New York, New Jersey, Pennsylvania, Delaware, Maryland, and District of Columbia); South (Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Kentucky, Tennessee, Arkansas, Louisiana, Texas, and Oklahoma); East North Central (Ohio, Indiana, Illinois, Michigan, and Wisconsin); West North Central (Minnesota, Iowa, Missouri, Kansas, Nebraska, South Dakota, and North Dakota); Mountain-Pacific (Montana, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, and California).

Source: Calculated from regional sums of individual state data from Board of Governors of the Federal Reserve System, *All Bank Statistics, United States 1896-1955* (Washington: Board of Governors, 1959).

tional and non-national banks emerged in the late nineteenth century. The data pertain to 1900, one of the earliest years for which relatively complete American banking data are available. In that year the average capital of non-national banks in the three dominant agricultural areas of the country, the South and the two North Central regions, was actually less than the minimum required capital of national banks. In these three regions non-national banks outnumbered national banks 7,066 to 1,967, while in the more industrially developed northeast (New England and Middle Atlantic States) and the sparsely settled Mountain-Pacific region national banks outnumbered non-national 1,764 to 1,630. Overall, in 1900 commercial banks outside the national system outnumbered those in it by 8,696 to 3,731.[5] Obviously the Civil War laws had failed rather strikingly to give the United States a single, unified banking system.

The reason why national bank capital requirements constituted

[5] Data on bank numbers are taken from Board of Governors of the Federal Reserve System, *All Bank Statistics, United States 1896-1955* (Washington: Board of Governors, 1959).

a serious entry barrier was that in many places—especially small, agricultural communities—the amount of deposits a bank could attract was not sufficient to allow the bank to earn a profit on $50,000 of bank capital equal to what could be earned on $50,000 employed in other uses. Deposits are analogous to borrowed capital, introducing an element of leverage into a bank's capital structure, i.e. its capital-deposit ratio.[6] Other things being equal, the bank with the most leverage will earn the highest return on its equity capital. In Table 1 the data showing capital-deposit ratios in 1900 give an indication of why the non-national component of American banking had grown relative to the national system that had been intended to replace it. Non-national banks in every region in 1900, and most likely in earlier years as well, enjoyed a leverage advantage over national banks. The high minimum capital requirements of national banks were an important cause of this advantage.

The other national bank entry barrier written into the Civil War laws was a provision of the 1864 Act which stated that a national bank could not "hold the possession of any real estate under mortgage, or hold the title and possession of any real estate purchased to secure any debts to it for a longer period than five years."[7] This feature of the law, which remained in effect for more than 50 years, naturally had its greatest effect on national bank entry in agricultural areas where land was the prime asset. Along with restrictive capital requirements, the prohibition of mortgage loans led to the postbellum recovery of non-national banking in rural areas. In contrast with Federal statutes, the most restrictive of antebellum state banking laws, the Louisiana law of 1842, allowed all of a bank's capital to be invested in long-term obligations such as mortgages, and confined only deposited funds and notes issued in excess of capital to short-term loans.[8]

The restriction on real estate lending by national banks, in addition to reviving state banking, promoted a host of substitutes such as mortgage and trust companies, which sometimes shared the same rooms and managements as national banks. It also had the interesting effect—about which more will be said below—of draining bank funds from the countryside, where, judging by interest

[6] See David A. Alhadeff, *Monopoly and Competition in Banking* (Berkeley: University of California Press, 1954), p. 28 ff.

[7] Huntington and Mawhinney, pp. 343-44.

[8] Hammond, *Bank and Politics,* p. 681.

rates, finance was scarce to the cities where it was more abundant. A Kansas banker in 1908 illustrated this point for the National Monetary Commission:

> It is almost impossible for a bank in a farming community where there are no manufacturing or other interests to absorb loanable funds to avoid entirely all connection with real estate. As it stands at present the country national bank may buy commercial paper in centers, about which it is difficult for the officers to know much, but must turn down the farm mortgage offered at its counter, than which there is no safer investment, and experience has shown none much more available.[9]

Capital requirements and restrictions on loans constituted barriers to entry into national banking in smaller communities and rural areas, but they do not explain why the growth of non-national banking should have been retarded. In fact, the opposite point is often stressed, namely that non-national banking did expand to offset retardative elements inherent in the national laws. While it is true that non-national banking grew rapidly in the late nineteenth century, its failure to expand even more rapidly is of greater significance than its actual growth. The non-national banks, which included state-chartered and private banks, possessed numerous advantages over the national system. Legal capital requirements were either much lower or nonexistent. Much the same could be said of their regulation by state authorities. Furthermore, they were not prohibited from mortgage lending. In spite of these advantages, it was not until 1906, or more than 40 years after the birth of the National System, that non-national commercial bank assets surpassed the assets of national banks.[10] The factors which induced the expansion of non-national banking are clear; what is puzzling is their delayed and drawn-out impact.

Federal policy dealing with bank note issues, besides adding a further barrier to national bank entry, provides the answer to the question of why non-national banking grew less rapidly than might otherwise have been expected, given the inadequacies of national banking. During the Civil War, when existing state banks were reluctant to join the new National System, Congress decided to

[9] U.S. National Monetary Commission, Replies to Circular Letter of Inquiry . . . on Suggested Changes in Administrative Features of the National Banking Laws (Washington: Government Printing Office, 1908), p. 135. It is worth noting that in this document a number of bankers and bank examiners raised objections to the real estate loan prohibition even though comments on the prohibition were not solicited.

[10] Board of Governors, *All Bank Statistics*, pp. 39, 43.

speed up conversions to national charters by placing a 10 percent tax on all state bank notes paid out by any bank after July 1, 1866. This tax effectively removed the profitability of state bank note issue and once it was legislated the great majority of state banks did convert. The haste with which state banks took out national charters testifies to the central importance of note issue as a banking function at the time. From then on, until the habit of using checkbook money gradually became widespread, state bank entry was retarded.

Potential national banks faced a similar difficulty. National banks could issue bank notes backed by government bonds, but from 1863 to 1875 ceilings were in effect on total national bank note circulation. From 1863 to 1870 the ceiling was $300 million; most of this had been taken out by existing banks by 1866 when the tax on state issues went into effect and as a consequence few new national banks were formed between 1866 and 1870. The ceiling was then raised to $354 million and the numbers of national banks again began to grow. In 1875 the ceiling was removed, but by that time government bond prices were rising, and national banks, which could issue notes only up to 90 percent of the par value of bonds, found that the profitability of note issue was rapidly diminishing.[11] In summary, when further national bank note issues had been profitable to the banks they were not possible, and when eventually they became possible they were no longer profitable.

Federal policies regarding bank note issues thus produced another barrier to bank entry, and one which affected both national and non-national banks. This barrier reinforced the differential geographical impact of the national bank capital requirement and loan restriction barriers, for the small towns and rural areas where these barriers were most strongly felt were also the places where the habit of using currency in preference to checkbook money was strongest.

Nothing better illustrates the effectiveness of entry barriers than what happens once they are removed. Such tests are not always possible, but when entry barriers are legal they can be eliminated by the stroke of a pen. In effect this is what was done in 1900 to some of the barriers erected by Civil War banking legis-

[11] Profitability of note issue is analyzed in detail by Phillip Cagan, *Determinants and Effects of Changes in the Stock of Money, 1875-1960* (New York: National Bureau of Economic Research, 1965), pp. 86-95.

lation. Popular dissatisfaction over these barriers found its way into the Gold Standard Act of that year.

The Gold Standard Act amended earlier legislation to allow the formation of national banks with a minimum capital of $25,000 in towns where population did not exceed 3,000.[12] The Act also made significant modifications of the note issue provisions of earlier laws. National banks were allowed to issue notes up to 100 percent of the par value of government bonds deposited as security instead of 90 percent of par as under the old law. The Act further provided for an exchange of outstanding 5, 4, and 3 percent bonds for a new issue of 2 percents, with compensation to reflect the greater market value of the higher coupon issues.[13] These provisions virtually eliminated the major drawback to expansion of national bank circulation, the large spread between 90 percent of the par value of governments and the market prices of the 5, 4, and 3 percent issues which were then selling above par.

The responses to these measures were both rapid and large. From February 1900 to February 1901, national bank circulation rose from $205 to $310 million and expanded further to $675 million by the middle of 1910.[14] In the fall of 1900, moreover, the Comptroller of the Currency reported that in the months since the Gold Standard Act had passed, he had received about one thousand informal applications for the organization of national banks and had approved 509 formal applications of which 382 were for banks with capitals less than $50,000.[15] In a decade over 4,600 new national banks were established, nearly two-thirds of these with capital less than $50,000, the pre-1900 minimum.[16] Almost 60 percent of the small banks were formed in the South and West North Central regions where entry barriers previously had exerted their greatest impact.

By itself, no one of the legal barriers to bank entry discussed here—national bank capital requirements, loan and note issue restrictions, and the removal of note issue profitability from state banks—would have seriously retarded banking growth. For example, with note issue restricted to national banks, but with lower

12 Huntington and Mawhinney, *Laws*, p. 446.
13 *Ibid.*, pp. 256, 446-47.
14 *Report of the Comptroller of the Currency, 1913*, pp. 333, 339.
15 *Report of the Comptroller, 1900*, p. xx.
16 Derived from data presented in *Report of the Comptroller, 1910*, p. 20.

capital requirements, the countryside would have contained many more national banks, as the response after 1900 indicates. Or, if the high capital requirements of the National System remained in effect but state bank note issues had not been curbed, a similar response would have occurred earlier in the non-national banking sector. Certainly the American banking system was capable of numerous substitutions. But in conjunction with one another the legal entry barriers proved quite effective in restricting such substitutions, and certain regions, as well as small towns and rural areas nearly everywhere, suffered from these restrictions on bank entry.

ENTRY BARRIERS AND BANK BEHAVIOR IN THEORY

In theory, the differential geographical impact of the bank entry barriers discussed in the previous section leads one to expect that banks in smaller towns and rural areas would operate in a less competitive environment than city banks. This would be the expectation within any one region, but also between regions because of different degrees of urbanization and dependence on agriculture. If all country bankers, hypothetically speaking, are monopolists and all city bankers are pure competitors, then if a country banker and a city banker have the same amounts of resources and the same cost curves the former will restrict his output to the point where his marginal costs equal his marginal revenue and charge interest rates greater than his average costs of lending, while the city banker will grant relatively more loans and charge a lower rate of interest, namely that equal to his marginal cost of lending.

A banking structure that allows monopoly in the countryside and pure competition in the cities will violate several economic optimality conditions because some banks will be in a position to engage in monopolistic exploitation of their customers. Allocative neutrality, for example, will be violated because in restricting output and charging high interest rates, country banks will be granting less than an optimal amount of loans, thereby freeing productive resources for use in less profitable employments. Theoretically, with high interest rates in the countryside and low rates in the cities, resource allocation would be improved if loanable funds were transferred from the cities to the countryside and lent there.

The difficulty with applying this analysis to American banking after the Civil War is that the analysis assumes that monopolistic

country bankers and competitive city bankers carry on their operations independently of each other. This was not the case because an important feature of the National Banking System was the establishment of a reserve system which institutionalized earlier, less formal, points of contact between country and city banks.

The reserve system enacted in the revised National Bank Act of 1864 delineated three classes of national banks in regard to reserve requirements. New York City was designated the central reserve city of the country and its national banks were required to maintain lawful money reserves equal to 25 percent of their deposits and note circulation.[17] Eighteen other cities were designated reserve cities which meant that, like New York, they could hold reserves of other national banks.[18] The reserve cities were also required to maintain 25 percent reserves, but only half of this amount had to be held in lawful money. The other half could be held as deposits in New York banks. National banks outside of New York and the reserve cities were required to maintain 15 percent reserves, of which three-fifths, or 9 percent, could be held as deposits in reserve cities including New York.

Under the national banking system reserve city banks continued the antebellum practice of paying interest on bankers' balances deposited with them by other banks. The effect was to create a city demand for the funds of monopolistically situated country banks in addition to the local demand for loans. This placed the country banker in the position of a discriminating monopolist. He faced two demand curves arising from two separate markets and his problem was how to allocate his funds between the two markets in order to maximize profits. Intermarket price discrimination is worthwhile only if the two separate demand curves have different elasticities. This was the case in banking because the city demand curve was perfectly elastic—an individual country banker could not affect the city rate regardless of how much money he transferred to the cities—while the local demand curve for loans was much less than infinitely elastic.

Several possible situations in which the country banker might

[17] Huntington and Mawhinney, *Laws*, pp. 345-46. A later Act of June 20, 1874, repealed the requirement that national banks hold reserves against note circulation. *Ibid.*, p. 418.

[18] During the next fifty years Chicago and St. Louis became central reserve cities, and the number of reserve cities increased to 47. See *Report of the Comptroller, 1913*, p. 282.

have found himself are portrayed in Figures 1 and 2. In Figure 1 we assume the absence of a demand for bank funds from the cities. The banker's demand curve for loans in his (local) market is D_r and the associated marginal revenue curve is MR_r. Given average

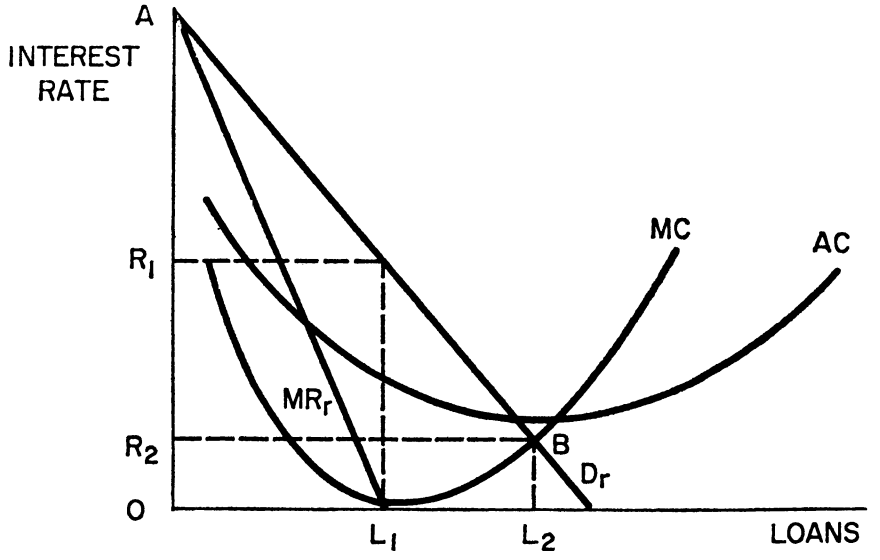

FIGURE 1. Situation of an isolated country bank monopolist.

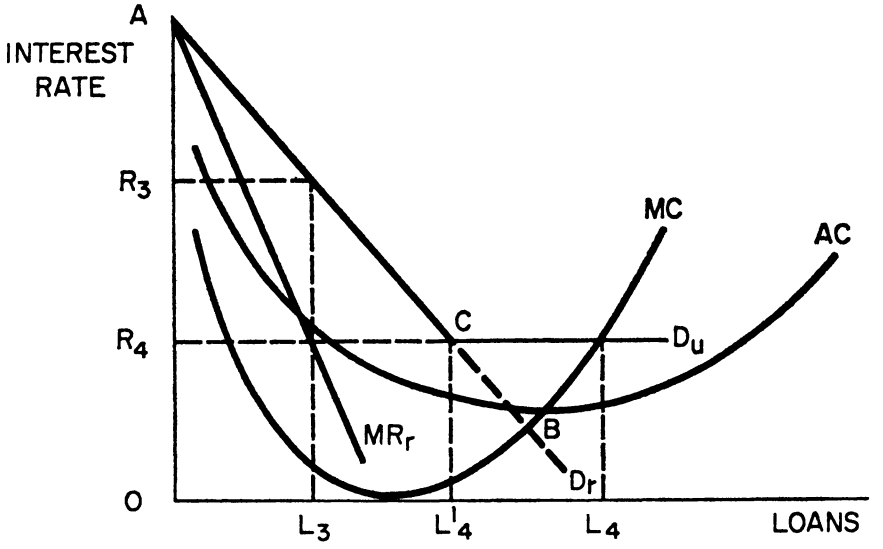

FIGURE 2. Situation of a country bank monopolist facing a demand for funds from city banks as well as from local borrowers.

and marginal cost curves, AC and MC, respectively, the country banker will charge a rate OR_1 and make OL_1 of loans. At this level of loan output marginal cost equals marginal revenue and profits are maximized. Since loan contracts are individually negotiated, however, it is likely that a country bank monopolist will be able to practice some degree of price discrimination *within* his local market. In an extreme situation in which each borrower can be isolated and charged exactly what he is willing to pay for the loan, the banker will maximize profits by granting OL_2 of loans and charging the marginal borrower a rate OR_2. The bank will thereby appropriate to itself the entire amount of surplus that borrowers could obtain if the loan market were purely competitive; this is represented by the area ABR_2 in Figure 1. The average of interest rates charged to all borrowers will then lie between the marginal rate OR_2 and the maximum rate OA.

In Figure 2 we add to the situation portrayed in Figure 1 a demand curve D_u, representing the demand for country bank funds on the part of city banks. The country bank's total demand curve for local loans and city balances is now ACD_u. The city demand curve as seen by the country banker is infinitely elastic and it therefore becomes his marginal revenue curve beyond point C. If the country banker acts as an ordinary monopolist in his local market, but as a discriminating monopolist between the local and city markets, profits are maximized where MC crosses D_u. Marginal revenue in each market is equated to marginal cost, the result being that an amount of loans OL_3 is granted at home at a rate OR_3, and a quantity of funds L_3L_4 is sent off to the city.

Again, however, it is likely that the country banker will be able to practice price discrimination *within* his local market as well as ***between*** the local and city markets. In this case, OL'_4 of loans will be granted at home, the marginal local borower being charged a rate OR_4, and L'_4L_4 of funds will be sent to the city where they also earn the rate OR_4. In practice, the marginal country borrower may not be charged exactly the city rate OR_4, for his rate may be marked up to reflect the greater riskiness of a loan to an individual as opposed to the safer city bank. To the extent the country banker is able to discriminate between borrowers in his local market, he will again be able to extract from them a portion of the borrowers' surplus represented in Figure 2 by the area ACR_4. For this reason,

and also because of risk premiums, the average of rates he charges to local borrowers will be between OR_4 and OA.

Because of the nature of the bank lending process, the last case, in which there is discrimination both among local borrowers and between the local and city markets, probably most nearly represents the situation of country bankers in the late nineteenth century. Several observations can be made about this case. Comparing the situation of the discriminating monopolist of Figure 1 with the last case in Figure 2, it is evident that fewer local loans are granted by the discriminating monopolist in the latter situation (OL'_4 is less than OL_2), but that because of the presence of a demand from city banks, the total amount of bank funds allocated to local and city uses is greater than in the former case (OL_4 is greater than OL_2). Moreover, with allowances for differences in risk premiums and lending costs, *marginal* rates of interest on bank loans in the cities and in the countryside are brought to rough equality, thus making the allocation of loanable funds more efficient. Average lending rates, it is true, are greater in the countryside because entry barriers have led to less competition and more opportunities for price discrimination by country bankers, but average rates are not relevant to the question of resource allocation in this static, partial equilibrium framework.

The point of the analysis can be made clearer by considering a hypothetical example. Suppose that a country banker charges his local borrowers varying rates of interest ranging from, say, 10 percent down to 5 percent. The marginal country borrower pays 5 percent which, because of risks and lending costs, the country banker views as equivalent to the 3 percent, let us say, that he could earn by transferring funds to the cities. When all borrowers who are willing to pay 5 percent or more in the country are accommodated, the remaining loanable funds of the country banker are deposited in city banks at 3 percent. City banks may then lend this money to borrowers who use the funds to finance purchases of stocks on the open market, a common outlet for bankers' balances held by city banks in the nineteenth century. The rate on call loans, a marginal use of bank funds, will be determined in the short run by the supply of and demand for available funds, but more basically by city bankers' costs of lending and the risk premiums they attach to this type of loan, the same factors that

determine the marginal loan rates of country bankers. If costs and risks are similar in the cities and the countryside, then the lending rate on call money would approximate the rate paid by the marginal country borrower, which implies an efficient allocation of loanable funds. This result would hold even if the rate paid by the marginal country borrower differed from the call money rate as long as the difference was due to differences in lending costs and in risk premiums attached to the two types of loans by the country and city bankers.

EMPIRICAL RELATIONSHIPS

The model of bank behavior developed in the preceding section leads to a number of predictions about the price and output behavior of banks in different competitive environments, and also about their profit experience. Given the relevant quantitative information, these predictions can be tested to see whether, and how well, they conform to the banks' historical experience. In what follows two general points are established. The first is that barriers to entry actually did lead to monopolistic behavior and monopoly profits for banks in noncompetitive situations, and the second is that the possibilities opened up by the connection of country banks, through the national bank reserve system, to the demand for funds in the cities led to a flow of bankers' balances from country to city banks well in excess of amounts transferred merely to satisfy reserve requirements.

Monopoly

The theory of monopoly, even when extended as above to include price discrimination practices, predicts that a bank monopolist will charge higher average interest rates, produce less local loan output, and earn higher profits than a competitively situated producer operating under the same cost conditions.[19] Direct information on loan interest rates charged by national banks is too fragmentary to allow

[19] Pure competition in country banking would rule out price discrimination within the local market. It would also change cost conditions as the competitive banks bid against each other for customers' deposits. In Figure 2 such bidding would tend to raise the level of AC to a point of tangency at its lowest point with D_u. Then both a group of competitive banks and a perfectly discriminating monopolist would grant the same total amount of local loans (OL'_4). The sense in which local loan output is restricted by a monopolistic country bank arises when comparison is made with a city bank having the same cost curves. See fn. 23.

a detailed comparison of inter-regional and city-country price variations. A recent study of national bank earnings by Lance Davis does, however, provide extensive indirect information on bank pricing policies.[20]

Using data on national bank net earnings, which were gathered by the Comptroller of the Currency starting in 1869, and gross earnings, which became available in 1888, and calculating bank earnings as a percentage of earning assets, Davis constructed series approximating average annual bank interest rates for six regions of the country similar to the regions used in the present study,[21] and for reserve-city and country banks in each region. The data on earning assets were taken from balance sheets published in the *Annual Reports* of the Comptroller. Gross earnings as a percentage of earning assets furnishes a close approximation to average loan interest rates, the major difference lying in the lumping together of loans and security investments in earning assets and investment and loan returns in earnings. Loans, however, were by far the largest component of earning assets at all dates. For this reason, and also because returns from investments—primarily U.S. government bonds—did not vary much between regions, earnings-earning assets ratios adequately reflect geographical differences in loan rates. On the other hand, earning net of bank operating expenses and losses as a percentage of earning assets are a less adequate index of interest rates, but do provide useful information on variations in bank charges between regions for a longer period of time than the series of gross returns.

Table 2 shows the average annual spread between gross earnings of reserve-city banks in each of Davis' six regions and the rate of gross earnings on earning assets of national banks in New York City, the nation's central money market, for two subperiods of the pre-World War I period for which this information is available in the Comptroller's *Reports*. Gross earnings rates in Boston, the only reserve city in New England (Region I), were near to the New York rate in both subperiods, but reserve-city banks in each of the other five regions earned higher rates of return than the New York City banks, indicating that they charged higher loan

[20] Lance E. Davis, "The Investment Market, 1870-1914: The Evolution of a National Market," THE JOURNAL OF ECONOMIC HISTORY, XXV (Sept. 1965), 355-99.

[21] For Davis' regions see notes to Table 2; the regional groupings used in this study are given in the notes to Table 1 above.

TABLE 2
AVERAGE ANNUAL DIFFERENTIALS IN NATIONAL BANK GROSS EARNINGS AS A PERCENTAGE OF EARNING ASSETS, 1888-1914
(PERCENTAGE POINT UNITS)

Years	*Region*[a] *I*	*II*	*III*	*IV*	*V*	*VI*
	Differential Between Reserve-City Banks in Each Region and New York City Banks					
1888-1900	−0.23	0.79	2.33	1.43	4.44	2.17
1901-1914	0.23	0.33	1.89	0.42	1.89	0.88
	Differential Between Country and Reserve-City Banks in Each Region					
1888-1900	1.15	0.15	1.00	0.45	0.53	2.15
1901-1914	0.11	−0.05	0.03	0.34	1.52	2.80
	Differential Between Country National Banks in Each Region and New York City Banks					
1888-1900	0.92	0.94	3.33	1.88	4.97	4.32
1901-1914	0.34	0.28	1.92	0.76	3.41	3.68

[a] Regions are: I, New England States; II, Middle Atlantic States; III, Southern States; IV, East North Central States plus Minnesota, Iowa, and Missouri; V, North Dakota, South Dakota, Nebraska, Kansas, Montana, Wyoming, Colorado, New Mexico, and Oklahoma; VI, California, Washington, Oregon, Idaho, Utah, Nevada, and Arizona.

Source: Calculated from Lance E. Davis, "The Investment Market, 1870-1914: The Evolution of a National Market," THE JOURNAL OF ECONOMIC HISTORY, XXV (Sept. 1965), Tables 2 and 3, 355-69.

rates. Reserve cities in the South (Region III) and the Far West (Regions V and VI) enjoyed the greatest advantage over New York City, which is what I would have expected on the basis of my study of entry barriers. Furthermore, the spreads between the rates earned in the regional reserve cities and the New York rate narrow substantially after the turn of the century. Davis attributed the narrowing of interregional rate differentials to the development of a national market in commercial paper, which increased the degree of competition to which banks in all regions were subjected. To this can be added the reduction of bank entry barriers legislated in the 1900 Gold Standard Act and the ensuing growth of national and state banking, both of which reduced regional variations in banking competition.

Another aspect of spatial differences in interest rates is given in Table 1 which presents, for the same two subperiods of 1888-1914, the spreads between the gross earnings rates of country banks and those of reserve-city banks in each region. Only in the

Middle Atlantic states (Region II) were the city and country rates similar in both subperiods. In each of the other five regions the country banks earned higher rates. Country rates in New England, the South, and the Middle West (Regions I, III, and IV) moved closer to the reserve-city rates in these regions after the turn of the century. In the two Far Western regions the city-country differentials did not narrow,[22] but because the reserve city-New York differential for these regions fell sharply during 1901-1914, the spreads between country rates in Regions V and VI and the New York rate did narrow (see table). Again the effect of reduced bank entry barriers is evident, especially in the virtual elimination of city-country rate differentials in New England and the South, but also in the reduced differentials between New York and country banks in every region (see table) after 1900.

Differentials in rates of gross earnings on earning assets, as approximations to interest rate differentials, could, however, reflect nothing more than differences in bank cost functions, and could therefore be unrelated to variations in competition between banks. For the same reason, a narrowing of rate differentials over time might have been caused by reductions in unit costs as more and more small banks grew to a more efficient size of operation. If cost differences explain differences in bank charges, then we would expect *net* returns on earning assets to be more nearly equal between regions and between city and country banks than gross returns. Table 3, which is patterned after Table 2, except for covering a longer period, presents data relevant to this point. Comparing reserve cities with New York we see that during the 1870's cost differences cannot explain interest rate differentials in any of the regions, for the net returns of reserve-city banks everywhere exceeded the New York banks' returns by at least one percentage point. After 1880, Boston (Region I) and New York earned comparable net returns on earning assets, but reserve-city banks in other regions generally earned greater net returns until the end of the century. After 1900, however, net returns in every region but the South fell close to, and by 1910-1914 even below, the New York levels. This again is consistent with growing interregional, intercity competition either through a developing commercial paper market,

[22] The city-country differential of Region V for 1888-1900 is sharply affected by an extreme value in 1898. If this value is excluded, the average differential for the other 12 years is 1.59 instead of 0.53.

as Davis argued, or directly between banks, as the present analysis implies.

Table 3 indicates that country banks in every region generally earned higher net returns than city banks in the same region, but the earlier-noted tendency for the differentials to narrow over time is again apparent. The same pattern is repeated when we compare the regional country bank net returns with the New York City rate. Not until the turn of the century, and not even then in the South and Far West, did country bank net returns approximate those of the cities. It is clear, therefore, that the higher interest charges of small country banks in the late nineteenth century cannot be explained by their higher costs of operation and failure to realize possible economies of scale; the regional patterns and

TABLE 3
AVERAGE ANNUAL DIFFERENTIALS IN NATIONAL BANK NET EARNINGS AS PERCENTAGE OF EARNING ASSETS, 1870-1914
(PERCENTAGE POINT UNITS)

Years	*Region*[a] *I*	*II*	*III*	*IV*	*V*	*VI*
	Differential Between Reserve-City Banks in Each Region and New York City Banks					
1870-1879	1.04	1.18	2.17	1.37	—	4.08[b]
1880-1889	−0.10	0.24	0.58	0.69	—	2.60
1890-1899	−0.02	0.66	0.54	0.08	−0.47	2.77
1900-1909	−0.50	−0.22	0.75	−0.24	0.21	0.36
1910-1914	−0.26	−0.45	0.52	−0.39	−0.08	−0.04
	Differential Between Country and Reserve-City Banks in Each Region					
1870-1879	1.24	0.39	−0.06	1.13	—	3.88[b]
1880-1889	1.04	0.46	1.23	0.96	—	1.36
1890-1899	0.97	0.26	1.04	0.87	2.10	−0.97
1900-1909	0.60	0.35	0.13	0.42	1.14	0.97
1910-1914	0.07	0.24	−0.03	0.11	0.80	0.75
	Differential Between Country Banks in Each Region and New York City Banks					
1870-1879	2.28	1.57	2.13	2.50	—	7.96[b]
1880-1889	0.94	0.70	1.81	1.65	—	3.96
1890-1899	0.95	0.92	1.58	0.95	1.63	1.80
1900-1909	0.10	0.13	0.88	0.18	1.35	1.33
1910-1914	−0.19	−0.21	0.49	−0.28	0.72	0.71

[a] For states in each region, see Table 2.
[b] 1871-1879.

Source: Calculated from Lance E. Davis, "The Investment Market, 1870-1914: The Evolution of a National Market," THE JOURNAL OF ECONOMIC HISTORY, XXV (Sept. 1965), Tables 4 and 5. There were no reserve cities in Region V before 1888.

time trends of average bank loan rates, as approximated by gross and net rates of return on earning assets, appear to be better accounted for by variations in competition due to the differential impact of legal barriers to entry.

In addition to higher prices (interest rates), monopoly theory predicts that a monopolist's output will be held below levels consistent with competitive profit maximization, i.e., where price equals marginal cost. Returning to Figure 2, recall the earlier conclusion that a country bank monopolist who practices price discrimination within his local market and faces an additional demand for funds from the city will make OL'_4 of local loans. This level of local loan output is below the competitive level, which for a city bank operating under the same cost conditions would correspond to the level where the marginal cost curve (MC) intersects the demand curve (D_u). Therefore, if country banks were operating in a less competitive framework than their city cousins, we would expect output restriction to show up in a comparison of country and city bank loan-asset ratios.[23]

Table 4 tends to confirm this expectation. If, for any year, we compare the loan asset ratio of non-reserve-city national banks in a given region with the ratio for reserve-city banks in the same region, in a majority of these comparisons (23 of 41) the ratio for the city banks exceeds or equals that of the country banks in its region, indicating that a greater or equivalent percentage of reserve-city bank assets went into loans. In most of the contrary cases, there is little difference between the city-country ratios, the maximum difference being 6 percentage points in the South in 1870. This is all the more striking when we recall that city bank reserve requirements were much more stringent than the requirements to which country banks were subject. The latter had to maintain reserves of 15 percent against deposits (deposits and circulation before 1875), of which only two-fifths (6 percent) had to be held in cash. The reserve-city banks had to hold 25 percent reserves

[23] The output restriction alluded to here corresponds in Figure 2 to the difference between OL_4, the amount of loans which would be made by a city bank, and OL'_4, the amount which would be made in the local market by an intramarket discriminating monopolist or, for that matter, by a group of purely competitive country banks. This restriction of output is consistent with efficient fund allocation and should be distinguished from the quantity (OL'_4-OL_3) which is the amount output would be restricted by a nondiscriminating bank monopolist. Empirically, the two types of output restriction are difficult to distinguish.

TABLE 4
LOAN-ASSET RATIOS OF RESERVE-CITY AND NON-RESERVE-CITY NATIONAL BANKS, BY REGION, 1870-1910

	New England		*Middle Atlantic*		*South*		*East N. Central*		*West N. Central*		*Mountain-Pacific*	
Year	*RC*	*NRC*	*RC*	*NRC*	*RC*	*NRC*	*RC*	*NRC*	*RC*	*NRC*	*RC*	*NRC*
1870	0.53	0.47	0.46	0.47	0.38	0.44	0.48	0.46	0.47	0.43	—	0.28
1875	0.58	0.52	0.50	0.52	0.43	0.43	0.55	0.51	0.54	0.47	0.58	0.46
1880	0.56	0.51	0.51	0.47	0.48	0.44	0.52	0.47	0.54	0.49	0.48	0.41
1885	0.60	0.55	0.53	0.51	0.52	0.55	0.54	0.55	0.58	0.62	0.55	0.53
1890	0.67	0.68	0.64	0.62	0.61	0.64	0.63	0.64	0.60	0.64	0.68	0.60
1900	0.62	0.59	0.53	0.53	0.47	0.53	0.53	0.56	0.52	0.57	0.47	0.43
1910	0.58	0.57	0.51	0.54	0.55	0.60	0.55	0.57	0.56	0.61	0.49	0.53

Note: For indicated years, average of loans reported at each call date was divided by average of assets reported at each call date.
Source: *Reports of the Comptroller of the Currency* for the years indicated.

against deposits, *including* net balances due to other banks, of which one-half (12.5 percent) had to be cash. Other things being equal, one would therefore expect the loan-asset ratios of the city banks to be several percentage points below those of the country banks, but in only 8 of the 41 city-country, region-year comparisons did the country bank ratio exceed the city bank ratio by more than three percentage points. Moreover, almost half of the cases (8 of 18) in which the country ratio exceeds the city ratio in a given region lie in the years 1900 and 1910, which lends further support to the argument that declining entry barriers after 1900 increased the degree of banking competition in the countryside. To the evidence of higher interest rates, we can therefore add the evidence of output restriction in building a case for the existence of widespread monopoly in late nineteenth-century country banking.

We are, however, not quite in a position to nail down the argument. For it is still possible that the higher gross and net returns (to which output restriction contributed) realized by country bankers in every region over both New York and regional reserve-city banks until 1910-1914, were necessary in order to make returns on the capital invested in banks equal in the cities and the countryside. For example, because of the minimum capital requirements of national banks, banks formed in smaller communities might not have been able to attract as many dollars of deposits (analogous to borrowed capital) per dollar of equity capital as city banks; in these circumstances country banks would have had to charge higher loan rates and earn greater net returns on earning assets merely to earn a rate of return on equity comparable to that earned by city banks. Profit on equity is the consideration relevant to the question of bank entry, and the consideration which thus provides the acid test of restrictions on competition.[24] If country banks consistently earn higher rates of return on their equity capital than city banks, in addition to charging higher loan rates and earning higher net returns on earning assets, then it is evident that barriers to entry

[24] That is, unless the average cost curves of country banks reached lower levels than those of larger city banks because of real cost differences that could not be competed away. For example, labor costs might have been substantially higher for city banks than for country banks. I deem this unlikely, primarily because studies of bank costs in more recent periods (e.g., Alhadeff, *Monopoly and Competition in Banking*) indicate that average costs decline, or at least do not rise, as bank size increases. Real cost differences remain a possible explanation of differences in bank profit rates but variations in competition due to entry barriers appear to provide an explanation more consistent with the historical circumstances.

are preventing competition from carrying out its return-equalizing function at the margin.

These suppositions are supported by the evidence of national bank net earnings as a percentage of capital plus surplus as reported in Table 5. In 43 of 53 region-year comparisons between 1870 and 1910, the country banks of a given region earned greater returns on equity than reserve-city banks in the same region. Bank competition apparently was more effective in the cities. Furthermore, as we move south and west through regions in given years, profit rates in both reserve cities and the countryside tend to rise from levels prevalent in the East, which confirms the differential regional impact of national bank entry barriers.

An argument for the greater monopoly powers of country banks as contrasted with city banks in every region, as well as the greater monopoly power of country and city banks in the South and West in comparison with Eastern banks, would appear to be firmly grounded in quantitative evidence. This evidence relates only to national banks, but the conclusions can be generalized to non-national banks because the more rapid growth of non-national banks in all six regions between the Civil War and 1910 indicates that their profit experience was, if anything, even greater than that of banks in the national system. The more stringent regulation—e.g. higher reserve requirements—of national banks, points in the same direction.

Bankers' Balances

After monopoly, the second feature of the model to be tested is the predicted behavior of bankers' balances. The monopolistic country banker portrayed in Figure 2 had two outlets for his funds —local loans and bankers' balances held in city banks. Balances held by country national banks with reserve-city banks, and those held by reserve-city banks in central reserve cities, satisfied reserve requirements to the extent of 9 and 12.5 percent of deposits, respectively. But if the model is valid, reserve requirements would play little role in a banker's decision of how much funds to send to the city. This would be decided by extending local loans to the point where the marginal rate of return, adjusted for risk considerations, equaled the rate of return earned on bankers' balances in the cities. This level of local loan output is represented by OL'_4 in Figure 2. The remainder of the funds the bank wished to utilize

TABLE 5
AVERAGE PROFIT RATES OF RESERVE-CITY AND NON-RESERVE-CITY NATIONAL BANKS, BY REGION, 1870-1910

	New England		*Middle Atlantic*		*South*		*East N. Central*		*West N. Central*		*Mountain-Pacific*	
Year	*RC*	*NRC*	*RC*	*NRC*	*RC*	*NRC*	*RC*	*NRC*	*RC*	*NRC*	*RC*	*NRC*
1870	10.3	11.5	10.3	11.3	13.3	16.0	11.0	13.7	17.3	15.5	—	21.1
1875	7.9	9.1	8.7	8.9	8.4	9.5	12.0	11.4	6.4	11.6	17.9	20.1
1880	5.6	7.0	5.9	7.6	9.1	7.6	11.5	8.5	6.5	12.7	7.5	18.7
1885	3.0	5.3	5.9	7.2	6.3	9.5	7.4	8.1	7.3	11.7	5.3	14.3
1890	4.3	6.6	7.4	9.2	10.2	11.9	9.3	9.9	9.7	9.1	9.7	14.2
1895	3.1	4.6	6.0	6.6	3.9	7.1	6.8	6.4	1.9	4.4	8.4	3.4
1900	6.9	7.4	9.9	11.3	8.6	12.6	10.8	9.0	7.7	10.5	12.4	12.6
1905	5.4	6.6	8.8	8.8	8.7	12.0	8.2	9.0	7.8	11.1	12.9	16.0
1910	11.9	7.6	7.7	8.0	12.1	10.4	8.3	8.7	11.8	13.2	13.7	15.8

Note: Figures are sums of semiannual unweighted averages of net earnings divided by capital and surplus of national banks in each state and reserve city for the two halves of each year.

Source: Calculated from *Annual Report of the Comptroller of the Currency* for the indicated years, except for 1870, where the data have been taken from the 1873 *Report*.

profitably ($L_4L'_4$ in Figure 2), an amount determined by comparing marginal lending costs with the rate earned on city balances, would be sent to the city. Reserve requirements would therefore provide a minimum below which city balances could not fall, unless the country banker was willing to forego interest on part of his reserves by holding more than was necessary in cash, but would otherwise be irrelevant to the individual banker's profit-maximizing decision.

These theoretical conclusions are supported by data on bank behavior. A chart published in Margaret Myers', *The New York Money Market,* allows a comparison of cash holdings and bankers' balances with the amounts called for by reserve requirements for country, reserve-city, and New York banks from 1875 to 1914.[25] It shows that country banks held substantial excess reserves in both cash and city balances throughout the period. Cash holdings were far in excess of the required 6 percent of deposits in the early years but declined to a level not far above this by the end of the period. Country bank balances in the cities did not exhibit such a distinctive trend toward the 9 percent level which could be counted as reserves against deposits, but after reaching a peak in the last years of the century they too declined up to 1914. In the reserve cities, where competition between banks was stronger than in the countryside, excess reserves in either cash or balances were never as large in relation to required reserves as in the country. The required amounts were 12.5 percent of deposits for both cash and balances. New York City banks generally stayed close to their minimum required reserves of 25 percent in cash, the major exceptions occurring after financial panics.

It is therefore apparent that country banks sent a great deal more funds to the cities than was called for by reserve requirements. Because any cash reserves above the minimum 6 percent requirement against deposits also applied to the total requirement of 15 percent, the actual excess reserves of country banks held as city balances were much greater than the amount above 9 percent of deposits. To cite an extreme case, on October 1, 1878, the reserve required for the $289.1 million of net deposits held by country national banks was $43.4 million of which two-fifths had to be held in cash while the other three-fifths could be held in the form

[25] Margaret G. Myers, *The New York Money Market, Origins and Development* (New York: Columbia University Press, 1931), p. 236.

of reserve-city balances. But on that date the country banks held $39.1 million in cash and $11 million in a fund for the redemption of their bank notes which also counted toward reserve requirements, so that all of the $56 million the country banks had deposited in reserve-city banks on that date were excess reserves which could have been recalled had the banks chosen to lend the funds at home.[26] That they did not indicates that the banks regarded their balances in the cities as at least as profitable, after taking account of the risks involved, as local loans. Until about 1900 most of the funds country banks had on deposit in the cities were not needed to meet reserve requirements at all, but were mainly held for investment purposes in preference to local loans.

This result can be accounted for by the analysis of Figure 2; short of assuming that country banks were not interested in maximizing profits, it is difficult to account for it in any other way. Moreover, the growth of competition in country banking due to the erosion of entry barriers provides a possible explanation of why excess reserves in both cash and balances began to fall after the last years of the nineteenth century. Increased banking competition would initially have the effect, in Figure 2, of flattening out the AB segment of an individual bank's demand curve, thus moving point B to the right. The percentage of bank funds sent to the cities would thus decline and loan-asset ratios would be expected to rise. The behavior of cash and bankers' balances in Miss Myers' chart is consistent with this explanation, and Table 4 shows that loan-asset ratios of country banks were generally higher in the latter half of the period 1870-1910 than in the years before 1890.

The regional incidences of the predicted effects of the bankers' balance transfer mechanism are given in Tables 6, 7, and 8. Table 6 shows the *net* amounts of balances due to country banks from other banks—assuredly from city banks since amounts due from and due to other country banks would disappear in the netting process—for a number of years between 1870 and 1910. The figures are given in absolute terms and as a percentage of country bank assets in each region, and they are averaged over the five call dates given for each year in the Comptroller's *Report* in order to eliminate seasonal influences. They are thus indicative of the average net amounts of funds the country banks transferred to the cities. The

[26] Data from *Report of the Comptroller, 1878.*

TABLE 6
NET BANKERS' BALANCES[a] OF NON-RESERVE-CITY NATIONAL BANKS DUE FROM OTHER BANKS, 1870-1910

Year	*New England*	*Middle Atlantic*	*South*	*East N. Central*	*West N. Central*	*Mountain-Pacific*
			In Millions of Dollars			
1870	16.4	17.4	2.3	8.8	2.6	0.6
1875	15.2	18.4	5.0	13.5	5.1	1.1
1880	16.4	29.1	6.8	20.6	5.2	3.9
1885	17.4	33.2	7.9	19.0	7.7	4.7
1890	17.3	35.5	14.1	26.5	12.4	11.3
1900	23.9	69.3	32.8	58.9	23.7	28.0
1910	26.1	91.5	57.3	79.2	43.3	50.6
			Above as Percent of National Bank Assets[b] in Non-Reserve Cities			
1870	6.1	6.7	5.1	6.9	9.0	16.7
1875	5.0	6.3	6.0	6.4	8.4	7.6
1880	5.0	9.4	7.6	10.0	8.7	15.4
1885	5.0	9.1	6.1	8.4	6.6	9.1
1890	5.0	8.4	6.2	9.0	6.7	8.2
1900	5.8	11.2	10.1	13.5	10.9	18.3
1910	5.2	6.9	6.1	8.6	7.4	12.7

[a] The dollar values for each region are the sum of "due from national banks," "due from state banks," and "due from reserve agents," less the sum of "due to national banks," "due to state banks," "due to trust companies," and "due to reserve agents," for each state, summed over the states in the region. In order to reduce seasonal influences, the items in quotation marks were averaged arithmetically over the five call dates reported for each year.

[b] Like the net bankers' balances figures, bank assets are annual averages calculated by taking the arithmetic mean of total assets reported at five call dates for each year.

SOURCE: *Report of the Comptroller of the Currency* for each of the indicated years.

absolute amounts rise throughout, but the percentage figures reach a peak in 1900 after which they fall off sharply to 1910. This pattern is common to every region. The regional tendencies predicted from variations in bank competition are again apparent, with the percentage of assets transferred out of the countryside rising as we move west. At most dates, however, country banks in the Middle Atlantic and East North Central regions tended to transfer greater percentages of their funds than banks in the adjoining South and West North Central regions, respectively. This might be explained by the presence of more reserve cities, and hence more opportunities for sending off funds, in the former two regions through most of the period.

Tables 7 and 8 show the amounts of funds received by the net recipients under the operation of the transfer mechanism, i.e., by the reserve-city and central-reserve-city banks. Unlike the country

TABLE 7
NET BANKERS' BALANCES OF RESERVE-CITY NATIONAL BANKS DUE TO OTHER BANKS, 1870-1910

Year	New England	Middle Atlantic	South	East N. Central	West N. Central	Mountain-Pacific
			In Millions of Dollars			
1870	4.4	0.5	−0.2	2.8	−0.2	—
1875	8.9	−0.3	0.3	8.6	1.6	0.2
1880	8.1	4.2	1.2	11.5	3.9	0.3
1885	13.5	3.2	1.6	17.1	3.3	−0.1
1890	11.7	5.5	2.9	4.1	8.2	0.5
1900	27.5	38.7	1.9	13.1	21.3	1.7
1910	28.2	133.3	11.1	42.9	72.8	20.0
			Above as Percent of National Bank Assets in Reserve Cities			
1870	3.1	0.3	−2.6	4.3	−1.0	—
1875	5.1	−0.2	1.2	9.1	8.7	2.2
1880	4.3	2.1	4.7	11.1	2.6	7.3
1885	6.7	1.4	4.8	10.9	9.9	−2.9
1890	5.4	2.0	6.9	3.9	13.4	6.3
1900	10.2	7.7	3.0	6.0	15.1	3.8
1910	8.9	14.7	5.1	10.4	18.4	4.4

Note: See notes to Table 6. Unlike the dollar amounts reported in Table 6, the figures of this table and Table 8 are derived by subtracting the "due from . . ." from the "due to . . ." items.
SOURCE: *Report of the Comptroller of the Currency* for each of the indicated years.

TABLE 8
NET BANKERS' BALANCES OF CENTRAL RESERVE-CITY BANKS DUE TO OTHER BANKS, 1870-1910

Year	New York	Chicago	St. Louis
	In Millions of Dollars		
1870	65.9		
1875	80.6		
1880	101.8		
1885	113.6		
1890	140.6	28.5	6.6
1900	339.3	60.0	21.2
1910	518.6	152.7	55.6
	Above as Percent of National Bank Assets in Central Reserve Cities		
1870	16.4		
1875	19.3		
1880	22.1		
1885	24.4		
1890	27.1	22.3	16.9
1900	33.7	24.1	23.0
1910	30.6	30.8	25.4

Note: See notes to Tables 6 and 7.
SOURCE: *Report of the Comptroller of the Currency* for each of the indicated years.

banks which transferred smaller percentages of their funds after 1900, the percentages of city bank assets received through net transfers from other banks rise throughout the period in most of the regions.[27] This is accounted for by the more rapid growth of bank assets in the countryside than in the cities after 1900, a trend which was partly, but not entirely, offset by the creation of more reserve cities as the newer regions developed. The city banks thus tended to receive an increasing proportion of their funds as net transfers from other banks even as increased banking competition in the countryside after 1900 was leading country banks to keep more of their funds at home. A related factor was the growth of state banks which maintained net balances not only in national bank reserve cities but also in country national banks in their own areas, since these balances counted toward their reserves as well as earning interest. The state banks were thus joined to the national bank reserve system, forming another, less formal, layer at the bottom of the reserve pyramid. At the apex of the pyramid were the central-reserve-city banks in New York, Chicago, and St. Louis, which by the first decade of this century, as Table 8 shows, received from a quarter to a third of their total assets as net transfers from other banks, i.e., after amounts due from other banks were deducted from the bankers' deposits they held.

Whether in absolute values or as a percentage of assets, the net amounts of funds transferred out of the countryside were by no means inconsequential. If a not untypical loan-asset ratio of 0.5 is assumed, country banks which transferred 5 to 10 percent of their assets to the cities could have increased their local loans by 10 to 20 percent if the funds had not migrated. Not all of the funds, of course, could have been called back, for reserve requirements before 1914 and the normal course of money flows would have continued to necessitate the holding of some city balances. But contemporaries were well aware that the amounts of bankers' balances actually held were far in excess of these needs; to some observers they represented "funds not needed by business" in the countryside, while to others they were funds "taken away from legitimate busi-

[27] In Table 7, the decline in the percentage received by reserve-city banks in the East North Central region between 1885 and 1890 was primarily a result of the elevation of Chicago to central-reserve-city status.

ness."[28] Adopting the latter position, the 1913 *Pujo Report* suggested a remedy:

> The most effective way of keeping these funds at home, where they could perform their legitimate function of supplying the needs of trade and commerce in the section from which they are drawn, would be to limit the proportion of resources that may be loaned by any bank on stock-exchange collateral.[29]

But the Money Trust investigators went on to note that "Banks, like individuals, will use their money where it can be employed to the best advantage within legal limits. No currency system can or ever will be devised that will prevent that result."[30]

The theoretical analysis in the second section of this article provides a way of reconciling these positions. It suggests that the country banks were employing their funds to the best advantage both in the country and in the cities, and that this was consistent with an economically efficient allocation of funds. The latter result would apply only if the country banks could practice price discrimination, though not necessarily perfect price discrimination, within their local markets, but because of restricted entry and the personal character of the bank loan market this condition probably applied in many country banking markets during the late nineteenth century. Moreover, the theory is entirely consistent with—indeed, even explains—higher average loan rates in the country than in the cities, which was a problem many contemporaries sought to solve.

CONCLUSION

In tracing the consequences for late nineteenth-century bank behavior of entry barriers created by Federal banking legislation in the 1860's, this article is an attempt to explain several phenomena which puzzled contemporaries and later scholars. Interregional and city-country interest rate differentials persisted because of variations in the degree of monopoly power possessed by bankers in different areas. When barriers to entry were eroded, competition became more uniform and bank interest rate differentials narrowed, often rather sharply. In addition, the large amounts of net bankers'

[28] B. H. Beckhart and James G. Smith, *The New York Money Market, Sources and Movements of Funds* (New York: Columbia University Press, 1932), p. 184.
[29] Quoted *ibid.*, p. 164.
[30] *Ibid.*

balances that, at all times in these years, country banks in high-interest areas held on deposit in banks in the cities where interest rates were lower, were shown to be related to variations in banking competition as well as to the transfer mechanism established by the national bank reserve system.

These features of post-Civil War banking development have important implications for larger financial and economic trends. Within a context of restricted bank entry, they promoted the mobilization of bank funds and, if the price discrimination theory of bank behavior correctly describes the situation of the typical country banker, they also encouraged an economically efficient allocation of those funds. The behavior of bankers' balances in particular offers a useful insight into how the problem of capital supply for developing industries and industry-related activities during the postbellum era was solved in part, as well as why in those decades the industry-agriculture balance in the economy underwent rapid change.

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