

A PROFIT-MAXIMIZING THEORY OF NATIONAL BANK BEHAVIOR

by

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Dissertation submitted to the Faculty of the
Virginia Polytechnic Institute and State University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

in

Economics

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June, 1982

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ACKNOWLEDGMENTS

I owe my greatest intellectual appreciation to Dr. Warren E. Weber for chairing this dissertation. His time and patience with my verbal ineptness should not go without recognition. If I have one regret concerning my graduate education, it is never having the opportunity to take one of Professor Weber's classes.

I would also like to acknowledge the assistance of the other members of my committees, Professors Daniel Orr, T. Nicolaus Tideman, W. Michael Cox, and Allan B. Mandelstamm. I am especially indebted to Al Mandelstamm, who never lost faith in my ability to complete this program. I am eternally grateful for his assistance.

To my fellow graduate students, _____, _____, _____, _____, and _____, thanks for making the unbearable, bearable.

I would also like to thank my parents _____ and _____, and my sister _____. Their constant support for the last six years is greatly appreciated.

Finally, I owe my greatest debt to my wife _____, whose misfortune it has been to be married to a graduate student. Without her love and devotion, this dissertation would never have been written.

TABLE OF CONTENTS

	Page
ACKNOWLEDGMENTS	ii
LIST OF TABLES	v
LIST OF FIGURES	xii
CHAPTER I. PURPOSE OF DISSERTATION	1
Historical Background	1
Purpose of the Dissertation	5
CHAPTER II. BANKING BEFORE THE ESTABLISHMENT OF THE NATIONAL BANKING SYSTEM	10
Introduction	10
Sources of Income	11
Bank Liabilities	13
Bank Regulation	19
CHAPTER III. REGULATION CONCERNING ORGANIZATION AND OPERATION UNDER THE NATIONAL BANKING SYSTEM	25
Introduction	25
The Comptroller of the Currency	25
Regulation Concerning Entry Into the National Banking System	26
Regulation Concerning National Banks in Operation	31
CHAPTER IV. EXISTING THEORIES OF THE PROFITABILITY OF NATIONAL BANKS	37
Introduction	37
Existing Theories of National Bank Profitability	38
Comptroller's Method	38
Cagan's Method	44
James' Method	49
CHAPTER V. THE PROFITABILITY OF NATIONAL BANKS	54
Introduction	54
The Model	56
Empirical Implications	92

TABLE OF CONTENTS (Continued)

	Page
CHAPTER VI. EMPIRICAL TESTS OF THE MODEL	96
Introduction	96
Empirical Tests of the Model	97
Asset Portfolios	97
Liability Portfolios	100
Differences Between National Bank Classes and Across Regions	110
Differences Between National Bank Classes	110
Differences Across Regions	111
Bank Entry	120
Conclusion	123
CHAPTER VII. SUMMARY AND CONCLUSIONS	129
BIBLIOGRAPHY	134
Books and Pamphlets	134
Scholarly Articles and Papers	135
Published Government Documents	136
Articles in Popular Publications	136
Unpublished Materials	136
APPENDIX I. NATIONAL BANK BALANCE SHEETS FOR: NON-RESERVE CITY BANKS BY STATE; NON-RESERVE CITY BANKS BY REGION; AGGREGATE NON-RESERVE CITY BANKS; INDIVIDUAL RESERVE CITY BANKS; AGGREGATE RESERVE CITY BANK; CENTRAL RESERVE CITY BANKS; AND AGGREGATE NATIONAL BANKING SYSTEMS	137
VITA	188
ABSTRACT	

LIST OF TABLES

Table	Page
II.I Specie Requirements of the Individual States	17
II.II Specie Requirements of the Individual States (Percentage of Liabilities to be Held in Specie)	18
III.I Notes Entitled to National Banks Upon Depositing Bonds with Treasurer	29
V.I Various Levels of i^L and i^d Which Make Reserve City Banks Indifferent as to the Method of Finance Used to Purchase Loans Given: $i^b = .02$	69
V.II Various Levels of i^L and i^d Which Make Reserve City Banks Indifferent as to the Method of Finance Used to Purchase Loans Given: $i^b = .04$	70
V.III Various Levels of i^L and i^d Which Make Reserve City Banks Indifferent as to the Method of Finance Used to Purchase Loans Given: $i^b = .06$	71
V.IV Various Levels of i^L and i^d Which Make Non-Reserve City Banks Indifferent as to the Method of Finance Used to Purchase Loans Given: $i^b = .02$	75
V.V Various Levels of i^L and i^d Which Make Non-Reserve City Banks Indifferent as to the Method of Finance Used to Purchase Loans Given: $i^b = .04$	76
V.VI Various Levels of i^L and i^d Which Make Non-Reserve City Banks Indifferent as to the Method of Finance Used to Purchase Loans Given: $i^b = .06$	77
V.VII Various Levels of i^L and i^d Which Make Central Reserve City Banks Indifferent as to the Method of Finance Used to Purchase Loans Given: $i^b = .02$	79

LIST OF TABLES (Continued)

Table	Page
V.VIII Various Levels of i^L and i^d Which Make Central Reserve City Banks Indifferent as to the Method of Finance Used to Purchase Loans Given: $i^b = .04$	80
V.IX Various Levels of i^L and i^d Which Make Central Reserve City Banks Indifferent as to the Method of Finance Used to Purchase Loans Given: $i^b = .06$	81
V.X Comparison Between (21RCB) and (34RCB) for i^L and i^d That Would Make a Reserve City Bank Indifferent as to the Method of Finance Used for Loan Purchases	89
V.XI Various Rates of i^d That Would Make a Central Reserve City Bank Indifferent as to Accepting a Deposit Given the Level of i^L	91
VI.I Ratio of Loans to Earning Assets National Banking System: 1867-1873	98
VI.II Ratio of Loans to Earning Assets by National Bank Class: 1867-1873	99
VI.III Average Annual Price of United States Bonds Commonly Deposited with the Treasurer to Support Note Issue: 1867-1873	101
VI.IV Average Reserves by National Bank Class: 1868-1873	103
VI.V Actual Reserves by State Non-Reserve City Banks: 1868-1873	104
VI.VI Actual Reserves by Region Non-Reserve City Banks: 1868-1873	105
VI.VII Actual Reserves - Reserve City Banks: 1868-1873	106
VI.VIII Deposit-Note Ratios by National Bank Class: 1867-1873	108

LIST OF TABLES (Continued)

Table	Page
VI.IX Average Bond Prices for Various State and Railroad Bonds: 1867-1873	109
VI.X Deposit-Note Ratios Non-Reserve City Banks by State: 1867-1873	112
VI.XI Deposit-Note Ratios Non-Reserve City Banks by Region: 1867-1873	113
VI.XII Deposit-Note Ratio Reserve City Banks: 1867-1873	114
VI.XIII Apportionment of National Bank Circulation	118
VI.XIV Ratio of National Bank Notes Outstanding to Maximum Circulation and Actual Circulation: Aggregate National Banking System: 1867-1873 . . .	121
VI.XV National Banking Charters: Aggregate National Banking System: 1867-1873	122
VI.XVI National Bank Charters by National Bank Class: 1867-1873	124
VI.XVII National Bank Charters, Non-Reserve City Banks by Region: 1867-1873	125
AI.1 Balance Sheet Entries by State National Banking System 1867-1873 - Maine	138
AI.2 Balance Sheet Entries by State National Banking System 1867-1873 - New Hampshire	139
AI.3 Balance Sheet Entries by State National Banking System 1867-1873 - Vermont	140
AI.4 Balance Sheet Entries by State National Banking System 1867-1873 - Massachusetts	141
AI.5 Balance Sheet Entries by State National Banking System 1867-1873 - Connecticut	142
AI.6 Aggregate Balance Sheet Entries by Rational National Banking System 1867-1873: New England	143

LIST OF TABLES (Continued)

Table	Page
AI.7 Balance Sheet Entries by State National Banking System 1867-1873 - New York	144
AI.8 Balance Sheet Entries by State National Banking System 1867-1873 - New Jersey	145
AI.9 Balance Sheet Entries by State National Banking System 1867-1873 - Pennsylvania	146
AI.10 Balance Sheet Entries by State National Banking System 1867-1873 - Delaware	147
AI.11 Balance Sheet Entries by State National Banking System 1867-1873 - Maryland	148
AI.12 Aggregate Balance Sheet Entries by Region National Banking System - 1867-1873: Mid-Atlantic	149
AI.13 Balance Sheet Entries by State National Banking System 1867-1873 - Virginia	150
AI.14 Balance Sheet Entries by State National Banking System 1867-1873 - West Virginia	151
AI.15 Balance Sheet Entries by State National Banking System 1867-1873 - North Carolina	152
AI.16 Balance Sheet Entries by State National Banking System 1867-1873 - South Carolina	153
AI.17 Balance Sheet Entries by State National Banking System 1867-1873 - Georgia	154
AI.18 Aggregate Balance Sheet Entries by Region National Banking System -1867-1873: South Atlantic	155
AI.19 Balance Sheet Entries by State National Banking System 1867-1873 - Alabama	156
AI.20 Balance Sheet Entries by State National Banking System 1867-1873 - Texas	157

LIST OF TABLES (Continued)

Table	Page
AI.21 Balance Sheet Entries by State National Banking System 1867-1873 - Arkansas	158
AI.22 Balance Sheet Entries by State National Banking System 1867-1873 - Kentucky	159
AI.23 Balance Sheet Entries by State National Banking System 1867-1873 - Tennessee	160
AI.24 Aggregate Balance Sheet Entries by Region National Banking System -1867-1873: South West	161
AI.25 Balance Sheet Entries by State National Banking System 1867-1873 - Ohio	162
AI.26 Balance Sheet Entries by State National Banking System 1867-1873 - Indiana	163
AI.27 Balance Sheet Entries by State National Banking System 1867-1873 - Illinois	164
AI.28 Balance Sheet Entries by State National Banking System 1867-1873 - Michigan	165
AI.29 Balance Sheet Entries by State National Banking System 1867-1873 - Wisconsin	166
AI.30 Aggregate Balance Sheet Entries by Region National Banking System - 1867-1873: North Central	167
AI.31 Balance Sheet Entries by State National Banking System 1867-1873 - Iowa	168
AI.32 Balance Sheet Entries by State National Banking System 1867-1873 - Missouri	169
AI.33 Balance Sheet Entries by State National Banking System 1867-1873 - Kansas	170
AI.34 Balance Sheet Entries by State National Banking System 1867-1873 - Nebraska	171

LIST OF TABLES (Continued)

Table	Page
AI.35	Balance Sheet Entries by State National Banking System 1867-1873 - Colorado 172
AI.36	Aggregate Balance Sheet Entries by Region National Banking System - 1867-1873: Far West 173
AI.37	Balance Sheet Entries: Aggregate Non-Reserve City Banks 1867-1873 174
AI.38	Balance Sheet Entries by Reserve City National Banking System 1867-1873 175
AI.39	Balance Sheet Entries by Reserve City National Banking System 1867-1873 - Albany 176
AI.40	Balance Sheet Entries by Reserve City National Banking System 1867-1873 - Philadelphia 177
AI.41	Balance Sheet Entries by Reserve City National Banking System 1867-1873 - Pittsburgh 178
AI.42	Balance Sheet Entries by Reserve City National Banking System 1867-1873 - Baltimore 179
AI.43	Balance Sheet Entries by Reserve City National Banking System 1867-1873 - Cincinnati 180
AI.44	Balance Sheet Entries by Reserve City National Banking System 1867-1873 - Cleveland 181
AI.45	Balance Sheet Entries by Reserve City National Banking System 1867-1873 - Chicago 182
AI.46	Balance Sheet Entries by Reserve City National Banking System 1867-1873 - Detroit 183
AI.47	Balance Sheet Entries by Reserve City National Banking System 1867-1873 - Milwaukee 184
AI.48	Balance Sheet Entries: Aggregate Reserve City Banks 1867-1873 185

LIST OF TABLES (Continued)

Table	Page
AI.49 Balance Sheet Entries: Aggregate Central Reserve City Banks - 1867-1873	186
AI.50 Balance Sheet Entries: Aggregate National Banking System - 1867-1873	187

LIST OF FIGURES

Figure	Page
I. VARIOUS LEVELS OF i^L AND i^d THAT MAKE A RESERVE CITY BANK INDIFFERENT AS TO PURCHASING LOANS WITH NOTES OR DEPOSIT	65
II. VARIOUS LEVELS OF i^L AND i^d THAT MAKE THE THREE CLASSES OF NATIONAL BANKS INDIFFERENT AS TO PURCHASING LOANS WITH NOTES OR DEPOSITS	83
III. RANGE OF i^L and i^d WHERE RESERVE CITY BANKS RELY ON BOTH NOTE AND DEPOSIT ISSUE	90

CHAPTER I

PURPOSE OF THE DISSERTATION

Historical Background

The National Banking System was the backbone of American banking for fifty years (1863-1913). While there exists some controversy concerning the actual growth rates achieved during this period,¹ one thing is certain; by the time the National Banking System was superseded by the Federal Reserve System in 1913, the United States had emerged as the industrial power of the world.² It was the National Banking System that was primarily responsible for providing the funds necessary for this capital expansion.

Before 1863, the majority of bank business was conducted with the use of bank notes. After 1913 (actually before this time), the majority of bank business was conducted with deposits. Thus, in addition to being a period of economic growth, the same period marked the transition of the primary exchange media from bank note to bank deposits. This event has interesting results because the National Banking System was established for banks operating within the framework of note issue. As one modern writer states: "After the Civil War, deposits were far more important than notes in cities; by the mid-1870's, banks in all but the backwoods areas could extend loans simply by crediting the account of the borrower."³ It may be argued perhaps, that the National Banking System was obsolete 15 years after its conception.

The leading exponent of the National Banking System was Secretary of the Treasury Salmon P. Chase. Chase wanted to establish federal control over the nation's currency. He in fact considered it the right and duty of the federal government to control paper issue. In addition, Chase envisioned that a new system could aid in financing the war effort. In 1862, Chase proposed a scheme under which banks would purchase United States Bonds, deposit them with the Treasurer, and in return receive a national uniform currency.⁴

The idea received little support in either the House or Senate. Much of the lack of support for Chase's plan was probably due to Chase himself. When the war began, Chase believed that he could finance the war on a specie basis. By decree of the Independent Treasury System, established in 1846, all payments made to and from the Treasury were to be in the form of specie. Congress amended this Act early in 1861 to allow Chase to finance the war on a paper basis. Instead, Chase devised a plan with the major banks of New York, Boston, and Philadelphia. The banks in these cities would purchase bonds from the Treasury with specie. As the Treasury purchased war necessities, the specie would flow back into the banks, replenishing their specie reserves and allowing them to make further bond purchases.

This cycle, Chase believed, could continue for the duration of the war. However, due to early Union losses and the Trent Affair, a run on banks led to the suspension of specie payments in late December, 1861.⁵ This left the banks in the aforementioned cities with inadequate specie reserves to continue the lending procedure.

Chase then attempted to offer bonds to the general public, but found this could be done only at a tremendous discount.⁶ Chase quickly decided that he would no longer offer United States securities at a discount. Thus, when he went to Congress with his plan for a National Banking System, he was met with little support. Chase argued that the Treasury was on the verge of bankruptcy.⁷ Therefore, the Legal Tender Act was agreed to as a compromise bill. Congress gave Chase the authority to issue \$150 million in legal tender notes (greenbacks). This sum proved inadequate to support the war effort and the Second and Third Legal Tender Acts were passed; both calling for an additional \$150 million in greenbacks. Chase maintained that "any plan which leaves control of the currency to sixteen hundred suspended, non-redeeming state banks is foredoomed to failure."⁸ Finally, in 1863, his plan for a bond secured national currency went into law.

The Act was not immediately successful. In order to issue National Bank Notes, one had to have a National Bank Charter. Existing state banks were hesitant to change their charters to the national level, and entry by new banks did not occur. In June, 1864, the National Currency Act was amended by the National Banking Act.⁹ Thereafter, nearly two-thirds of chartered national banks were converted state banks. However, a substantial number of state banks remained in existence. Having committed itself to a national banking system, Congress, in June, 1865, placed a ten percent tax on state

bank notes.¹⁰ The majority of remaining state banks quickly sought charters on the national level.¹¹

Measured in terms of note issue, the next eight years (1866-1873) were the heyday of the National Banking System. National Bank Note circulation, fixed at \$300 million before 1870 and \$354 million thereafter, was virtually absorbed. This period was short lived, however. An amendment affecting reserves was passed in 1874. Previously, a reserve was to be maintained in legal money; i.e., gold, silver, greenbacks, and clearing house deposits, equal to 15 or 25 percent (depending on bank size) against notes and deposits. In 1874 this reserve was amended. National banks (regardless of size) were no longer required to keep reserves against notes. Instead, they were required to keep a five percent redemption fund on deposit with the Treasury. This reserve could also be counted as part of reserves against deposits. In reality, this meant that national banks calculated their reserves only as a percentage of deposits. It would seem a priori, that this decrease in the reserve against notes would cause an increase in their issue. Paradoxically, the opposite occurred. National bank note circulation began to decline and continued to do so well into the 1890's, a phenomenon which remains a puzzle to economic historians today.¹² With the exception of a few minor changes, the institutional structure of the National Banking System remained unchanged until it was superceded by the Federal Reserve System in 1913.

Purpose of the Dissertation

The purpose of this dissertation is to build a straight-forward profit-maximizing model of national bank behavior. This model will be used to attempt to predict national bank behavior between the years of 1867 and 1873.¹³ In addition, the model will be used to attempt to explain variations not only between different classes of national banks but also within the same class of national banks as well. The analysis is limited to the years 1867 through 1873 because this was the heyday of national bank note circulation. Undoubtedly the most salient feature of the National Banking System at the time of its conception was the privilege of issuing national bank notes. The majority of antebellum banking had been conducted with the use of bank notes and to the framers of the National Banking System, there was little reason to believe that this would change after the war. Yet, for the majority of the National Banking System's existence, note issue was of relatively minor importance. While contributions to the literature concerning the low note issue of national banks have provided useful insights, they are scarce and incomplete. However, the period where note issue was relatively important; i.e., 1867 through 1873, has been completely ignored in the literature. It is this period that this dissertation will examine. By explaining the relative importance of note issue during this period (or why national bank notes were issued at all), I may provide useful insights to their relative unimportance in other periods.

The importance of note issue would, presumably, depend on the profitability of doing so. Banks would purchase assets in exchange for national bank notes. The alternative to purchasing assets with note issue would be purchasing assets with deposit issue. To compare these two sources of finance, I will compare the profits earned from four different investment opportunities; (1) purchasing loans with notes; (2) purchasing bonds with notes; (3) purchasing loans with deposits; and (4) purchasing bonds with deposits. Given certain exogenous variables, I will then be able to predict the most lucrative national bank portfolio. These predictions about bank behavior can then be compared to actual national bank balance sheets in order to determine the validity of my theory of national bank behavior.

The next chapter of this dissertation, Chapter II, will examine banking before the establishment of the National Banking System. Major sources of income and alternative sources of finance will be presented. These will then be compared to the sources of income and finance available to national banks. In addition, early bank regulation will be discussed for the antebellum period.

Chapter III will establish the institutional structure of the National Banking System. This chapter will outline the National Banking Act of 1864. Regulation concerning organization and operation will be discussed. Focus will be directed towards capital requirements, interest rates, note issue, and the type and amount of reserves to be held by national banks.

In Chapter IV, existing theories on the profitability of National Banks will be analyzed. Most of the theories discussed here are limited to the profitability of national bank notes. In addition, they all deal with the period of low note issue, i.e., the period after 1873. However, they will provide valuable insights for constructing an alternative model.

In Chapter V, a theoretical model that accounts for all national bank activity will be constructed. Hypothetical balance sheets and generalized income statements will be developed for the four investment opportunities mentioned above. Comparing these investment opportunities will then allow me to predict the most lucrative investment strategy for a national bank. In addition, the discussion will analyze changes in key exogenous variables and their effect on national bank portfolios.

Chapter VI utilizes actual national bank balance sheet data from the Annual Report of the Comptroller of the Currency (1867 - 1873), to test the validity of the model developed in Chapter V. Here the analysis will focus on certain implications derived from the model. In addition, comparisons will be made between different classes of national banks along with regional differences as well.

Chapter VII summarizes the results of the dissertation and offers suggestions for further research.

FOOTNOTES

¹The controversy centers around the Civil War as the turning point in the industrial development of the United States. Some authors argue that the turning point began before the Civil War. (See: Douglas C. North, The Economic Growth of the United States 1790-1860 (Englewood Cliffs: Prentice Hall, 1961), pp. 53-69; or Walt Rostow, "The Takeoff into Self-Sustained Growth," The Economic Journal, March, 1956, pp. 25-48.) Another group argues that the turning point occurred during the Civil War. (See: Jeffrey G. Williamson, "Watersheds and Turning Points," Journal of Economic History, September, 1974, pp. 636-661; or Stanley L. Engerman, "The Economic Impact of the Civil War," Explorations in Economic History, second series Vol. 3, No. 3, 1966, pp. 176-199.) Finally, a third group argues that the turning point occurred after the war ended. (See: Robert E. Gallman, "The Pace and Pattern of American Economic Growth," in American Economic Growth, and the Economist's History of the United States, Lance E. Davis, ed. (New York: Harper and Row, 1972), pp. 15-20.)

²Walt Rostow, The Process of Economic Growth (New York: W.W. Norton and Co., 1962), pp. 349-355.

³Ross M. Robertson and Gary M. Walton, History of the American Economy (New York: Harcourt, Brace, and Jovanovich, Inc., 4th Ed., 1979), p. 379.

⁴This system was modelled on the New York Free Banking Law.

⁵The Trent Affair occurred in December, 1861. Two Southern Emissaries were seized from the British steamer, the Trent. The British government demanded an immediate apology from the United States government. Fear that England would join in the Southern cause sent panic through financial markets and led to the ultimate suspension of specie.

⁶In some cases, the discount was as high as 50 percent.

⁷From April to June 1861, the Treasury's receipts were \$5,800,000 expenditures \$23,500,000. Report of the Secretary of the Treasury, December, 1861, pp. 30-32. Chase himself wrote on February 3, 1862: "The Treasury is nearly empty...the house must act today...able and leading financial men in Boston and New York are deeply anxious for the legal tender enactment. So now am I." Congressional Globe 37 Cong. 2 sess., pp. 617-618.

⁸Sweedlun, V.S., The Establishment of the National Banking System (M.A. Thesis, University of Kansas, 1919), p. 25.

⁹The emphasis of the amendment was to make bank entry more attractive in rural areas. Sweedlun op. cit., pp. 47-48.

¹⁰The incorporation of the tax did not take effect until July 1, 1866.

¹¹Before the tax was imposed roughly 900 state banks remained in existence. By the time the tax went into effect on July 1, 1866, there existed less than 300 state banks Robertson and Walton, op. cit., p. 380.

¹²For a discussion of the paradox see Milton Friedman and Anna J. Schwartz; A Monetary History of the United States, 1867-1960, National Bureau of Economic Research (Princeton: Princeton University Press, 1963), p. 121; Phillip Cagan, Determinants and Effects of Changes in the Stock of Money 1875-1960 (New York: Columbia University Press, 1965), p. 87; and John James, "The Conundrum of the Low Issue of National Bank Notes," Journal of Political Economy, 1976, Vol. 84, No. 2) pp. 359-367.

¹³ The year 1866 is omitted in the analysis due to an incomplete data set in the 1866 Annual Report of the Comptroller of the Currency.

CHAPTER II

BANKING BEFORE THE ESTABLISHMENT OF THE NATIONAL BANKING SYSTEM

Introduction

It is impossible, and probably unnecessary, to give a detailed account of banking in antebellum America prior to the founding of the National Banking System. Nevertheless, it is important to have a general conception of banking in the era before the Civil War.

Probably no other industry grew more rapidly than banking in antebellum America. At the time of the Constitution in 1789, there existed only 13 banks; by 1869, the number had increased to 2,876.¹ Short-term self-liquidating bills of exchange to facilitate commerce were the major assets of most banks and the extent of early banking business. Before the Civil War, most bank operations were transacted with the use of bank notes although after 1850, city bank's deposit liabilities were typically in excess of their note liabilities, while the opposite was true for country (rural) banks.

Bank notes during this period had the distinguishing characteristic of being redeemable in gold coin; a \$10 bank note could be exchanged at a bank for a \$10 gold coin. In the event that a bank over-issued and could no longer redeem its notes for some type of specie, it was said to have "suspended payment." Usually however, the bank remained in operation and conducted business strictly on a paper basis.

A common misconception about antebellum banking is that it was all bad. As Hammond states: "The truth is that American banking, like

the American economy itself, had become more and more unlike what it used to be without clearly becoming either better or worse."² There were some very sound banks, especially in the northeast, and some very unsound ones as well. One criterion used in determining the "soundness" of a bank during the antebellum banking was the loss to noteholders upon the failure of a bank. Note holders typically held the first lien on bank assets. Proceeds from liquidation would be given to the note holders, usually in proportion to their note holdings. The nearer the note holder came to recovering the full value of his/her holdings, the sounder the bank was said to be. Another criterion was the discount on bank notes, a topic to be discussed below.

This chapter will first examine the major sources of income available to banks in this period. Next, it will focus on the different problems concerning note issue. Finally, the chapter will briefly summarize the development of state and Federal bank regulations over the period. Included in this discussion will be an examination of the Free Banking System. The purpose of this chapter is to familiarize the reader with several of the critical issues concerning antebellum banking as seen by the framers of the National Banking System. In the next chapter, the National Banking Act of 1864 is outlined. Here it will become evident how these issues influenced the institutional structure of the National Banking laws.

Sources of Income

As stated above, the majority of early bank business was limited to short-term self-liquidating bills of exchange. As capital markets

expanded in the later part of the antebellum period, banks began making loans. The three most common sources of income available to banks of this era were bills of exchange, discounts, and loans.

Bills of exchange were used primarily to transfer funds between different localities. The mechanics of a bill exchange can be illustrated with the following example. Suppose a city merchant sells goods to a country merchant. Due to the uncertainty of redeeming the country currency (a problem which will be addressed below), the city merchant would desire payment in city currency. The country merchant would therefore purchase city notes from his local banker (assume here that the country bank has an account with the city bank), and issue a bill of exchange to the city bank, directing it to pay the city merchant. The bank received a commission for acting as the drawee. Some bills were payable immediately, while others had definite maturities.³

A very common form of payment in antebellum America was the trade acceptance, which was a bill of exchange drawn to order, with a definite maturity date, where the obligation to pay at maturity was accepted by the payee from the drawer. Rather than wait for the bill to mature, the payee would take the note to a bank to be discounted. The payee would receive from the bank the principle of the note and cede ownership of the bill to the bank.⁴ The bank would receive upon payment, the amount advanced plus interest. This was the inducement for discounting the note. In discounting the bill, the bank would issue to the payee its bank notes.⁵

Loans differ from discount in that the interest charged on a discount is collected in advance, whereas with loans, interest charges are collected at specific intervals and at maturity. Also, loans usually have a longer maturity. In addition, a discount is often made on the general credit of the borrower, or his/her endorser; it is unsecured. A loan, on the other hand, is usually secured by collateral such as stocks, bonds, or real estate. The discount would be payable on a specific date, the loan may be payable on demand. There were three types of secured loans made at this time. Call loans were loans for the purchase of securities with stocks or bonds issued as collateral. Merchandise loans to pay for commodities held in storage were secured by warehouse receipts. Finally, loans to pay for goods in transit were secured with bills of lading.⁶

Bank Liabilities

As stated above, banks circulated their liabilities, whether in the form of notes or deposits through asset purchases. Throughout the antebellum period, bank notes were the primary liability in a bank's portfolio, although in the late 1840's and early 1850's deposits surpassed note issue in the larger cities specifically, New York, Boston, and Philadelphia. Because of this, most of the criticisms of antebellum banking are focused around note issue, ignoring deposits.⁷ Many of the problems of note issue can be capsuled under the heading of "note redemption."

A unique feature of bank notes in the antebellum period was they could be redeemed at a bank for specie. However, the bearer would

sometimes find that the note would be redeemed at a discount (less than face value) at a foreign bank, i.e., not local. Usually, the further away the bank of issue, the greater the discount would be. Discounts would probably appear if for no other reason than to account for the cost of constantly bundling up notes to be sent away for redemption.

Some argue that the reason notes circulated at a discount was the lack of a homogenous currency.⁸ Each individual bank issued a unique circulation. In 1860 there existed 1,579 state banks, each circulating several different denominations of notes. The problem, of course, is not the different denominations, but rather ascertaining the quality of the note, i.e., the bank of issue. With 1,579 different currencies, the problem of ascertaining the quality of notes is understandable. While it is difficult to measure the benefits of a uniform currency such as national bank notes, its convenience must be considered. However, others have argued that the myriad of circulating notes was not that great a problem.⁹ First, note brokerage houses were established to exchange "foreign" notes for local bank notes at a discount. Second, publications such as Niles Weekly Register and other Bank Notes Reporters were set up to determine the value of "foreign notes" in the cities where they were published.¹⁰ Thus, price information was available to determine the rate of discount on foreign notes.

Another problem which led to further uncertainty was counterfeiting. Counterfeiting had a different connotation during this

period. Rather than copy an existing bank note as is done today, counterfeiters in antebellum America created their own unique bank notes. These counterfeit notes were simply circulated along with the myriad of notes already in circulation. As one contemporary wrote: "it may be safely stated that the art (of counterfeiting) as pursued in the United States, is without parallel, and that without vaunt or hyperbole we can 'beat the world' on this, our national specialty."¹¹ Here again there is controversy concerning the cost of counterfeiting. Cagan has argued that although individual losses were undoubtedly great, the cost to society was zero since for every individual loss, the counterfeiter gained.¹² However, he further argues that counterfeiting added to the confusion and uncertainty already existing from the heterogenous currency causing individuals to refuse foreign bank notes due to the risk of their depreciating before they could be spent. This burdened the economy due to the retardation of commerce. Cagan argues that no gains offset these losses. He concludes his point by stating that it is doubtful that the economy could have experienced the rapid growth it achieved after the Civil War with such a chaotic currency.

This argument has been countered on several grounds. First, like Bank Note Reporters, which were established to determine the discount (safety) of legal bank notes, Counterfeit Detectors were established to warn the public of illegal notes. Second it would seem reasonable to assume that individuals who were going to counterfeit would find their notes selling at a discount immediately.¹³ Finally, Weber has

argued that our present system of transacting (personal checks), is no different from note issue during antebellum banking. The liabilities of private institutions circulate as a means of payment. He states: "Today, individuals forge or bounce checks, and there are very large (infinite) discounts on checks when one faces "No checks accepted" or "No out-of-town checks accepted"."¹⁴ There are few who argue that our present system of transacting retards trade.¹⁵

With respect to note redemption, heterogenous specie requirements led to further uncertainty. Before 1837, banks in some states were required by law to maintain some percentage of their capital stock (not circulation) in specie against note liabilities.¹⁶ These specie requirements are listed in Table II.1. It was common practice during this time for a bank's liabilities to be limited to three, four, or five times the value of the capital stock. Thus, these early specie requirements were not that extreme. In 1837, Virginia became the first state to calculate reserves as a percentage of note liabilities. Later, other states followed this example. These reserves are calculated in Table II.2. In either case, there is little uniformity among the various states. Often, the problem with specie requirements was not the lack of uniformity, but the lack of enforcement when banks failed to meet them.

There were many abuses of these early specie requirements. Specie paid to the bank by stock subscribers would many times be loaned back the following day in return for stock notes. Stock notes, although illegal, were promissory notes of the subscriber, promising to pay for

TABLE II.I

SPECIE REQUIREMENTS OF THE INDIVIDUAL STATES

STATE	YEAR (Initiated)	SPECIE REQUIREMENT (Percent of Capital Required)
Massachusetts	1804	100
Rhode Island	1791	40
Connecticut	1792	35
	1833	30
Maine	1812	25
New Hampshire		100
Vermont	1818	a
	1840	50
New York	1825	50
	1829	100
New Jersey	1812	a
Pennsylvania	1814	10
Maryland	1810	25
Virginia	1792	10
North Carolina	1804	10
	1819	50
Florida	1831	7
	1832	3
	1835	b
Louisiana	1811	00
Kentucky	1818	25
Tennessee	1837	50
Indiana	1834	a
Illinois		

a -States left specie requirements to the discretion of the bank's directors.

b - Banking was voted illegal in Florida's 1835 Constitution.

c -Tennessee had no specific specie requirement, it varied among banks.

Source: Computed by author from data collected in Davis R. Dewey, State Banking Before the Civil War, (Washington, D.C.: U.S. Government Printing Office, 1910, Chapter 1).

TABLE II.II

SPECIE REQUIREMENTS OF THE INDIVIDUAL STATES
(Percentage of Liabilities to be Held in Specie)

STATE	YEAR	REQUIRED CASE RESERVE	BASE
Virginia	1837	20%	Notes
Georgia	1838	25%	Notes
Ohio	1839	33 1/3%	Notes
Mississippi	1840	33 1/3%	Notes
Louisiana	1842	33 1/3%	Deposits & Notes
Connecticut	1848	10%	Notes
Indiana	1853	12 1/2%	Notes
Missouri	1857	33 1/3%	Notes
Maine	1858	5%	Notes
Iowa	1858	25%	Deposits & Notes
Massachusetts	1858	15%	Deposite & Notes
Pennsylvania	1860	8%	Deposits & Notes

Source: Bray Hammond, "Banking Before the Civil War," Dean Carson, ed., Banking and Monetary Studies (Homewood, Illinois: Richard D. Irwin, 1963), p. 11.

his/her stock in specie at some later date. Many times banks accepted stock notes in payment for subscriptions. As the reader may infer, it was not uncommon for banks to be founded on artificial grounds. The following passage illustrates the use of stock notes and the unsound bank practices that resulted from them.

"...notes tended to attract an unsubstantial and speculative class of stockholders; if the bank fared well, the stockholder enjoyed dividends on the whole amount of indebtedness to it by paying in his certificates of stock. Thus he had all to gain and was irresponsible of loss,"¹⁷

Bank Regulation

There were two major forms of banking in an antebellum America; federally chartered and state chartered banks.¹⁸ As may be inferred, the governmental body that chartered the bank, regulated the bank. The Federal government was involved in bank regulation from 1791 to 1836.¹⁹ Two banks were chartered by the Federal government; they were the First and Second Banks of the United States. State banking can be dichotomized into two periods. In the first period, before 1837, state banks were acts of incorporation by state legislators, thereafter, anyone who met the requirements of a states' general banking law could enter the banking business. This later period is commonly referred to as the "Free Banking Era."²⁰ In this section, the discussion will be restricted to the two federally chartered banks and free banking. Examining the First and Second Banks of the United States will explain why the Federal government was not involved with bank regulation at the time of the conception of the National Banking System. Since the

National Banking System was modelled after the Free Banking System, it merits attention as well.

As stated above, the Federal government chartered two banks in the antebellum period. They were the First and Second Banks of the United States. Unfortunately, their existence was a function of politics rather than successful operation. The question of the constitutionality of the Federal government issuing paper money was the key in the debate. The charter of the First Bank ran from 1791 to 1811. Recharter was vetoed on constitutional grounds. The Second Bank received its charter in 1816 and expired in 1836.²¹ The demise of the Second Bank was the result of the legendary "Bank War." As is well know, President Jackson vetoed the recharter of the bank.²² All government funds were withdrawn from the Second Banks and deposited in selected state banks commonly referred to by his opponents as "Pet Banks." This added reserve allowed banks to extend credit. This extension led to an accelerated growth in the money supply, and hence rapid inflation. A run on banks in 1837 forced suspension.²³ To replenish specie reserves, banks called in loans which put pressure on the business community, who were over extended due to easy credit. It all culminated in the Panic of 1837, one of the worst contractions of the nineteenth century.

After the struggle with the Second Bank, the Federal government divorced itself completely from banking. To insure that the government would not associate with banking, the Independent Treasury System was established in 1846.²⁴ Under this system, the Federal government was

prohibited from depositing any funds in state banks. All Federal funds were to be held in the vaults of the Treasury in specie, and all payments to and by the Treasury would be in the form of specie.

Free Banking evolved after the demise of the Second Bank. The bank war had generated a tremendous distaste for any bank chartered by a government agency. The polar extreme was free banking. The system was designed to maximize the freedom of bank entry subject to the constraint that the note holder be protected against loss in case of failure.²⁵ Any individual meeting certain minimum capital requirements could organize a bank without a legislative charter. To insure against loss, a bond security system backed all notes that were issued. These securities, usually state or federal bonds and in some cases railroad and canal bonds, were deposited with the states' banking authority as collateral for notes issued. In the event that a bank failed or suspended in the payment of specie, the authority would sell the securities and reimburse the note holder with the proceeds of the sale.

The first free banking act was passed in Michigan in 1837. New York followed with a free banking law in 1838. Free banking in Michigan was disastrous, "wildcat banking" as it is called today was common place. New York's free banking system met with much greater success.²⁵ In fact, the National Banking System was modelled after New York's free banking law.

Some economic historians have argued that the reason why free banking was sound in some states and disastrous in others was a function of the securities that were eligible to secure note issue.²⁶

If the bonds securing notes were selling at a substantial discount and the bank failed, the proceeds from the sale of the securities would be inadequate to compensate note holders. Because of this, the framers of the National Banking System allowed only United States bonds to be used to secure circulation.²⁷

Having presented a brief synopsis of banking in antebellum America, the analysis will next turn to the salient features on the National Banking System.

FOOTNOTES

¹American Bankers Association, The Dual Banking System in the United States (Washington, D.C., 1960), p. 7.

²Hammond, Bray, "Banking Before the Civil War," in Dean Carson, ed., Banking and Monetary Studies (Homewood, Illinois: Richard D. Irwin, 1963), p. 3.

³Most bills were for 30, 60, or 90 days.

⁴If the drawee defaulted, the payee was liable to that bank.

⁵In later years, deposits replaced note issue.

⁶A bill of lading is a document from a railroad or other shipper acknowledging the receipt of goods for shipment.

⁷Deposit banking had not yet reached its potential (exceptions are listed in text), therefore deposits were virtually ignored with respect to regulation.

⁸See Philip Cagan, "The First Fifty Years of the National Banking System - An Historical Appraisal," Carson op. cit., p. 20.

⁹See Hugh Rockoff, "The Free Banking Era: A Re-examination," (Dissertations in Economic History, New York: Arno Press, 1975); or Warren E. Weber, "Some Thoughts on Free Banking," unpublished manuscript, Minneapolis Federal Reserve, 1981.

¹⁰These bank notes reporters were not always reliable. There were cases in Ohio where "unscrupulous bankers' paid the publishers of Bank Note Reporters large sums to quote their notes 'right'." See Banker's Magazine Vol. xiv, p. 153.

¹¹Quoted from Cagan (op. cit., p. 20) from an article in the Chicago Tribune, February 13, 1963.

¹²Cagan (op. cit., pp. 18-20).

¹³Weber (op. cit., p. 11).

¹⁴Ibid., p. 12.

¹⁵In addition, I know of no advocates of a "National Checking System."

¹⁶Capital was often confused with cash. See Hammond (op. cit., p. 10).

¹⁷Dewey, David R., State Banking Before the Civil War (Washington, D.C: U.S. Government Printing Office, 1910), pp. 17-18.

¹⁸A third type of bank which will not be discussed here were private unchartered banks. For an excellent account of these banks see Richard Sylla's "Forgotten Men of Money: Private Bankers in Early U.S. History," Journal of Economics History, Vol. XXXVI, No. 1, March 1976, pp 173-188.

¹⁹Except for a brief period between 1811 and 1816.

²⁰Actually, most of the free banking legislation was not passed until the 1850's.

²¹Some Congressmen who had voted against the recharter of the First Bank voted for the charter of the Second Bank. The constitutional problem did not surface in the debate.

²²For a detailed account of the bank war consult any of the following: Bray Hammond, Banks and Politics in America (Princeton: Princeton University Press, 1957), pp. 369-450; Ralph C. Catteral, The Second Bank of the United States (Chicago: University of Chicago Press, 1903); and Peter Temin, The Jacksonian Economy (New York: W.W. Norton, 1969).

²³An interesting alternative hypothesis has been posited by Richard Timberlake. He argues that the expansion and contraction of the money supply during this period was not caused by the demise of the Second Bank, but rather the distribution of the Federal Surplus and its ultimate default. See either of his articles, "The Specie Standard and Central Banking in the United States Before 1860," Journal of Economic History, Vol. XXI, No. 3, September, 1961, pp. 335-337, or "Independent Treasury and Monetary Policy Before the Civil War," Southern Economic Journal, XXVII, No. 2, October, 1960, pp. 92-103.

²⁴The Independent Treasury System was first passed in 1840 but was later repealed in 1842.

²⁵Weber has argued that New York free banking was not as good as it is usually given credit for, (Weber, op. cit.).

²⁶Rockoff (op. cit., p. 9) makes this argument. Weber (op. cit.) counter argues that this point is irrelevant in determining the safety of a free bank.

²⁷There is the argument that the real purpose fo the National Banking System was to create a market for United States Bonds to help finance the Civil War. By allowing only United States Bonds to back note issue, a demand for said bonds would automatically be generated.

CHAPTER III

REGULATION CONCERNING ORGANIZATION AND OPERATION UNDER THE NATIONAL BANKING SYSTEM

Introduction

In the last chapter, the analysis focused on banking before the establishment of the National Banking System. Sources of income and bank liabilities received the greatest emphasis. In addition, a brief summary of bank regulation followed by an account of the structure of free banking, was examined as well.

In this chapter, attention will be directed toward the regulation of national banks. Unless otherwise stated, all regulation is in reference to the National Banking Act of 1864.¹ The purpose of this chapter is to provide the reader with the institutional structure established by the National Banking Act. Following the same outline as the National Banking Act this chapter will first focus on the Office of the Comptroller of the Currency, followed by the institutional constraints concerning national bank organization and operation.

The Comptroller of the Currency

As was stated in the last chapter, one of the major shortcomings of antebellum banking, as seen by the framers of the National Banking System, was the lack of bank supervision. To rectify this problem, the framers of the National Banking System established the Office of the Comptroller of the Currency. As a branch of the Treasury, the Comptroller's office was given the function of policeman. The

Comptroller's office supervised the chartering of all national bank entrants and regulated all issue of national bank notes. In order to enforce the requirements of the system, the Comptroller's office was entitled to periodically examine banks, unannounced, and to receive reports on the assets and liabilities of banks on call. In addition, the Comptroller reserved the right to appoint a receiver to close a national bank in the event that it failed to operate as required.²

Regulation Concerning Entry Into the National Banking System

In order to establish an association to pursue the practice of banking, not less than five persons would have to enter into the articles of association. The five (or more) individuals would then draw up an organization certificate which would specify the name of the association, its location, the amount of its capital stock, the number of shares of capital stock and how they would be divided,³ and the number of shares owned by each stockholder.⁴ The capital requirements for the system possessed the following characteristics: in areas where population was less than 6,000 inhabitants, a minimum capital stock of \$50,000 was required.⁵ Banks located in areas where population was less than 6,000 inhabitants were called non-reserve city banks. Areas where population exceeded 6,000 inhabitants but was less than 50,000 required a capital stock of \$100,000. These areas were labeled reserve cities. Finally, areas where population exceeded 50,000 required a capital stock of \$200,000. These areas were called central reserve cities.

An association could commence business when at least 50 percent of the aggregate capital stock was paid in. The remaining 50 percent was to be paid in monthly installments of at least ten percent of the aggregate capital stock. In the event that a shareholder failed to pay an installment, the stock was to be sold at a public auction within three weeks of default.⁶

Because of the Civil War, specie payments had been suspended in December, 1861. It was therefore legal for stock subscribers to pay for their shares in legal tender, i.e., greenbacks, rather than specie. However, subscriptions were to be paid in cash rather than stocknotes (recall that stocknotes were promissory notes to pay for bank stock at some future date). The Comptroller's office carefully supervised and strictly enforced any violations of this practice.⁷

Next, the association would file their certificate with the Comptroller's office for review. Assuming everything was in order, the bank was then obligated to deposit with the Treasurer of the United States, any registered bonds of the United States bearing interest to amount not less than \$30,000 (par value) nor less than one-third of the paid in capital stock.⁸ From the discussion above concerning bank capital, non-reserve city banks would be required to deposit \$30,000 in bonds, reserve city and central reserve city banks one-third of their capital stock. These bonds were considered assets of national banks and appeared on their balance sheets. In addition, national banks received the interest earned on these bonds.

Once the transfer of bonds to the Treasurer had been recorded and verified to the Comptroller, the bank was entitled to receive notes for circulation (National Bank Notes), equal in amount to 90 percent of the market value of the bonds deposited with the Treasurer. (National banks were not required by law to accept these national bank notes although I know of no specific case where they were refused.) In the event that the market value of the bonds was greater than the par value, the bank would receive notes in value to only 90 percent of the par value of the deposited bonds. To illustrate, examine Table III.1. Suppose that the par value of a United States bond was \$100. If the bonds deposited with the Treasurer had a market value below par (say \$80 or \$90) or at par, the bank would receive 90 percent of that value in notes (\$72, \$81, and \$90 in notes respectively). However, if the market value of the bonds exceeded the par value, the bank would receive only 90 percent of the par value.

If at any time the market value of the bonds deposited with the Treasurer fell below their market value when initially deposited, the Comptroller was authorized to demand and receive an amount equal to the depreciation in bonds or money.⁹ This amount was to be deposited with the Treasurer so long as the depreciation continued. For example, if a bank deposited bonds selling at par (\$100) with the Treasurer on January 1, 1867, and on January 2, 1867 their market value fell to \$95, the bank by law would be required to deposit \$5 in bonds or money with the Treasurer.

TABLE III.I

NOTES ENTITLED TO NATIONAL BANKS UPON DEPOSITING
BONDS WITH TREASURER

Market Value of a Government Bond with a \$100 Par Value	Amount of National Bank Notes a Bank was Entitled to Receive
\$ 80	\$72
\$ 90	\$81
\$100	\$90
\$105	\$90
\$110	\$90

Source: Computed by author.

The bonds deposited with the Treasurer were to be held exclusively to secure circulation. Bonds could be returned to the issuing bank upon cancellation of circulating notes in sums not less than \$1000.¹⁰ However, in order for a bank to hold its national bank charters, bonds deposited with the Treasurer could not fall below the \$30,000 or one-third capital stock requirement mentioned above. (On the other hand, banks desiring to increase their circulation beyond the value of their initial paid in capital stock would have to increase their paid in capital. Such increases were considered valid only when the increase was fully paid, i.e., all additional shares were fully paid and approved by the comptroller's office.¹¹

Before proceeding with the regulations concerning national banks once they commenced business, it is important to digress for a moment to describe a few of the distinguishing characteristics of national bank notes. The notes received were registered and countersigned with the written or engraved signatures of the Treasurer and Register of the United States, and by the imprint of the seal of the Treasury. Before being issued to the public, they were signed by the president or vice-president of the issuing bank and its cashier. National Bank Notes were issued in denominations of one, two, three, five, ten, twenty, fifty, one hundred, five hundred, and one thousand dollars. Notes under five dollars were at no time to exceed one-sixth of the total value of circulation. As mentioned above, circulation to an individual bank was limited to the value of its paid in capital stock. For the entire banking system, aggregate circulation was not to exceed \$300 million.¹²

National Bank Notes were to circulate as money in all parts of the United States at par in payment of taxes, excise, public land, and all other dues of the United States except for duties on imports, salaries, and other debts and demands owing by the United States to individuals, corporations, and associations within the United States. In other words, the United States government would accept payments in National Bank Notes, but make payment only in legal money, i.e., greenbacks, clearing house certificates, and various forms of specie. National Bank Notes were not legal tender.¹³ National Bank Notes could not count as legal reserves for national banks, a subject that will be examined in greater detail below.

Finally, national banks were obligated to accept the notes of other national banks at par. These foreign notes, i.e., notes issued by another national bank, could not be included in the accepting bank's legal reserve., Thus, a national bank holding a foreign national bank note could do any of three things. It could (1) hold the note and suffer a deadweight loss, (2) purchase a loan with the note, or (3) purchase reserves with the note. In the last alternative, reserves could be purchased by exchanging the note for specie in the local market or by redeeming the note for legal money at the bank of issue.¹⁴

Regulation Concerning National Banks in Operation

The framers of the National Banking System were primarily concerned with making the national bank perfectly safe in terms of convertibility. (Since specie payments had been suspended at the

time of the passing of the National Banking Act, convertibility means that the value of national bank notes was to remain on a par level with greenbacks.) Most of the regulations concerning bank practices were aimed at maintaining this convertibility. As mentioned in the last chapter, deposit banking had not yet reached its full potential; it was not used as extensively in bank operations as it would be by the late 1880's. Because of this, deposits were quite ignored by the framers of the National Banking System. Banks were allowed to accept and issue deposits almost without any regulation.¹⁵

In order to maintain the convertibility of national bank notes, regulation with respect to the banks financial strength dealt with restrictions on capital, loans, borrowing, and reserves.¹⁶ Having discussed capital requirements above, attention will be directed to the other three.

Loans to any one individual or business could not exceed one-tenth of the paid in capital stock.¹⁷ Also, mortgage lending was strictly prohibited. This of course was very restrictive for Western banks where the majority of their constituents were farmers with land as their primary means of collateral. Land could be held for the purpose of conducting business, i.e., the bank building, and as collateral for loans with maturities of less than five years.

National banks were restricted on the amount of interest they could charge on loans, discounts, and bills of exchange. This rate was limited to the maximum rate allowed by the laws of the state or territory in which the bank was located. In the event that no usury law existed in the state or territory of operation, the rate of seven

percent was established as the maximum legal ceiling.¹⁸ If interest above the maximum allowable rate was paid, the borrower could recover twice the interest paid. In addition, if the directors of a national bank knowingly violated the usury law, their charter was revoked.

Banks too were restricted in the amount they could borrow from other thrift institutions and individuals. Aside from deposits, which were not included as debts,¹⁹ a ceiling of the paid-in capital stock was placed on borrowing. This prevented banks from accumulating massive debts to which reserve requirements did not apply.

A major problem with antebellum banking was the frequent expansion and contraction of bank notes and the "boom-bust" economy that went along with it. It was hoped by the framers of the National Banking Act that an adequate reserve system would endure the frequent runs on banks that were so common in the past. The first measure taken to prevent this required all banks to deposit one-tenth of their net profits into a surplus fund as opposed to paying them out in dividends, and continue this process until the fund equaled 20 percent of the paid in capital stock. The second important safeguard incorporated into the system was the reserve requirement against both notes outstanding and deposits.²⁰ Non-reserve city banks were required to hold as a reserve in legal money fifteen percent of their aggregate notes in circulation and deposits. However, only two-fifths of this reserve had to be held in legal money at the bank. The remaining three-fifths of the reserve could be deposited with national banks in reserve cities.²¹ These deposits were commonly referred to as "banker's balances". Reserve city banks were required to hold a 25 percent reserve, again in legal

money, against notes outstanding and deposits. However, half of this reserve was to be maintained in the form of legal money in the bank itself. The remaining 50 percent could be deposited in banker's balances in central reserve city banks.²² The legal minimum required reserve for central reserve city banks was also 25 percent against notes and deposits, but with no provision for banker's balances. All reserves were to be maintained in the form of legal money. If a bank failed for thirty days to maintain an adequate reserve, the Comptroller's office would have appointed a receiver to close the association.

Having defined the rules and regulations by which national banks were to organize and operate, attention will now be directed toward the profitability of national banks.

FOOTNOTES

¹See A.T. Huntington and R.J. Mawhinney; Financial Laws of the United States 1778-1909, National Monetary Commission, Washington, D.C.: U.S. Government Printing Office, 1910, pp. 330-362.

²The most common example of a receiver being appointed to close a national bank could be due to inadequate reserves.

³Shares were to be sold with a \$100 par value.

⁴A stockholder's liability was limited to the actual value of his/her shares.

⁵The National Banking Act reduced the capital requirements for banks in areas of less than 6,000 inhabitants from \$100,000 to \$50,000.

⁶The selling price of forfeited stocks was to be high enough to cover the amount still due. If no bidder was willing to pay that price, the stocks were cancelled and the capital stock of the association reduced.

⁷Ibid.

⁸In the original National Currency Act of 1863, United States Bonds were selected as the only type of security that would secure circulation. As discussed in the last chapter, one reason for this was the fact that many of the securities used under free banking were unsatisfactory because they sold at a substantial discount. In reality, United States Bonds were selected to help finance the war.

⁹If they so desired, banks could retire circulation equal to 90 percent of the depreciation. In addition, this act of reducing circulation or depositing bonds or legal money with the Treasurer occurred only if bonds were selling at a discount.

¹⁰The Act of July 12, 1882 amended this reduction to three million dollars annually.

¹¹The Comptroller's office established a ceiling for each individual bank. For example, a bank might be chartered with a \$100,000 capital stock with a maximum capital of \$250,000. This bank could sell additional stock of \$150,000, to bring the total to \$250,000, but thereafter, the size of the capital stock remained fixed.

¹²This was amended with the Act of July 12, 1870 to \$354 million.

¹³But this was not important, since as Abba Lerner has pointed out as long as the federal government accepts notes for the payment of taxes, notes retain their acceptability. Abba Lerner; "Money as a Creation of the State," American Economic Association, May 1947, p. 313.

14If a national bank received a national bank note from another bank of issue, it would send the note back to the bank of issue in exchange for legal money.

15The only real constraint on deposit issue was the reserve requirement.

16The purpose of these restrictions was to ensure the safety of the note holder.

17The same restrictions applied to equities such as stocks of other banks. The only exception was United States Bonds.

18It is uncertain whether this was restrictive especially in the West. State legislators would periodically increase the rate of user interest so excess demands for capital could be eliminated.

19Deposits and bank notes, both liabilities of national banks, were not considered debts because banks were required to hold reserves against these liabilities.

20The reserve system was a fractional reserve system. As Von Mises has demonstrated, the only type of reserve system that is completely safe is a 100 percent reserve currency. While the reserve structure of the National Banking System may have been superior to state banking, it was not as "secure" as the framers of the National Banking System envisioned it. See Ludwig Von Mises; The Theory of Money and Credit, New Haven: Yale University Press, 1953, pp. 413-429.

21Reserve cities were designated as: St. Louis, Louisville, Chicago, Detroit, Pittsburgh, Baltimore, Philadelphia, Boston, Albany, Leavenworth, San Francisco, New Orleans, and Washington, D.C.

22New York City was the lone central reserve city bank.

CHAPTER IV

EXISTING THEORIES OF THE PROFITABILITY OF NATIONAL BANKS

Introduction

In the last chapter regulation concerning organization and operation for national banks was examined. As compared to state banking (discussed in Chapter II), rules and regulations directed towards national banks were in most cases much more restrictive. Such regulations included minimum capital requirements, minimum reserve requirements against notes and deposits, prohibition of mortgage lending, ceiling on the nominal amount lent to any one individual or business, and a provision for a surplus fund equal to one-fifth of the paid in capital stock. It was the hope of the framers of the National Banking System that these restrictions would secure the safety of the noteholders of the national bank currency.

It would seem irrational for either new bank entrants or existing state banks to organize on the national level if the restrictions placed on national banks were more constraining than those placed on state banks. Yet after the passage of the National Banking Act in June, 1864, two-thirds of newly chartered national banks were converted state banks. This trend continued until nearly all state banks had converted.

The next two chapters will attempt to answer this seemingly paradoxical situation by examining the profitability of national banks. In this chapter, existing theories concerning the profitability of national banks will be examined. My theory of national bank profitability will be examined in the next chapter.

Existing Theories of National Bank Profitability

Whether or not an existing state bank or potential bank entrant would seek a charter as a national bank would, presumably, depend on the profitability of doing so. There are three existing theories concerning the profitability of national banks. Although all three theories examine national bank profitability after 1873, investigating them will prove beneficial.¹ Realizing the deficiencies of these theories will allow for the development of an alternative model in the next chapter. Two of the theories which will be examined compute specific rates of return to bank capital. The first of these two theories was developed by the Office of the Comptroller of the Currency and deals with alternative uses of bank capital and their respective rates of return.² The second hypothesis calculates the rate of return from note issue. This theory is tied to the market price of United States Government Bonds (and hence their yields), and was developed by Phillip Cagan.³ The third theory, developed by John James, examines different profit maximizing alternatives for a bank receiving an incremental deposit.⁴

Comptroller's Method

The Comptroller's method for determining profitability deals with alternative uses of the bank's capital. The Comptroller assumes a national bank is chartered with a \$100,000 capital stock. The newly chartered bank faced three alternatives.⁵ It could: (1) loan its capital directly, (2) purchase bonds and loan notes, or (3) use its capital as a reserve to support loan purchases through deposit issue. The Comptroller assumed a loan rate of six percent and a bond yield of

three percent, both representative figures for the time. The balance sheet, income statement, and rate of return (ROR) are calculated for each alternative and presented below:

Alternative I: Loan Capital Directly

Balance Sheet			
L	100,000	K	100,000

where: L = loans
K = capital stock

Income Statement

\$100,000 loans @ 6 percent	<u>\$6,000</u>	
Net Income	<u>\$6,000</u>	ROR = 6 percent

Alternative II: Purchase Bonds - Loan Notes

Balance Sheet			
B	100,000	K	100,000
L	90,000	NOP	90,000

where: B = bonds
NOP = notes outstanding to the public

Income Statement

\$100,000 bonds @ 3 percent	\$3,000	
\$90,000 loans @ 6 percent	<u>\$5,400</u>	
Net Income	<u>\$8,400</u>	ROR = 8.4 percent

Alternative III: Create Demand Deposits

Balance Sheet			
R	100,000	K	100,000
L	400,000	D	400,000

where: R = reserves
D = created deposits

Income Statement

\$400,000 loans @ 6 percent	<u>\$24,000</u>	
Net Income	<u>\$24,000</u>	ROR = 24 percent

There are several criticisms concerning the rates of return calculated by the Comptroller's method. First, recall from the last chapter that before a national bank could commence operation, it first had to deposit \$30,000 or one-third of the capital stock (whichever was greater), in bonds with the Treasurer. This would affect Alternatives I and III. Second, after depositing bonds with the Treasurer, the bank would then be entitled to receive national bank notes, equal to 90 percent of the value of the deposited bonds. The bank of course could opt to keep these notes out of circulation. In this case, the bank would probably never accept the notes. Here I will assume that the bank does accept the notes, which means there should be some note issue in Alternatives I and III. Third, the bank would then be required to maintain a reserve against its notes outstanding. For the period between 1867 and 1873, this reserve was 15 percent for a non-reserve city bank and 25 percent for a reserve city and central reserve city bank. This reserve is omitted in all three alternatives. Fourth, one half of the reserve could be deposited in banker's balances for reserve city banks; 60 percent for non-reserve city banks. Fifth, a one percent tax on note issue and one-half of one percent tax on deposit issue would have to be included in all three calculations where necessary. Finally, interest paid on deposits would have to be included in Alternative III.⁷

If we assume that the bank illustrated in the Comptroller's method is a reserve city bank, the three rates of return can be recalculated, including the omissions stated above. The balance sheets and income are restated below.

In Alternative I, assume for simplicity that (1) banks deposit one third of their capital stock with the Treasurer (\$33,000 rounded), (2) bonds sell at par so banks receive \$29,700 (33,000 X .9) in national bank notes, (3) banks exchange 25 percent of their notes for legal money to use as a reserve, and (4) the remaining \$67,000 in capital along with the remaining \$22,275 in national bank notes are loaned directly. The balance sheet and income statement after transacting would show:

Balance Sheet			
B	33,000	K	100,000
VC	3,712.5	NOP	29,700
DFOB	3,712.5		
L	89,275		

where: VC = cash on hand (vault cash)
 DFOB = due from other banks (banker's balances)

Income Statement

\$33,00 bonds @ 3 percent	\$ 990.00
\$3,712.5 Banker's balance @ 2 percent	74.25
\$89,275 loans @ 6 percent	<u>5,356.50</u>
Gross Income	<u>\$6,420.75</u>

Less Expenses

\$29,700 notes taxed @ 1 percent	\$ 297.00	
Net Income	<u>\$6,123.75</u>	ROR = 6.1 percent

The mechanics of Alternative II were incorrect due to the fact that the Comptroller's method fails to account for reserves, banker's balances, and the tax on note issue. Again assume that 25 percent of national bank notes are exchanged for legal money (half of this amount is deposited in banker's balances), and the remaining national bank notes are loaned directly. Here the balance sheet and income statement would be:

Balance Sheet

<table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 10%;">B</td><td style="width: 40%;">100,000</td></tr> <tr><td>VC</td><td>11,250</td></tr> <tr><td>DFOB</td><td>11,250</td></tr> <tr><td>L</td><td>67,500</td></tr> </table>	B	100,000	VC	11,250	DFOB	11,250	L	67,500		<table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 10%;">K</td><td style="width: 40%;">100,000</td></tr> <tr><td>NOP</td><td>90,000</td></tr> </table>	K	100,000	NOP	90,000
B	100,000													
VC	11,250													
DFOB	11,250													
L	67,500													
K	100,000													
NOP	90,000													

Income Statement

\$100,00 bonds @ 3 percent	\$3,000.00
\$ 11,250 Banker's balance @ 2 percent	225.00
\$ 67,500 loans @ 6 percent	4,050.00
Gross Income	\$7,275.00

Less Expenses

\$90,000 notes taxed @ 1 percent	\$ 900.00	
Net Income	\$6,375.75	ROR = 6.4 percent

To simplify Alternative III, assume that (1) banks purchase \$33,000 in bonds and in return, receive \$29,700 in national bank notes, (2) all national bank notes are costlessly exchanged for legal money, (3) after accounting for the \$7,712.5 (29,700 x .25) reserve against note issue, all remaining bank capital and legal money are used as reserve to support loan purchases with deposit issue,⁶ (4) banks maintain the minimum legal required reserve (the sum 89,275 (67,000 in bank capital + 22,275 in legal money) could support \$357,100 in deposit issue).⁷

The balance sheet and income statement after transacting would show:

Balance Sheet

<table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 10%;">B</td><td style="width: 40%;">33,000</td></tr> <tr><td>VC</td><td>48,350</td></tr> <tr><td>DFOB</td><td>48,350</td></tr> <tr><td>L</td><td>357,100</td></tr> </table>	B	33,000	VC	48,350	DFOB	48,350	L	357,100		<table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 10%;">K</td><td style="width: 40%;">100,000</td></tr> <tr><td>NOP</td><td>29,700</td></tr> <tr><td>D</td><td>357,100</td></tr> </table>	K	100,000	NOP	29,700	D	357,100
B	33,000															
VC	48,350															
DFOB	48,350															
L	357,100															
K	100,000															
NOP	29,700															
D	357,100															

Income Statement

\$33,00 bonds @ 3 percent	\$ 990.00
\$48,350 Banker's balance @ 2 percent	967.00
\$357,100 loans @ 6 percent	<u>21,426.00</u>
Gross Income	\$23,383.00

Less Expenses

\$29,700 notes taxed @ 1 percent	\$ 297.00
\$357,000 deposits taxed @ 5 percent	1,785.50
\$357.100 deposits interest @ 2 percent	<u>7,142.00</u>
Net Income	\$14,158.50

ROR = 14.1%

The net income and rate of return calculated above are considerably different from those computed in the Comptroller's method. Critical omissions of several key variables cause these differentials. In Alternative III, the failure to account for interest paid on deposits causes the Comptroller's calculations to be overstated by almost \$10,000. This entry greatly effects the net income and rate of return. For example, if the interest rate paid on deposits was one percent, net income would rise to \$17,729.50. If on the other hand, the interest rate paid on deposits was three percent, net income would fall to \$10,587.50. The importance of deposits paying interest and its effect on income will be discussed in greater detail in the next two chapters.

The Comptroller's method does not correctly calculate the rates of return for the three investment options mentioned above. Again, the omission of important variables is the reason these calculations are incomplete. In addition, Alternative III of the Comptroller's method generates the greatest rate of return. A national bank could not

operate in this manner. This implies therefore, that a potential bank entrant would not seek a national bank charter, but rather a state bank charter.⁸ For the period in question, i.e., 1867-1873, this was clearly not the case.

Cagan's Method

Cagan analyzed the period between 1879 and 1903 and found that when bond prices rose, the rate of return to bonds fell, and national bank note circulation declined and vice-versa. Unlike the Comptroller's method which examined the rate of return from different investment opportunities using different sources of finance, Cagan concluded that the rate of return to a national bank charter was solely a function of the market price (yield) of the bonds deposited with the Treasurer. Cagan viewed the rate of return as the ratio of the return on the bond, minus the cost of note issue, to the capital tied up in holding the bond. To calculate this rate of return to a national bank charter. Cagan devised the following equation:

$$(1) \text{ Rate of Return} = \frac{(p^b)(i^b) - C}{(p^b) - NR}$$

where: p^b = market price of deposited bond

i^b = yield of deposited bond

C = cost of note issue

NR = notes received from the Comptroller

Cagan's rationale for this equation can be illustrated using generalized balance sheets. Suppose a national bank is chartered with

a capital stock of \$100,000. If bonds were selling at par, the bank could purchase \$100,000 in United States bonds, deposit them with the Treasurer, and receive \$90,000 in national bank notes. The balance sheet would show:

Balance Sheet			
B	100,000	K	100,000
N	90,000	NOB	90,000

where: N = national bank notes on hand
NOB = notes outstanding to the bank.

According to Cagan, the bank would then use these \$90,000 in national bank notes to purchase additional bonds (\$90,000), deposit them with the Treasurer, and receive an additional \$81,000 in national bank notes. If bonds are infinitely divisible (an implicit assumption on Cagan's part), this process could be continued until the balance sheet showed:

Balance Sheet			
B	1,000,000	K	100,000
		NOP	900,000

The income and rate of return derived from this venture would be (assume that bonds again pay three percent):

Income Statement

\$1,000,000 bonds @ 3 percent	\$30,000.00
Gross Income	\$30,000.00

Less Expenses⁹

\$900,000 notes taxed @ .096 percent	\$ 9,600.00
Net Income	\$20,400.00

ROR = 20.4%

The same results can be obtained by using Cagan's equation.

Substituting the variables used above into Cagan's equation yields

a rate of return of 20.4 percent:

$$(1A) \text{ Rate of Return} = \frac{(100)(.03) - .96}{100 - 90} = 20.4\%.$$

Cagan himself illustrates with the following two examples. In January 1879, the four percent coupon bonds due in 1907 and deposited with the Treasurer were selling under par at \$99.75; their yield was four percent. The cost of note issue was 96 cents per \$90 in notes issued and \$90 in national bank notes would be received from the Comptroller.¹⁰

$$(1B) \text{ Rate of Return} = \frac{(99.75)(.04) - .96}{99.75 - 90} = 31\%.$$

In 1882, the same bonds sold at a premium of \$117.94 and their yield fell to three percent. The cost of notes issued and notes received remained unchanged. Here the rate of return falls to nine percent.

$$(1C) \text{ Rate of Return} = \frac{(117.94)(.03) - .96}{117.94 - 90} = 9\%.$$

Cagan concluded that as bond prices rose, the return to the charter fell, and note circulation contracted.¹¹ Unfortunately, Cagan does not explicitly state the reason for national bank note contraction other than the fact that the return to a national bank charter fell. The question of why circulation would contract when the return to a charter fell is left unanswered. Were other assets such as loans more profitable than government bonds, or were alternative sources of finance such as deposits more lucrative? Again, Cagan leaves these questions unanswered.

Like the Comptroller's method, Cagan's method breaks down in practical application and is of little use in determining the rate of return to a national bank charter. It is too simplified due to the fact that he too does not account for all the activity in which a national bank could engage. Specifically, there are four objections which should be brought to the reader's attention. These will be quickly presented and then discussed in greater detail below. They are: (1) Cagan's method works only during certain time periods, (2) the implicit assumption that national bank notes received pay in part for deposited bonds, (3) the failure to account for reserve requirements, and (4) the failure to examine the opportunity cost of note issue.

The first objection is evident if the period between 1865 and 1873 is analyzed. For example, the 1881 6's which were commonly deposited with the Treasurer were selling at \$105 in early March, 1865, and their yield was five percent.¹² The cost of note issue and notes received are the same as above. The rate of return utilizing Cagan's equation is 28.6 percent.

$$(1D) \text{ Rate of Return} = \frac{(105)(.05) - .96}{105 - 90} = 28.6\%$$

In March 1873, the same bonds sold at \$116 and returned two and one-half percent. Again the other variables remain constant. The rate of return in this case would fall to 11.1 percent.

$$(1E) \text{ Rate of Return} = \frac{(116)(.025) - .96}{116 - 90} = 11.1\%$$

This should imply that national bank note circulation decreased during this period. However, over this nine year period, circulation increased

by greater than ten times from \$32 to \$339 million.¹³

The second criticism is the most fundamental. The practice of using notes to purchase additional bonds for deposit was unlawful.¹⁴ Recall from the last chapter that the capital stock of each individual national bank was subject to a maximum ceiling. Thus a bank receiving a charter with a capital stock of \$100,000 could issue notes to a maximum of \$100,000 not \$900,000 as Cagan would lead us to believe. Furthermore, it was the normal practice for such bond purchases to be transacted through a broker with the use of deposits or other means of credit, not with bank notes.¹⁵

Third, Cagan implicitly assumes that all notes remain outstanding since he does not account for reserve requirements.¹⁶ In the second balance sheet used above (for Cagan's method), the bank realizes \$900,000 in notes outstanding. A non-reserve city bank would require a 15 percent reserve (\$135,000) and a reserve city bank a 25 percent reserve (\$225,000) to be held against these outstanding notes. If these sums are added to the initial capital outlay of \$100,000 the rate of return would fall to 17.2 and 12.4 percent for the non-reserve city bank and reserve city bank respectively for the 1879 example used above.

Finally, Cagan fails to examine the opportunity cost of note issue. Intuitively, a bank would use its notes to purchase assets that yielded the greatest return. As bond yields fell, would not banks seek alternative uses for their notes? In addition, were alternative sources of finance available to make asset purchases? The answer to these questions will be addressed in the next chapter.

James' Method

James on the other hand solely examines the opportunity cost of note issue. Rather than calculate specific returns to a national bank charter, he concerns himself with the optimal strategy to maximize bank profit. James examines the strategies available to a national bank upon receiving an incremental deposit of legal money.¹⁷ The bank could either loan the deposit directly or purchase bonds and loan a percentage of this value in national bank notes. The higher the interest rate on loans, the more likely a bank would be to loan the deposit directly since it would be losing the interest on the bond price, less the percentage of national bank notes lent. James calculates the interest rate that would make a bank indifferent as to loaning the deposit directly or purchasing bonds and loaning notes. In the latter case, income earned would equal the interest earned on deposited bonds plus the interest earned from lending national bank notes, minus the cost of note issue. James equates this to the local interest rate; the opportunity cost of loaning the deposit directly. James illustrates with the following equation:

$$(2) \quad i^b + (N)(X) - C = X,$$

where: i^b = yield on deposited bonds

N = notes received from the Comptroller

X = local interest rate

C = cost of note issue

James assumes that government bonds yield 2.5 percent, banks loan 85 percent of their notes received from the Comptroller, and the cost of

note issue is the one percent tax. He then solves the equation for X:

$$(2A) \quad .025 + 0.85X - .01 = X$$

$$X = 10\%$$

In other words, if the local interest rate on loans exceeded 10 percent, the bank would choose to loan the deposit directly. If the loan rate were less than 10 percent, the bank would maximize profits by purchasing bonds and loaning national bank notes.

The rationale for James' equation can be illustrated using the following balance sheets and income statements. Assume a national bank receives an incremental deposit of \$1,000 in legal money. If the bank loaned the deposit directly, the balance sheet and income statement would show:

Balance Sheet			
L	1,000	D	1,000

Income Statement

\$1,000 loans @ 10 percent	\$100.00
Net Income	\$100.00

If the bank instead purchased bonds, deposited them with the Treasurer, received \$900 in national bank notes (\$50 of which would be exchanged for legal money and deposited in the redemption fund), it could then loan the remaining \$850 at the prevailing market rate. The balance sheet and income statement would show after transacting:

Balance Sheet			
B	1,000	D	1,000
R	50	NOP	900
L	850		

Income Statement

\$1,000 bonds @ 2.5 percent	\$ 25.00
\$850 loans @ 10 percent	\$ 85.00
Gross Income	<u>\$110.00</u>

Less Expenses

\$900 notes taxed 1 percent	\$ 9.00
Net Income	<u>101.00</u> ¹⁸

Unfortunately, James also oversimplifies his calculation. While he does account for reserves against notes, he fails to account for reserves against deposits and interest paid on deposits. Further, James does not account for the tax on deposits. Finally, rather than setting the equation equal to the local interest rate, it should be set equal to the profit obtainable by purchasing loans with deposits. In this way, the analysis would account for all of the activities in which national banks could engage.

It will be the purpose of the next chapter to develop a more complete profit-maximizing analysis of national bank behavior and to analyze how changes in the exogenous variables would effect bank behavior.

FOOTNOTES

¹The period of concern in this exposition are the years between 1867 and 1873.

²The best interpretation of the Comptroller's method is found in J. Laurence Laughlin's Money, Credit, and Prices (Chicago: University of Chicago Press, 1931), pp. 401-402.

³Cagan, Phillip, Determinants and Effects of Changes in the Stock of Money 1875-1965 (National Bureau of Economic Research, Columbia University Press, New York, 1965), pp. 86-87.

⁴James, John, "The Conundrum of the Low Issue of National Bank Notes," Journal of Political Economy, 1976, Vol. 84, No. 2, pp. 359-367.

⁵Throughout the remainder of this chapter I will use simplified numerical examples to illustrate these theories. In the next chapter, a generalized theory will be developed.

⁶Since Alternative III implicitly assumes zero interbank drain, interest paid on deposits must be considered. A bank would not pay interest on a created deposit. However, as created deposits return to the bank as accepted deposits, the bank would undoubtedly pay interest on these accepted deposits.

⁷This assumes again that interbank drain nets to zero.

⁸In reality, a state bank would also have to pay interest on accepted deposits which implies the rate of return generated in Alternative III of the Comptroller's method is greatly overstated.

⁹In addition to the one percent tax on note issue, Cagan assumed a 6 cent administrative cost per \$90 in national bank notes issued. It is uncertain how Cagan estimated this cost. John James has estimated that administrative costs differed widely between various regions of the country in the late 1890's and early 1900's. See John James, "Cost Functions of Postbellum National Banks," Explorations in Economic History, Vol. 15, No. 2, pp. 184-195.

¹⁰Ibid.

¹¹It should be noted that between 1879 and 1882, national bank note circulation actually increased from \$307 to \$309 million. After 1883, the correlation holds through 1903. See Annual Report: Comptroller of the Currency, 1931, p. 1023.

¹²The high yield is due to the premium on gold which banks received in payment of interest for deposited bonds.

¹³Comptroller, op. cit.

¹⁴In the Senate debate concerning the National Currency Act of 1863, Senator Carlisle of Virginia devised such a scheme of how a bank could realize a high rate of return without loaning one dollar to the public. See H.W. Richardson, The National Banks (Harper & Row, Franklin Square, New York, 1880), p. 54.

¹⁵Bell, Spurgeon, "Profit on National Bank Notes," American Economic Review, Vol. 2, March 1912, p. 57.

¹⁶Even if a bank could keep its entire circulation outstanding, auditors from the Comptroller's office would have eventually caught up with the practice of holding zero reserves. The fact that Cagan did not consider the reserve requirement can partially be defended because in 1874, the reserve requirement was amended and replaced with a five percent redemption fund for all national banks. National banks were required after this date to deposit five percent of the notes received from deposited bonds in lawful money in a redemption fund with the Comptroller. A bank receiving \$90 in notes would deposit \$4.50 ($\$90 \times .05$) with the Comptroller. Cagan, never the less, overstates the rate of return because the \$90 of notes received (NR) in the denominator of his equation should show \$85.50.

¹⁷Cagan also fails to account for deposits although they too would probably be used to purchase bonds in multiple.

¹⁸The \$1 difference is due to a rounding error on James' part.

CHAPTER V

THE PROFITABILITY OF NATIONAL BANKS

Introduction

The last chapter surveyed existing theories concerning national bank profitability. The first theory examined was developed by the Comptroller's office and dealt with alternative uses of bank capital. The second theory was developed by Cagan and tied the profitability of national bank notes to the price of government securities backing note issue. Finally, James' method examined the opportunity cost of note issue for a potential investment. The first two theories calculated specific rates of return to capital whereas the third theory weighed different bank strategies. The problem with these three theories is they are too simplified. They do not account for many of the activities in which national banks could engage, and they do not account for many of the restrictions which national banks faced.

In this chapter, a model which does account for these activities will be constructed to examine the profitability of national banks. The model will be constructed with the use of balance sheets and generalized profit statements. By comparing the profit statements for various investment opportunities, the model will predict the most lucrative strategy available to a national bank.

Throughout this chapter, the following assumptions will be made:

- (1) the initial capital stock of the bank remains constant, (2)
- additional bond purchases are not deposited with the Treasurer, (3)
- there is no interbank drain, (4) the market price of United States bonds is equal to its par value and the supply of bonds is perfectly elastic

at the prevailing market price, (5) the demand for loans is perfectly elastic at the prevailing interest rate, (6) desired reserves equal the minimum legal required reserve, (7) national bank notes can be costlessly exchanged for legal money, and (8) all assets are risk free.

Together, these assumptions will allow the model to be constructed for a national bank strictly adhering to the constraints set forth in the National Banking Acts. The first two assumptions ensure that the bank does not violate the notes outstanding to capital stock ratio. Assumption (3) gives the bank the characteristics of a monopoly bank. Assumptions (4), (5), and (6) allow the bank to be completely loaned up. Assumption (7) allows the bank to acquire its necessary required reserves.¹ Finally, assumption (8) enables the bank to acquire assets without the risk of bad debts.

In addition to the above assumptions, the following notation will be used throughout:

- B = nominal par value of Unites States Bonds²
- t = percentage of capital stock used to finance bond purchases for deposit at the Treasury
- L = loans
- VC = vault cash
- DFOB = due from other banks (banker's balances)
- N = national bank notes
- M = legal money
- K = capital stock
- NOB = notes outstanding to the bank (notes held but not issued)
- NOP = notes outstanding to the public

D	= deposits
P	= net profits
R	= reserves
ER	= excess reserves
b	= percentage of reserves held in banker's balances
rr	= reserve requirement
i^b	= nominal interest rate on United States Bonds
i^x	= nominal interest rate on bankers's balances
i^L	= nominal interest rate on loans
i^d	= nominal interest rate paid on deposits

The Model

In this model, there will be two types of assets that banks can purchase: loans and bonds. In addition, there are two methods of finance available to purchase these assets: notes and deposits. Thus the bank has four investment options available to it. It can (1) purchase loans with notes, (2) purchase bonds with notes, (3) purchase loans with deposits, or (4) purchase bonds with deposits. Since the mechanics of (1) and (2) and the mechanics of (3) and (4) are identical, they can be discussed simultaneously. Attention will first be directed to the first two options; purchasing assets with notes. For expository purposes, only the first option will be analyzed in detail.

To illustrate the operations of a national bank financing with note issue consider the case of a newly chartered national bank with a capital stock of \$100,000. The bank uses its entire capital to purchase United States Bonds, deposits them with the Treasurer, and receives

national bank notes from the Comptroller equal in value to 90 percent of the deposited bonds.³ Initially, these notes are held by the bank; hence the NOB entry in the balance sheet below:

B	100,000	K	100,000
N	90,000	NOB	90,000

Suppose that the bank exchanges its own notes for legal money.⁴ The adjustments to the balance sheet would be:

B	100,000	K	100,000
N	-90,000	NOB	-90,000
M	+90,000	NOP	+90,000

For illustrative purposes, assume that this is a reserve city bank (the other two types of banks will be incorporated into the analysis below). As discussed in Chapter III, a bank of this classification would be required to hold a 25 percent reserve against its notes outstanding to the public (NOP) or \$22,500 ($.25 \times 90,000$). Fifty percent of this reserve, or \$11,250 ($.5 \times 22,250$), could be deposited in banker's balances (DFOB). The cash reserve (VC) kept on hand would equal \$11,150 ($22,500 - 11,250$). The remaining \$67,500 ($90,000 - 22,500$) are the bank's excess reserves (ER). The balance sheet would now show.

B	100,000	K	100,000
M	-90,000	NOP	90,000
VC	+11,250		
DFOB	+11,250		
ER	+67,500		

The bank can profit from its excess reserve by purchasing assets. In this case, the bank can purchase loans equal to the value of the excess reserve. The entries on the balance sheet under this option would be:⁵

B	100,000	K	100,000
VC	11,250	NOP	90,000
DFOB	11,250		
L	67,500		

Here profits are equal to the interest earned from initial bond holdings ($i^b \times B$), deposits in other banks ($i^x \times DFOB$), and loans ($i^L \times L$), minus the tax on note issue. Although the balance sheets have been expressed in specific form, the profit statement can be expressed generally as equation (1):⁶

$$(1) P_n = i^b(B) + i^x(DFOB) + i^L(L) - .01NOP.$$

However, equation (1) can be expressed in terms of the capital stock after manipulating the variables.

First the amount of bonds purchased to secure circulation is equal in value to the capital stock:

$$(2) B = K.$$

National bank notes received are equal to 90 percent of deposited bonds and the entire circulation is issued:

$$(3) N = .9B,$$

$$(4) N = NOP.$$

Substituting (2) and (3) into (4) gives:

$$(5) NOP = .9K$$

As national bank notes are exchanged for legal money, a fractional

reserve must have been held against notes outstanding (NOP):

$$(6) \quad R = (rr)(.9K).$$

Half of this reserve could be deposited in banker's balances while the other half remained in the bank as vault cash. Letting b denote the fraction of reserves held in banker's balances:

$$(7) \quad DFOB = (b)(rr)(.9K),$$

$$(8) \quad VC = (1 - b)(rr)(.9K).$$

The remaining funds were the bank's excess reserves:

$$(9) \quad ER = (1 - rr)(.9K).$$

Since the amount of loans purchased is equal to the excess reserve, (9) can be rewritten as:

$$(10) \quad L = (1 - rr)(.9K).$$

Substituting (2), (5), (7), and (10) into (1) gives:

$$(11) \quad P_n = i^b(K) + i^x(b)(rr)(.9K) + i^L(1 - rr)(.9K) - .01(.9K).$$

Equation (11) states that the profit earned from purchasing loans with notes is equal to the interest earned from deposited government bonds, plus the interest earned from banker's balances, plus the interest earned from loans, minus the tax on note issue.

On the other hand, the bank could purchase assets with deposits; the third and fourth investment options available to a national bank. Again to avoid being redundant, only the third option, i.e., purchasing loans with deposits, will be discussed.⁷ In this case, the bank operates entirely with deposit issue.

To illustrate the operations of a national bank financing with deposit issue, consider again the newly chartered reserve city bank with

a capital stock of \$100,000. Rather than allocate its entire capital stock for the purchase of United States Bonds, it instead devotes only a percentage of its capital for bond purchases. For a bank of this class, one-third (.33) of its capital would be used to purchase bonds. In return, the bank would receive \$29,700 ($.9 \times 33,000$) in national bank notes. However, since this bank is operating only with deposit issue, the notes would remain outstanding to the bank itself.⁸ Here the balance sheet would show:

B	33,000	K	100,000
N	29,700	NOB	29,700
ER	67,000		

The remaining \$67,000 in capital could then be used as a reserve to support deposit issue. Deposits could be created in an amount equal the excess reserve times the reciprocal of the reserve requirement. With \$67,000 in excess reserves, a reserve city bank could purchase loans equal to \$268,000 ($1/.25 \times 67,000$), by creating deposits. In addition, 50 percent of the \$67,000 reserve could be deposited in banker's balances. The entries on the balance sheet after transacting would show:

B	33,000	K	100,000
VC	33,500	NOB	29,700
DFOB	33,500	D	268,000
N	29,700		
L	268,000		

In this case, profits are equal to the interest earned from initial bond holdings ($i^b \times B$) deposits in other banks ($i^x \times DFOB$), and loans

$(i^L \times L)$, minus the tax on deposit issue $(.005 \times D)$, minus the interest paid on deposits $(i^d \times D)$.⁹ As was the case when banks purchased assets with notes, the profit statement can be generally expressed as:

$$(12) \quad P_d = i^b(B) + i^x(DFOB) + i^L(L) - .005(D) - i^d(D).$$

Equation (12) can also be expressed in terms of the capital stock. The amount of bonds purchased is equal to a percentage of the capital stock. Letting t denote the percentage of capital allocated for bond purchases:

$$(13) \quad B = (t)(K).$$

The amount of loans purchased is equal to the excess reserve times the reciprocal of the reserve requirement:

$$(14) \quad L = (ER)(1/rr).$$

Let: (15) $d = 1/rr$.

The excess reserve in this case is the percentage of the capital stock not used for purchasing bonds:

$$(16) \quad ER = (1 - t)(K).$$

Substituting (15) and (16) into (14) gives:

$$(17) \quad L = (1 - t)(K)(d).$$

Since the amount of loans purchased is equal to the number of deposits created, (17) can be rewritten as:

$$(18) \quad D = (1 - t)(K)(d).$$

Finally 50 percent of the excess reserve could be deposited in banker's balances:

$$(19) \quad DFOB = (b)(1 - t)(K).$$

Substituting (13), (17), (18), and (19) into (12) generates the profit statement from purchasing loans with deposits:

$$(20) p_d = i^b(t)(K) + i^x(b)(1 - t)(K) + i^L(1 - t)(K)(d) \\ - .005(1 - t)(K)(d) - i^d(1 - t)(K)(d).$$

Equation (20) states that the profit from purchasing loans with deposits is equal to the interest earned from deposited bonds, plus interest earned from banker's balances, plus the interest earned from loans, minus the tax on deposit issue minus the interest paid on deposits.

Given the analysis thus far presented, two questions arise. The first concerns the type of asset the bank will purchase; the second, the form of finance the bank would use to make the asset purchase. The answer to the first question depends on nominal asset returns. The profit from purchasing loans will be $\left\{ \frac{\geq}{\leq} \right\}$ the profit from purchasing bonds as $i^L \left\{ \frac{\geq}{\leq} \right\} i^b$. In other words, if $i^L = i^b$, the bank is indifferent in purchasing loans or bonds. However, if $i^L > i^b$, the bank would maximize profits by purchasing loans and if $i^L < i^b$, the bank would maximize profits by purchasing bonds.

Having determined the asset with the greatest yield, the bank would then have to decide on the method of finance. Due to the fact that assets purchased with deposits are greater than assets purchased with notes by an amount equal to the reciprocal of the reserve requirement times the excess reserves, it may seem a priori, that banks would opt to purchase assets with deposits. However, this may or may not be the case when the interest paid on deposits and the difference in the interest earned from deposited bonds is taken into consideration. Consider the

case where $i^L > i^b$. The method of finance could be determined by comparing P_n as given by (11) with p_d as given by (20). Specifically $P_n \left\{ \begin{matrix} > \\ < \end{matrix} \right\} P_d$ as:

$$\begin{aligned} & i^b(K) + i^x(b)(rr)(.9K) + i^L(1 - rr)(.9K) - .01(.9K) \left\{ \begin{matrix} > \\ < \end{matrix} \right\} \\ & i^b(t)(K) + i^x(b)(1 - t)(K) + i^L(1 - t)(K)(d) \\ & - .005(1 - t)(K)(d) - i^d(1 - t)(K)(d). \end{aligned}$$

Dividing by K and factoring like terms reduces the equation to:

$$\begin{aligned} & i^b(1 - t) + i^x(b)[(.9)(rr) - (1 - t)] + i^L[(1 - rr)(.9) \\ & - (1 - t)(d)] - .009 + .005(1 - t)(d) \\ & + i^d(1 - t)(d) \left\{ \begin{matrix} > \\ < \end{matrix} \right\} 0. \end{aligned}$$

Solving the equation for i^L states that $P_d \left\{ \begin{matrix} > \\ < \end{matrix} \right\} P_n$ as:

$$(21) \quad i^L \left\{ \begin{matrix} > \\ < \end{matrix} \right\} \frac{[-i^b(1-t) - i^x(b)[(.9)(rr) - (1-t)] + .009 - .005(1-t)(d)]}{[(.9)(1 - rr) - (1 - t)(d)]} + \left[\frac{- (1 - t)(d)}{(.9)(1 - rr) - (1 - t)(d)} \right] i^d$$

Equation (21) determines the method of finance used by national banks for purchasing assets. If the strict equality holds, i.e., points for which $i^L =$ the right hand side of (21), banks are indifferent between note or deposit issue. However if $i^L >$ the right hand side of (21), banks would finance only with deposit issue. If $i^L <$ the right hand side of (21), banks would finance only with note issue. This is shown in Figure I. If (21) is solved for the strict equality, it becomes a linear function; the first bracketed term is the intercept, the second bracketed

term is the slope. All the points along the line show the various combinations of i^L and i^d that make national banks indifferent as to purchasing loans with note or deposit issue. Points above the line, i.e., points for which $i^L >$ the right hand side of (21), indicate the bank would rely only on deposit issue. Points below the line, i.e., points for which $i^L <$ the right hand side of (21), indicate the bank would rely only on note issue.

The intercept can be either positive or negative. In general, the numerator and denominator are negative, making the intercept positive. The sign of the denominator is usually negative due to the value of t (the percentage of the capital stock used to purchase bonds for deposit with the Treasurer). In the case of a reserve city bank relying solely on deposit $t = .33$ and the denominator is always negative.¹⁰ However, if a bank relying on deposit issue purchased bonds in excess of the legal minimum percentage, i.e., $t > .33$, the sign of the denominator could be positive.¹¹ Such behavior would not be profit maximizing. Therefore, the analysis will proceed under the assumption that $t = .33$, so that the denominator is negative.

The key variables that would cause the numerator to change signs are i^b and t . First, at very low rates of i^b , i.e., less than one percent, the numerator could change signs. As will become evident in the next chapter, this did not occur empirically. [Second, a very high value of t i.e., $t > .80$, could also cause the sign to change.] However, by assumption, the value of $t = .33$. This implies that the value of the

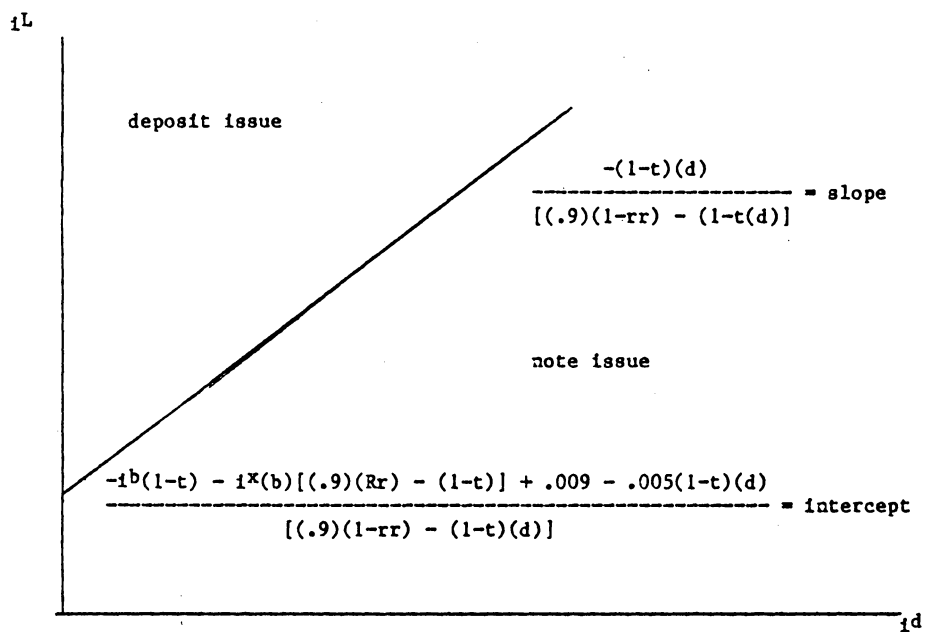


FIGURE I

VARIOUS LEVELS OF i^L AND i^d THAT MAKE A RESERVE CITY BANK
 INDIFFERENT AS TO PURCHASING LOANS WITH NOTES OR DEPOSIT

numerator is always negative. Together, with both the numerator and denominator negative, the intercept is positive.

A change in the variables in equation (21) may effect the method of finance used by national banks. An increase in the intercept would make note issue more lucrative, a decrease in the intercept would make deposit issue more lucrative (assuming i^d remains constant in both cases). The key variables in the intercept are the interest earned on deposited bonds (i^b), the interest earned on banker's balances (i^x), and the reserve requirement (rr). An increase (decrease) in i^b would cause the intercept to shift up (down). This is due to the fact that banks relying on note issue allocate a greater percentage of their capital stock to bond purchases. Therefore, an increase (decrease) in i^b would make note issue more (less) lucrative. Similarly, an increase (decrease) in i^x would cause the intercept to shift down (up). Since banks relying on deposit creation allocate a greater percentage of their capital stock to be used as reserves, a greater amount is deposited in banker's balances. An increase (decrease) in i^x would make deposit issue more (less) lucrative. Finally, if banks choose to hold a reserve that was greater than the minimum legal reserve, i.e., an increase in rr and a reduction in d , the intercept would shift up. An increase in rr reduces d , the deposit multiplier. This reduces the gap between the amount of loans purchased with note and deposit issue. As this gap narrows, note issue becomes more lucrative.

The sign of the slope can also be positive or negative. However, by assumption, $t = .33$. This implies that the denominator is always

negative (the denominator for the slope is identical to the denominator for the intercept). Thus, the slope will always be positive.¹²

Assuming as above that the value of t equals 33 percent, the key variable in the slope is rr . Again, if banks opt to hold a reserve greater than the minimum legal reserve, the value of d decreases. This causes the slope to be steeper, making note issue more lucrative (assuming again that the value of i^d remains constant). However, the value of the slope will reach a maximum when the actual reserve held equals 50 percent.¹³ Thereafter, the value of the slope falls, making deposit issue more lucrative, until it reaches its minimum. This occurs when the actual reserve held is equal to 100 percent, and the value of the slope is one. Although there were a few cases where the actual reserve exceeded 50 percent, this was the exception not the norm. This will be discussed in greater detail in the next chapter.

In order that the reader may gain some understanding of the values of the intercept and slope, some numerical values may be substituted into (21). For reserve city bank, the minimum amount of bonds deposited with the Treasurer was one-third of the capital stock, i.e., $t = .33$. Fifty percent of reserves could be deposited into banker's balances, i.e., $b = .5$. The minimum legal reserve was 25 percent, i.e., $rr = .25$ and its reciprocal $d = 4$. A representative figure for the interest earned on banker's balances during this period was two percent, i.e., $i^x = .02$. Finally, the interest paid on deposited bonds fluctuated between two and six percent. For the moment, assume $i^b = .04$. Substituting these values into (21) state that $P_d \left\{ \frac{\>}{\>} \right\} P_n$ as:

$$(21RCB) \quad i^L \left\{ \frac{\lambda}{\lambda} \right\} .0137 + 1.33i^d.$$

As stated above, these numerical values could change given a change in i^b or rr .¹⁴ If i^b were to fall to two percent, i.e., $i^b = .02$, equation (21RCB) would state that $P_d \left\{ \frac{\lambda}{\lambda} \right\} P_n$ as :

$$(21RCB) \quad i^L \left\{ \frac{\lambda}{\lambda} \right\} .006 + 1.33i^d.$$

The reduction in the value of the intercept indicates that deposit issue is now more lucrative. If on the other hand, banks desired to maintain a reserve greater than the minimum legal reserve, say 30 percent, i.e., $d = .30$ and $d = 3.33$, (21) would state $P_d \left\{ \frac{\lambda}{\lambda} \right\} P_n$ as:

$$(21RCB) \quad i^L \left\{ \frac{\lambda}{\lambda} \right\} .0156 + 1.40i^d.$$

Here the increase in the intercept and slope cause note issue to become more lucrative.

To gain a better perspective of the rates of i^L and i^d that would make a bank indifferent as to purchasing loans with notes or deposits, Tables V.I, V.II, and V.III have been calculated. Tables V.I, V.II, and V.III show the various levels of i^L and i^d that make banks indifferent as to purchasing loans with notes or deposits given various range levels of rr and i^b . Table V.I calculates these rates of $i^b = .02$. Tables V.II and V.III calculate these rates when $i^b = .04$ and $i^b = .06$ respectively.

TABLE V.I

VARIOUS LEVELS OF i^L AND i^d WHICH MAKE RESERVE CITY BANKS
 INDIFFERENT AS TO THE METHOD OF FINANCE USED
 TO PURCHASE LOANS
 GIVEN: $i^b = .02$

	rr=	.25	.30	.35	.40
i^d		i^L	i^L	i^L	i^L
.00		.0060	.0070	.0074	.0085
.01		.0193	.0210	.0219	.0223
.02		.0326	.0350	.0364	.0381
.03		.0459	.0490	.0509	.0529
.04		.0592	.0630	.0654	.0677
.05		.0725	.0770	.0799	.0825
.06		.0858	.0910	.0944	.0973
.07		.0119	.1050	.1089	.1121
.08		.1124	.1190	.1234	.1269
.09		.1257	.1330	.1379	.1417
.10		.1390	.1470	.1524	.1565

Source: Computed by author from equation (21RCB).

TABLE V.II

VARIOUS LEVELS OF i^L AND i^d WHICH MAKE RESERVE CITY BANKS
 INDIFFERENT AS TO THE METHOD OF FINANCE USED
 TO PURCHASE LOANS
 GIVEN: $i^b = .04$

	rr=	.25	.30	.35	.40
i^d		i^L	i^L	i^L	i^L
.00		.0137	.0154	.0175	.0203
.01		.0270	.0294	.0320	.0351
.02		.0403	.0434	.0465	.0499
.03		.0536	.0574	.0610	.0647
.04		.0669	.0714	.0755	.0795
.05		.0802	.0854	.0900	.0943
.06		.0935	.0994	.1045	.1091
.07		.1068	.1134	.1190	.1239
.08		.1201	.1274	.1335	.1387
.09		.1334	.1414	.1480	.1535
.10		.1467	.1554	.1625	.1683

Source: Computed by author from equation (21RCB).

TABLE V.III

VARIOUS LEVELS OF i^L AND i^d WHICH MAKE RESERVE CITY BANKS
 INDIFFERENT AS TO THE METHOD OF FINANCE USED
 TO PURCHASE LOANS
 GIVEN: $i^b = .06$

	rr=	.25	.30	.35	.40
i^d		i^L	i^L	i^L	i^L
.00		.0199	.0237	.0276	.0321
.01		.0332	.0377	.0421	.0469
.02		.0465	.0517	.0566	.0617
.03		.0598	.0657	.0711	.0765
.04		.0731	.0797	.0856	.0913
.05		.0864	.0937	.1001	.1061
.06		.0997	.1077	.1146	.1209
.07		.1130	.1217	.1291	.1357
.08		.1263	.1357	.1436	.1505
.09		.1396	.1497	.1581	.1653
.10		.1529	.1637	.1726	.1801

Source: Computed by author from equation (21RCB).

Before proceeding, the analysis will digress momentarily to incorporate the other two types of banks; non-reserve city banks and central reserve city banks. Since the generalized profit statements derived above will hold no matter what type of bank class that is examined, i.e., P_n as given by (11) and P_d as given by (20), only the balance sheets will be presented below. In addition, the exposition will include banks purchasing loans. Non-reserve city banks will be examined first, followed by central reserve city banks.

To illustrate a non-reserve city bank financing assets with note issue, take the case of a newly chartered bank with a capital of \$50,000. The bank would purchase \$50,000 in United States Bonds, deposit them with the Treasurer and in return receive \$45,000 ($.9 \times 50,000$) in national bank notes. After accounting for the 15 percent reserve which was required for all non-reserve city banks (this reserve would be \$6,750 ($.15 \times 45,000$)), the bank could purchase \$38,250 ($45,000 - 6,750$) in loans. In addition, 60 percent of the reserve could be deposited in banker's balances. The balance sheet after transacting would show:

B	50,000	K	50,000
VC	2,700	NOP	45,000
DFOB	4,050		
L	38,250		

On the other hand, the non-reserve city bank could opt to purchase assets with deposit issue. In this case a non-reserve city bank with a capital stock of \$50,000 would be required by law to deposit \$30,000 in bonds with the Treasurer.¹⁵ This would leave the bank with \$20,000 to

use as a reserve to support loan purchases with deposit issue. Again, 60 percent of this reserve could be deposited in banker's balances. Given a 15 percent reserve requirement, i.e., $d = 6.67$, the bank could purchase loans equal to \$133,333 ($20,000 \times 6.67$). The balance sheet after transacting would show:¹⁶

B	30,000	K	50,000
VC	8,000	NOB	27,000
DFOB	12,000	D	133,333
L	133,333		

To determine the method of finance used to purchase loans, the profit from purchasing loans with notes as given by P_n in (11) would be equated to the profit from purchasing loans with deposits as given by P_d in (20). The result would again be (21). However, several of the variables in (21) take different numerical values. Specifically, 60 percent of the capital stock would be allocated to purchase bonds for deposit with the Treasurer, i.e., $t = .6$. Non-reserve city banks could deposit 60 percent of their reserves in banker's balances, i.e., $b = .6$. Finally, the minimum legal reserve for a non-reserve city bank was 15 percent, i.e., $rr = .15$ and its reciprocal $d = 6.67$. If we again assume that $i^b = .04$ and $i^x = .02$ as in the case of a reserve city bank, (21) can be restated as $P_d \left\{ \frac{\>}{\>} \right\} P_n$ as:

$$(21NRCB) \quad i^L \left\{ \frac{\>}{\>} \right\} .0089. + 1.40i^d.$$

As in the case of reserve city banks, the various rates of i^L and i^d that would make a bank indifferent as to purchasing loans with notes or

deposits given various rates of rr and i^b can be calculated. This is done in Tables V.IV, V.V, and V.VI. Table V.IV calculates these rates when $i^b = .02$. Tables V.V and V.VI calculate these rates when $i^b = .04$ and $i^b = .06$ respectively.

Finally, the minimum capital requirement for a central reserve city bank was \$200,000. In the event that a bank of this class was financing loans with note issue, it would exchange its entire capital stock for bonds, deposit them with the Treasurer, and in return receive \$180,000 ($.9 \times 200,000$) in national bank notes. After accounting for the 25 percent reserve, \$45,000 ($.25 \times 180,000$), the bank could purchase loans equal to \$135,000 ($180,000 - 45,000$). Central reserve city banks were required by law to maintain their entire reserve in the form of legal money. Therefore, there would be no entry for banker's balances. The balance sheet after transacting would show:

B	200,000	K	200,000
VC	45,000	NOP	180,000
L	135,000		

If instead, a central reserve city bank were to finance with deposit issue, it would purchase \$66,000 ($200,000 \times .33$) in bonds, deposit them with the Treasurer and in return receive \$59,400 in national bank notes (again these notes would not be issued to the public). The remaining \$134,000 in capital would be used as a reserve to support deposit issue. With a reserve of 25 percent, i.e., $d = 4$, a central reserve city bank could purchase \$536,000 ($134,000 \times 4$) in loans with deposit issue.

TABLE V.IV

VARIOUS LEVELS OF i^L AND i^d WHICH MAKE NON-RESERVE CITY BANKS
 INDIFFERENT AS TO THE METHOD OF FINANCE USED
 TO PURCHASE LOANS
 GIVEN: $i^b = .02$

	rr=	.15	.20	.25	.30	.35	.40	.45	.50
i^d	i^L	i^L	i^L	i^L	i^L	i^L	i^L	i^L	i^L
.00	.0047	.0049	.0052	.0058	.0067	.0078	.0089	.0100	
.01	.0187	.0205	.0225	.0248	.0272	.0295	.0315	.0329	
.02	.0237	.0361	.0398	.0438	.0477	.0512	.0541	.0558	
.03	.0467	.0517	.0571	.0628	.0682	.0729	.0767	.0787	
.04	.0607	.0673	.0744	.0818	.0887	.0946	.0993	.1016	
.05	.0747	.0829	.0917	.1008	.1092	.1163	.1219	.1245	
.06	.0887	.0985	.1090	.1198	.1297	.1380	.1445	.1474	
.07	.1027	.1141	.1263	.1388	.1502	.1597	.1671	.1703	
.08	.1167	.1297	.1436	.1578	.1707	.1814	.1897	.1932	
.09	.1307	.1453	.1609	.1768	.1912	.2031	.2123	.2161	
.10	.1447	.1609	.1782	.1958	.2117	.2248	.2349	.2390	

Source: Computed by author from equation (21NRCB).

TABLE V.V

VARIOUS LEVELS OF i^L AND i^d WHICH MAKE NON-RESERVE CITY BANKS
 INDIFFERENT AS TO THE METHOD OF FINANCE USED
 TO PURCHASE LOANS
 GIVEN: $i^b = .04$

	rr=	.15	.20	.25	.30	.35	.40	.45	.50
i^d	i^L	i^L	i^L	i^L	i^L	i^L	i^L	i^L	i^L
.00	.0089	.0112	.0139	.0172	.0210	.0252	.0292	.0328	
.01	.0229	.0268	.0312	.0362	.0415	.0469	.0518	.0557	
.02	.0369	.0424	.0485	.0552	.0620	.0686	.0744	.0786	
.03	.0509	.0580	.0658	.0742	.0825	.0903	.0970	.1015	
.04	.0649	.0736	.0831	.0932	.1030	.1120	.1196	.1244	
.05	.0789	.0892	.1004	.1122	.1235	.1137	.1422	.1473	
.06	.0929	.1048	.1177	.1323	.1440	.1554	.1648	.1702	
.07	.1069	.1204	.1350	.1502	.1645	.1771	.1874	.1931	
.08	.1209	.1360	.1523	.1692	.1850	.1988	.2100	.2016	
.09	.1349	.1516	.1696	.1881	.2055	.2205	.2326	.2389	
.10	.1489	.1672	.1869	.2072	.2260	.2422	.2552	.2618	

Source: Computed by author from equation (21NRCB).

TABLE V.VI

VARIOUS LEVELS OF i^L AND i^d WHICH MAKE NON-RESERVE CITY BANKS
 INDIFFERENT AS TO THE METHOD OF FINANCE USED
 TO PURCHASE LOANS
 GIVEN: $i^b = .06$

	rr=	.15	.20	.25	.30	.35	.40	.45	.50
i^d	i^L	i^L	i^L	i^L	i^L	i^L	i^L	i^L	i^L
.00	.0132	.0174	.0225	.0286	.0354	.0426	.0495	.0557	
.01	.0272	.0333	.0398	.0476	.0559	.0642	.0721	.0786	
.02	.0412	.0486	.0571	.0666	.0764	.0860	.0947	.1015	
.03	.0552	.0642	.0744	.0856	.0969	.1077	.1173	.1244	
.04	.0692	.0789	.0917	.1046	.1174	.1294	.1399	.1473	
.05	.0832	.0954	.1090	.1236	.1379	.1511	.1625	.1702	
.06	.0972	.1011	.1263	.1426	.1584	.1728	.1851	.1931	
.07	.1112	.1266	.1436	.1616	.1789	.1945	.2077	.2160	
.08	.1252	.1422	.1609	.1806	.1994	.2162	.2303	.2389	
.09	.1392	.1578	.1782	.1996	.2199	.2379	.2529	.2618	
.10	.1532	.1734	.1955	.2186	.2404	.2596	.2755	.2847	

Source: Computed by author from equation (21NRCB).

Again, none of this reserve could be deposited into banker's balances.

The balance sheet after transacting would show:

B	66,000	K	200,000
N	59,400	NOB	59,400
VC	134,000	D	536,000
L	536,000		

After equating the profit statement from purchasing loans with notes as given by P_n in (11) to the profit statement from purchasing loans with deposits as given by P_d in (20), the result is (21). Again the numerical values differ due to the different class of banks. As with the case of reserve city banks, central reserve city banks were required to deposit one-third of their capital stock as bonds with Treasurer, i.e., $t = .33$. The minimum legal reserve was 25 percent, i.e., $rr = .25$ and $d = 4$. Finally, since central reserve city banks were required to maintain their entire reserve as legal money, $b = 0$. If we again assume that $i^b = .04$, (21) can be restated as $P_d\left\{\frac{>}{<}\right\}P_n$ as:

$$(21\text{CRCB}) \quad i^L\left\{\frac{>}{<}\right\}.099 + 1.33i^d.$$

Again, the various rates of i^L and i^d that would make a central reserve city bank indifferent as to purchasing loans with notes or deposits given various levels of i^b and rr can be calculated. These rates are calculated in Tables V.VII, V.VIII, and V.IX. Table V.VII calculated these rates when $i^b = .02$, and Tables V.VIII and V.IX calculate these rates when $i^b = .04$ and $i^b = .06$ respectively.

TABLE V.VII

VARIOUS LEVELS OF i^L AND i^d WHICH MAKE CENTRAL RESERVE CITY BANKS
 INDIFFERENT AS TO THE METHOD OF FINANCE USED
 TO PURCHASE LOANS
 GIVEN: $i^b = .02$

	$rr =$.25	.30	.35
i^d		i^L	i^L	i^L
.00		.0088	.0096	.0104
.01		.0221	.0236	.0249
.02		.0354	.0376	.0394
.03		.0487	.0516	.0539
.04		.0620	.0656	.0684
.05		.0753	.0796	.0974
.06		.0886	.0936	.1119
.07		.1019	.1076	.1264
.08		.1152	.1216	.1409
.09		.1285	.1356	.1554
.10		.1418	.1496	.1697

Source: Computed by author from equation (21CRCB).

TABLE V.VIII

VARIOUS LEVELS OF i^L AND i^d WHICH MAKE CENTRAL RESERVE CITY BANKS
 INDIFFERENT AS TO THE METHOD OF FINANCE USED
 TO PURCHASE LOANS
 GIVEN: $i^b = .04$

	rr =	.25	.30	.35
i^d		i^L	i^L	i^L
.00		.0090	.0098	.0140
.01		.0224	.0238	.0285
.02		.0358	.0378	.0430
.03		.0492	.0518	.0575
.04		.0626	.0658	.0720
.05		.0760	.0789	.0865
.06		.0894	.0938	.1010
.07		.1028	.1078	.1156
.08		.1162	.1218	.1301
.09		.1296	.1358	.1446
.10		.1430	.1498	.1591

Source: Computed by author from equation (21CRCB).

TABLE V.IX

VARIOUS LEVELS OF i^L AND i^d WHICH MAKE CENTRAL RESERVE CITY BANKS
 INDIFFERENT AS TO THE METHOD OF FINANCE USED
 TO PURCHASE LOANS
 GIVEN: $i^b = .06$

	rr =	.25	.30	.35
i^d		i^L	i^L	i^L
.00		.0222	.0264	.0307
.01		.0355	.0404	.0452
.02		.0488	.0544	.0597
.03		.0621	.0684	.0742
.04		.0754	.0824	.0887
.05		.0887	.0964	.1032
.06		.1020	.1104	.1177
.07		.1153	.1244	.1322
.08		.1286	.1384	.1467
.09		.1419	.1524	.1612
.10		.1552	.1664	.1757

Source: Computed by author from equation (21CRCB).

Another implication can be developed if equations (21RCB), (21NRCB), and (21CRCB) are compared. These equations are restated below:

$$(21RCB) \quad i^L \left\{ \frac{\geq}{\leq} \right\} .0137 + 1.33i^d,$$

$$(21NRCB) \quad i^L \left\{ \frac{\geq}{\leq} \right\} .0100 + 1.40i^d,$$

and

$$(21CRCB) \quad i^L \left\{ \frac{\geq}{\leq} \right\} .0090 + 1.33i^d.$$

These equations are plotted in Figure II. Given a uniform rate of interest paid on deposits (i^d), central reserve city banks require the smallest rate of i^L to finance with deposit issue, followed by reserve city banks and non-reserve city banks. This implies that central reserve city banks are more likely to finance loan purchases with deposit issue, non-reserve city banks are more likely to finance with notes. Reserve city banks lie somewhere in between. This further implies that different classes of national banks may have entirely different portfolios.

In addition, one further implication can be drawn from this analysis. In 1870, the Comptroller's office increased the aggregate ceiling on national bank note issue from \$300 to \$354 million. Since non-reserve city banks were the class most likely to finance asset purchases with note issue, an increase in the number of charters for non-reserve city banks would be expected.

Having discussed how the three classes should finance loan or bond purchases, the analysis will now turn to the question of when will a bank find it profitable to accept a deposit? Deposits in the analysis thus

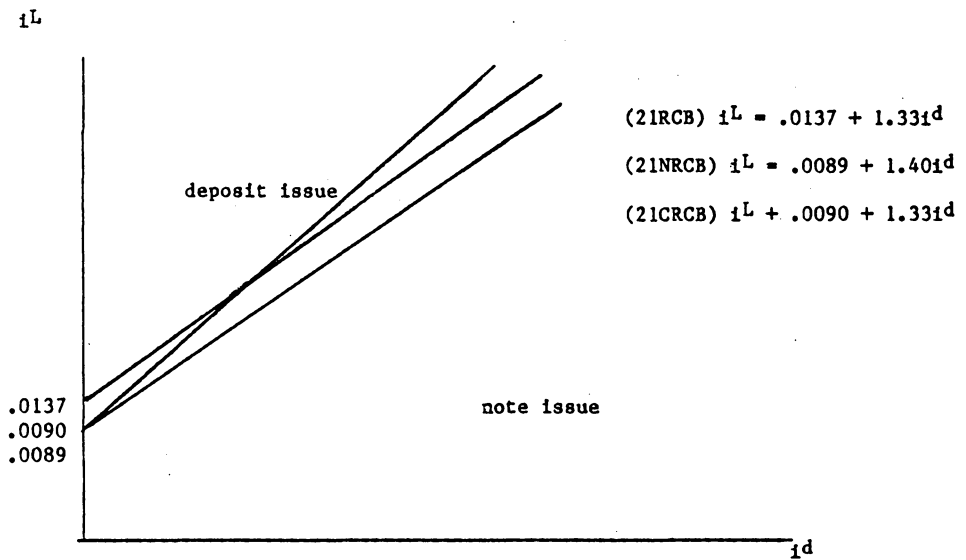


FIGURE II

VARIOUS LEVELS OF i^L AND i^d THAT MAKE THE THREE CLASSES OF NATIONAL
 BANKS INDIFFERENT AS TO PURCHASING LOANS WITH NOTES OR DEPOSITS

far have been limited to those created by banks to purchase assets. The answer to the question concerning banks accepting deposits can be obtained with the following illustration. Take the case where a bank has exhausted note issue, i.e., $NOP = K$ and $i^L > i^b$. Assume now that a reserve city bank accepts a specie deposit of \$1,000. After accounting for the 25 percent reserve (\$250), the bank would have \$750 in excess reserves. Its balance sheet would show:¹⁷

R	250	D_a	1,000
ER	750		

The bank could do either of two things. It could (1) loan the \$750 in specie directly, or (2) use the \$750 as a reserve to support deposit issue. In the event the bank chose the former, its balance sheet after transacting would show:

VC	125	D_a	1,000
DFOB	125		
L	750		

The income earned in this case would equal the interest earned on banker's balances ($i^x \times DFOB$), plus the interest earned on loans ($i^L \times L$), minus the tax on deposits ($.005 \times D_a$), minus the interest paid on deposits ($i_d \times D_a$). Here the profit statement can be generally expressed in equation (22);

$$(22) \quad P_s = i^x(DFOB) + i^L L - .005(D_a) - i^d(D_a).$$

Equation (22) can be expressed in terms of the accepted deposit after manipulating the variables.

First, a reserve must be held against the initial deposit:

$$(23) \quad R = (rr)(D_a).$$

Half of this reserve could be deposited in banker's balance:

$$(24) \quad D_{FOB} = (b)(rr)(D_a).$$

The excess reserve is equal to the percentage of the accepted deposit not used as a reserve:

$$(25) \quad ER = (1 - rr)(D_a).$$

Since the amount of loans purchased is equal to the excess reserve, (25) can be restated as:

$$(26) \quad L = (1 - rr)(D_a).$$

Substituting (24), (26), into (22) gives the profit statement from purchasing loans with specie:

$$(27) \quad P_s = i^x(b)(rr)(D_a) + i^L(1 - rr)(D_a) - .005(D_a) - i^d(D_a).$$

Equation (27) states that the income earned from purchasing loans with specie is equal to the interest earned from banker's balances plus the interest earned from loans, minus the tax on deposits, minus the interest paid on deposits.

The bank could on the other hand use its excess reserve to support loan purchases through deposit issue. In this case, the bank purchases loans equal to \$3,000 ($1/.25 \times 750$). The balance sheet after transacting would show:

<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px 10px 2px 10px;">VC</td> <td style="text-align: right; padding: 2px 10px 2px 10px;">500</td> </tr> <tr> <td style="padding: 2px 10px 2px 10px;">DFOB</td> <td style="text-align: right; padding: 2px 10px 2px 10px;">500</td> </tr> <tr> <td style="padding: 2px 10px 2px 10px;">L</td> <td style="text-align: right; padding: 2px 10px 2px 10px;">3,000</td> </tr> </table>	VC	500	DFOB	500	L	3,000	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px 10px 2px 10px;">D_a</td> <td style="text-align: right; padding: 2px 10px 2px 10px;">1,000</td> </tr> <tr> <td style="padding: 2px 10px 2px 10px;">D_c</td> <td style="text-align: right; padding: 2px 10px 2px 10px;">3,000</td> </tr> </table>	D _a	1,000	D _c	3,000
VC	500										
DFOB	500										
L	3,000										
D _a	1,000										
D _c	3,000										

Here the income earned would equal the interest earned on banker's balances ($i^x \times D_{FOB}$), plus the interest earned on loans ($i^L \times L$), minus

the tax on accepted deposits ($.005 \times D_a$) and created deposits ($.005 \times D_c$), minus the interest paid on accepted deposits ($i^d \times D_a$) and created deposits ($i^d \times D_c$). The profit statement is generally expressed in equation (28):

$$(28) \quad P_d = i^x(DFOB) + i^L(L) - .005(D_a) - .005(D_c) \\ - i^d(D_a) - i^d(D_c).$$

Equation (28) can also be expressed in terms of the accepted deposits.

In this case the reserve held is equal to the accepted deposit:

$$(29) \quad R = D_a.$$

Half of this reserve could be deposited into banker's balances:

$$(30) \quad DFOB = (b)(D_a).$$

The excess reserve is again equal to:

$$(25) \quad ER = (1 - rr)(D_a).$$

Here the amount of loans purchased is equal to the excess reserve times the reciprocal of the reserve requirement:

$$(31) \quad L = (1 - rr)(D_a)(d).$$

Since the amount of created deposits is equal to the amount of loans purchased, (31) can be rewritten as:

$$(32) \quad D_c = (1 - rr)(D_a)(d).$$

Substituting (30), (31), and (32) into (28) gives the profit statement from using an incremental deposit to support loan purchases with further deposit issue:

$$(33) \quad P_d = i^x(b)(D_a) + i^L(1 - rr)(D_a)(d) - .005(D_a) \\ - .005(1 - rr)(D_a)(d) - i^d(D_a) - i^d(1 - rr)(D_a)(d).$$

To determine the method of finance used to purchase additional loans the profit from lending the deposit directly as given in (27) would be

equated to the profit from creating additional deposits as given in (33).

Specifically, $P_s \left\{ \frac{\geq}{\leq} \right\} P_d$ as:

$$\begin{aligned} & i^x(b)(rr)(D_a) + i^L(1 - rr)(D_a) - .005(D_a) - i^d(D_a) \left\{ \frac{\geq}{\leq} \right\} i^x(b)(D_a) \\ & + i^L(1 - rr)(D_a)(d) - .005(D_a) \\ & - .005(1 - rr)(D_a)(d) - i^d(D_a) \\ & - i^d(1 - rr)(D_a)(d). \end{aligned}$$

By subtracting like terms and dividing by (D_a) the equation reduces to:

$$\begin{aligned} & i^x(b)(rr) + i^L(1 - rr) \left\{ \frac{\geq}{\leq} \right\} i^x(b) + i^L(1 - rr)(d) - .005(1 - rr)(d) \\ & - i^d(1 - rr)(d). \end{aligned}$$

Collecting like terms and dividing by $(1 - rr)$ gives:

$$(34) \quad -i^x(b) - i^L(d - 1) + .005(d) + i^d(d) \left\{ \frac{\geq}{\leq} \right\} 0.$$

If we assume $i^x = .02$, $b = .5$, and $rr = .25$, i.e., $d = 4$ and solve for i^L , equation (34) states that $P_d \left\{ \frac{\geq}{\leq} \right\} P_s$ as:

$$(34RCB) \quad i^L \left\{ \frac{\geq}{\leq} \right\} .0033 + 1.33i^d.$$

Another interesting implication becomes evident if equation (34RCB) is compared to equation (21RCB). These equations are restated below:

$$(21RCB) \quad i^L \left\{ \frac{\geq}{\leq} \right\} .0137 + 1.33i^d.$$

and

$$(34RCB) \quad i^L \left\{ \frac{\geq}{\leq} \right\} .0033 + 1.33i^d.$$

Solving for the strict equality, various levels of i^L and i^d were determined that would make a national bank indifferent as to purchasing loans with notes or deposits. The same can be done for equation (34RCB).

The results for both equations are reproduced in Table V.X.

Because of the difference in the value of the intercept an interesting event could now occur. Suppose the interest rate paid on deposits is four percent and the interest rate earned from loans is six percent. From equation (21RCB) and Table V.X, it is obvious that a bank would use its capital stock to purchase bonds, deposit them with the Treasurer, receive national bank notes for purchasing loans. However, from (34RCB) and Table V.X, the same bank would accept deposits and use them as a reserve to support loan purchases with deposit issue. Thus, there exists a range of i^L and i^d where national banks could utilize both note and deposit issue. This range is shown in Figure III. For example, if the interest rate paid on deposits was four percent and the interest earned from loans was five percent, the bank would finance loan purchases with note issue. However, if the interest rate paid on deposits was four percent and the interest earned on loans was seven percent, the bank would switch to financing loan purchases with deposit issue.

This does not imply, however, that a national bank would always find it profitable to accept a deposit. National banks would not accept a deposit in the event that the cost of accepting the deposit was greater than the potential income that could be earned from that deposit. In other words, banks will accept deposits so long as:

$$i^x(\text{DFOB}) = i^L(L) > .005(D) + i^d(D).^{18}$$

These rates of i^L and i^d are calculated in Table V.XI for a central reserve city bank. Table V.XI shows the level of i^d that would make a central reserve city bank indifferent as to whether or not it should accept a deposit given a level of i^L . If i^d were greater than the rate

TABLE V.X

COMPARISON BETWEEN (21RCB) AND (34RCB) FOR i^L AND i^d THAT WOULD
 MAKE A RESERVE CITY BANK INDIFFERENT AS TO THE METHOD OF
 FINANCE USED FOR LOAN PURCHASES

	(21RCB)	(34RCB)
i^d	i^L	i^L
.00	.0137	.0033
.01	.0271	.0166
.02	.0405	.0299
.03	.0539	.0432
.04	.0673	.0565
.05	.0807	.0698
.06	.0941	.0831
.07	.1075	.0964
.08	.1209	.1097
.09	.1343	.1230
.10	.1477	.1363

Source: Computed by author from equations (21RCB and (34RCB).

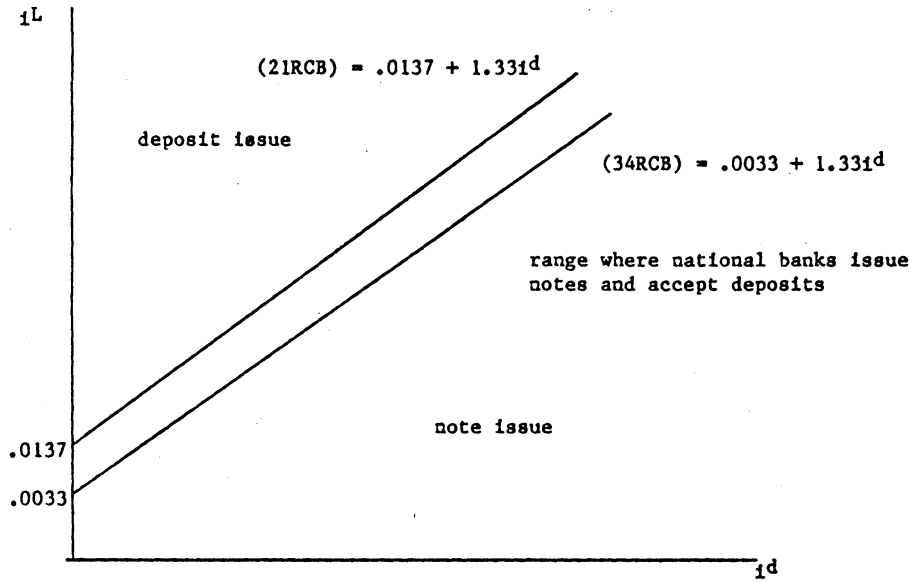


FIGURE III

RANGE OF i^L AND i^d WHERE RESERVE CITY BANKS RELY ON BOTH NOTE AND DEPOSIT ISSUE

TABLE V.XI

VARIOUS RATES OF i^d THAT WOULD MAKE A CENTRAL RESERVE CITY
BANK INDIFFERENT AS TO ACCEPTING A DEPOSIT GIVEN
THE LEVEL i^L

i^L	i^d
.00	-.0025
.01	.0050
.02	.0125
.03	.0200
.04	.0275
.05	.0350
.06	.0425
.07	.0500
.08	.0575
.09	.0650
.10	.0725

Source: Computed by author from equation (34RCB).

shown in Table V.XI, the bank would not accept the deposit. If i^d was less than the rate shown in Table V.XI, the bank would accept the deposit.

The same results can be obtained for non-revenue city banks and central reserve city banks. To avoid the tedious exposition concerning the balance sheets, the analysis will present only the equations for these two classes of national banks. In addition, equations derived from equation (34) will be compared to those derived from equation (21). For non-reserve city banks (21) and (34) can be stated as:

$$(21NRCB) \quad i^L \begin{matrix} \geq \\ \leq \end{matrix} .0089 + 1.40i^d,$$

and

$$(34NRCB) \quad i^L \begin{matrix} \geq \\ \leq \end{matrix} .0038 + 1.40i^d.$$

For a central reserve city bank (21) and (34) can be stated as:

$$(21CRCB) \quad i^L \begin{matrix} \geq \\ \leq \end{matrix} .0090 + 1.33i^d,$$

and

$$(34CRCB) \quad i^L \begin{matrix} \geq \\ \leq \end{matrix} .0067 + 1.33i^d.$$

For both of these classes of national banks, there are cases where they would use their capital stock to purchase bonds to deposit with the Treasurer in return for national bank notes which they would use to finance loan purchases. In addition, the same bank would accept deposits to use as a reserve to support loan purchases with deposit issue.

Empirical Implications

In this chapter a theoretical model has been developed to predict national bank behavior between 1867 and 1873. There are several

testable implications drawn from the model. They are:

1. National banks should be concentrated into one type of asset, either loans or bonds.
2. the method of finance used to purchase these assets will depend on certain exogenous variables. Given level of i^b and rr , Tables V.I through V.IX were calculated to determine a band of i^L and i^d . If i^L and i^d lie within this band, banks will finance with note issue. If i^L and i^d lie outside the band, banks will finance with deposit issue. It was also shown that once banks accept deposits, the possibility exists that banks would finance with note and deposit issue. Empirically, if a deposit-note ratio of 0 exists, banks are financing asset purchases with notes. If a deposit-note ratio of infinity exists, banks are relying on deposit issue to finance loan purchases. If the deposit-note ratio lies somewhere in between, banks are using their capital stock to finance asset purchases with note issue and accepting deposits to use as a reserve to finance asset purchases with deposit issue.
3. different classes of national banks may hold totally different portfolios of liabilities. Here the expected result is for non-reserve city banks to be most concentrated in note issue, central reserve city banks the least concentrated in note issue, i.e., the most concentrated in deposit issue, with reserve city banks somewhere in between.
4. an increase in the number of non-reserve city bank charters would be expected after 1870 when the ceiling on national bank notes was increased from \$300 to \$354 million. This implication follows from the previous implication that non-reserve city banks are the class most concentrated in note issue. It would be expected that if note issue had been exhausted before 1870, there would have been little incentive to seek a national bank charter. However, after the increase in circulation in 1870, an increase in national bank charters would be expected. Specifically, an increase in charters for non-reserve city banks since they are the class believed to rely most on note issue.

These implications will be tested in the next chapter.

FOOTNOTES

¹Assumption (7) allows the bank to make an intermediate step. It allows the bank to acquire its excess reserve.

²See assumption (4).

³Recall from Chapter III that bonds deposited with the Treasurer were considered assets of the bank and were represented on the balance sheet.

⁴Assume a local merchant cashes a check for \$90,000 written on a local bank, and that the newly chartered bank acquires the reserve through the local clearing house.

⁵If the bank had purchased bonds instead of loans, the fourth entry on the asset side of the balance sheet would be B instead of L.

⁶Had bonds been purchased instead of loans, $i^b(B)$ would replace $i^L(L)$ in the income statement.

⁷See footnote 5 and 6.

⁸National banks were not required to accept or issue national bank notes. In reality, a bank operating with deposits would probably never accept the notes from the Comptroller.

⁹It is unlikely that the bank would pay interest on a created deposit. However, the purpose of taking a loan is to spend it. It is likely that the party who receives the deposit in payment would deposit it in the bank. Since demand deposits did pay interest in this period, the bank would have to account for interest payments on deposits.

¹⁰It can be shown mathematically that the denominator is always negative if $t = .33$. Substituting into $.9(1 - rr) - (1 - t)(d) < 0$ and rearranging the variables yields: $rr(1 - rr) < 20/27$. The feasible range for rr is $.25 < rr < 1$. If $rr = 1$, the left hand side equals zero, i.e., $0 < 20/27$. If $rr = .25$, the left hand side equals $3/16$, i.e., $3/16 < 20/27$. Therefore the denominator is always negative.

¹¹For a reserve city bank relying on deposit issue and holding the minimum reserve of 25 percent, the value of t would have to be 83 percent in order for the slope to change signs.

¹²See footnote 10.

¹³Given the slope: $-(1 - t)rr^{-1}/.9(1 - rr) - (1 - t)rr^{-1}$, it can be proven that the slope reaches a maximum when $rr = .5$, by taking the derivative of the slope with respect to rr and solving for zero.

¹⁴Given a specific class of bank, the majority of the variables in (21) remained constant. The exceptions were i_b and rr .

¹⁵Recall from Chapter III that banks were required to deposit in bonds \$30,000 or one-third of the capital stock, whichever was larger.

¹⁶After depositing bonds with the Treasurer, the bank would be entitled to receive \$27,000 ($.9 \times 30,000$) in national bank notes although these notes would not be circulated. See footnote 8.

¹⁷Throughout this analysis the subscript "a" will denote accepted deposits, the subscript "c" created deposits.

¹⁸Here D includes accepted and created deposits.

CHAPTER VI

EMPIRICAL TESTS OF THE MODEL

Introduction

In the last chapter, a theoretical model was developed in order to calculate the most lucrative investment option available for national banks in the years following the Civil War. Given the four investment options available to national banks, i.e., purchase bonds with notes, purchase loans with notes, purchase bonds with deposits, and purchase loans with deposits, the model generated four testable implications. They are: (1) national banks should have been highly concentrated in one asset, (2) the method of finance used by each class of national bank would depend on the reserve requirement, the interest earned on loans, the interest earned on banker's balances, the interest earned on United States bonds deposited with the Treasurer, and the interest paid on individual deposits. Here it was possible for national banks to rely only on deposit issue, note issue, or if the variables above realized specific numerical values, banks could rely on both note and deposit issue, (3) different classes of national banks could rely more heavily on different sources of finance, i.e., non-reserve city banks would rely more heavily on note issue, central reserve city banks would rely more heavily on deposit issue, and (4) changes in institutional constraints such as changes in the aggregate note ceiling could cause rapid entry among specific classes of national banks.

In this chapter, actual data will be used to test if the model developed in the last chapter correctly predicts actual national bank

behavior. One method of testing the model would be to examine various rates of i^L and i^d for the period in question and compare them to various bank portfolios. Unfortunately, interest rate data concerning i^L and i^d are incomplete for this period in United States history. However, National Bank balance sheet data are available and will be used extensively throughout the exposition. By utilizing the information in the balance sheets, actual national bank behavior can be determined.

A. Empirical Tests of the Model

1. Asset Portfolios:

The first test of the model deals with the type of asset purchased by national banks. In Table VI.I, loans as a percentage of total earnings assets are calculated for the aggregate National Banking System. From national bank balance sheet data, total earning assets have been defined as loans, bonds (other than those deposited with the Treasurer to secure circulation), stocks, due from national banks (other than due from redeeming agents), and due from state banks (see Appendix I). Loans include all of the above entries except bonds. Between the years 1867 through 1873, loans were the primary asset in national bank portfolios. By 1873, 97 percent of earning assets were in the form of loans.¹

The asset portfolios of national banks can be further analyzed by national bank class. This is accomplished in Table VI.II. For the three classes of national banks, i.e., non-reserve city banks (NRCB),

TABLE VI.I

RATIO OF LOANS TO EARNING ASSETS NATIONAL
BANKING SYSTEM: 1867-1873

<u>YEAR</u>	<u>RATIO</u>
1867	.90
1868	.91
1869	.93
1870	.95
1871	.96
1872	.97
1873	.97

Source: Computed by author from data in Appendix I.

TABLE VI.II

RATIO OF LOANS TO EARNING ASSETS BY NATIONAL
BANK CLASS: 1867-1873

YEAR	NRCB	RCB	CRCB
1867	.87	.88	.89
1868	.88	.90	.96
1869	.90	.94	.95
1870	.93	.96	.95
1871	.94	.97	.95
1872	.96	.97	.96
1873	.97	.98	.98

Source: Computed by author from data in Appendix I.

reserve city banks (RCB), and central reserve city banks (CRCB), loans were again the primary earning asset irrespective of bank size.

2. Liability Portfolios

The second test of the model is to determine the method of finance used to purchase loans. However, before proceeding with this test, a digression is necessary in order to examine various rates of i^b and rr . In the last chapter, equations (21RCB), (21NRCB), and (21CRCB) were derived in order to calculate various rates of i^L and i^d that would make banks indifferent as to purchasing loans with notes or purchasing loans with deposits. In order to derive these equations, various assumptions were made concerning the value of i^b and rr . In order that the reader have some grasp of the true value of these variables, the analysis will digress for such a presentation.

Table VI.III presents average prices for United States Bonds which were commonly deposited with the Treasurer to secure circulation. The premiums paid on these bonds imply that the rate of interest earned on these bonds was below their face value. However, the prices stated in Table VI.III, are quoted in terms of greenback prices. The interest received on these bonds was paid in gold. In the late 1860's, one dollar in gold would purchase roughly \$1.20 in greenbacks while in the early 1870's, one dollar in gold would purchase roughly \$1.10 in greenbacks.² Thus, the average interest earned on deposited bonds (i^b) was roughly seven percent in the late 1860's. and six percent in the early 1870's.³

TABLE VI.III

AVERAGE ANNUAL PRICE OF UNITED STATES BONDS COMMONLY DEPOSITED WITH
THE TREASURER TO SUPPORT NOTE ISSUE: 1867-1873*

BOND	1867	1868	1869	1870	1871	1872	1873
1881 6's	109 5/8	111 7/8	118 3/8	116 3/8	104 3/8	92 1/2	-----
1881 reg. 6's	107 3/4	112 5.8	116 7/8	111 7/8	116 3/8	117 3/8	119 1/4
10-40 6's	100 1/4	104 7/8	109 7/8	106 7/8	110	108	111 1/4
5-20 6's 1862	110	111 1/8	117 1/8	108 1/8	111 5/8	111 5/8	117 3/8
5-10 6's 1864	108 1/8	108 3/8	114 3/8	111 1/8	111 3/8	111 3/8	117 3/8

*All bonds have a \$100 par value

Source: Banker's Magazine, various dates.

Presented in Table VI.IV, are the actual reserves held by each class of national bank.⁴ Here it is obvious that national banks maintained a reserve in excess of the legal minimum reserve. To expand the analysis further, actual reserves for non-reserve city banks by state and region are respectively presented in Tables V.V and VI.VI. Actual reserves for individual reserve city banks are calculated in Table VI.VII. In general, central reserve city banks seem to have maintained an actual reserve closer to the legal minimum than did reserve city and non-reserve city banks. Central reserve city banks held an average reserve over the period of roughly 28 percent, while reserve city and non-reserve city banks held average reserves of roughly 30 and 22 percent, respectively. Further, non-reserve city banks in the West and South West maintained greater reserves than their counterparts in the East. The reserves held by banks in the West and South West averaged over 25 percent, while the average reserves held by banks in the Mid-Atlantic and South-Atlantic were below 20 percent. The same observation holds for reserve city banks. Reserve city banks in the West such as Milwaukee, Detroit, and Chicago maintained an average reserve over 30 percent. Their counterparts in the East maintained an average reserve less than 30 percent.⁵ In addition, the overall trend for all three classes of national banks is towards the legal minimum.

Having a general indication of the rates of i^b and rr realized by national banks between 1867 and 1873, the analysis can now return to the second test of the model which deals with the method of finance

TABLE VI. IV
AVERAGE RESERVES BY NATIONAL
BANK CLASS: 1868-1873

YEAR	NRCB	RCB	CRCB
1868	.24	.32	.32
1869	.22	.32	.31
1870	.23	.33	.33
1871	.23	.31	.28
1872	.21	.29	.26
1873	.21	.29	.25

Source: Annual Report: Comptroller of the Currency 1873,
pp. LXX-LXXI

TABLE VI.V
 ACTUAL RESERVES BY STATE NON-RESERVE
 CITY BANKS: 1868-1873

<u>ST.</u>	<u>1868</u>	<u>1869</u>	<u>1870</u>	<u>1871</u>	<u>1872</u>	<u>1873</u>
ME	.22	.21	.22	.23	.20	.20
NH	.24	.24	.22	.26	.20	.21
VT	.21	.22	.21	.22	.18	.19
MA	.25	.21	.22	.22	.20	.20
CN	.23	.23	.25	.25	.23	.24
NY	.23	.20	.22	.22	.20	.19
NJ	.25	.24	.24	.25	.23	.22
PA	.23	.25	.23	.22	.19	.19
MD	.23	.24	.40	.26	.24	.23
DE	.24	.22	.20	.21	.20	.18
VA	.21	.15	.18	.18	.19	.18
WV	.20	.16	.19	.17	.17	.18
NC	.24	.25	.22	.22	.20	.22
SC	.64	.54	.24	.23	.12	.17
GA	.36	.42	.28	.29	.22	.20
AL	.42	.36	.11	.35	.29	.25
TX	.51	.53	.46	.40	.34	.41
AK	.19	.22	.20	.11	.20	.28
TN	.25	.24	.24	.23	.22	.23
KT	.23	.22	.24	.20	.18	.19
OH	.22	.20	.21	.22	.21	.20
IN	.22	.19	.21	.24	.22	.20
IL	.26	.25	.26	.25	.24	.24
MI	.27	.21	.23	.24	.19	.18
WI	.28	.25	.24	.25	.21	.20
IO	.32	.25	.24	.25	.22	.25
MO	.28	.24	.28	.21	.23	.20
KA	.39	.23	.24	.16	.24	.22
NB	.50	.33	.33	.28	.27	.30
CO	.29	.31	.41	.27	.25	.31

Key: ME - Maine, NH - New Hampshire, VT - Vermont,
 MA - Massachusetts, CN - Connecticut, NY - New York,
 NJ - New Jersey, PA - Pennsylvania, MD - Maryland,
 DE - Delaware, VA - Virginia, WV - West Virginia,
 NC - North Carolina, SC - South Carolina, GA - Georgia,
 AL - Alabama, TX - Texas, AK - Arkansas, TN - Tennessee,
 KT - Kentucky, OH - Ohio, IN - Indiana, IL - Illinois,
 MI - Michigan, WI - Wisconsin, IO - Iowa, MO - Missouri
 KA - Kansas, NB - Nebraska, CO - Colorado

Source: Annual Report: Comptroller of the Currency 1873, pp. LXX-LXXI

TABLE VI.VI

ACTUAL RESERVES BY REGION NON-RESERVE
CITY BANKS: 1868-1873

REGION	1868	1869	1870	1871	1872	1873
NE	.24	.20	.22	.23	.20	.20
MA	.19	.19	.15	.18	.17	.15
SA	.40	.21	.17	.18	.19	.17
SW	.38	.29	.26	.25	.22	.23
NC	.25	.21	.21	.24	.22	.20
FW	.45	.27	.27	.24	.24	.24

Key: NE - New England: Maine, Vermont, New Hampshire, Massachusetts, and Connecticut.
 MA - Mid-Atlantic; New York, New Jersey, Pennsylvania, Maryland, and Delaware.
 SA - South Atlantic - Virginia, West Virginia, North Carolina, South Carolina, and Georgia.
 SW - Southwest; Alabama, Texas, Arkansas, Kentucky, and Tennessee.
 NC - North Central; Ohio, Indiana, Illinois, Michigan, and Wisconsin.
 FW - Far West; Iowa, Missouri, Kansas, Nebraska, and Colorado.

Source: Annual Report: Comptroller of the Currency, 1873,
pp. LXX-LXXI.

TABLE VI.VII

ACTUAL RESERVES
RESERVE CITY BANKS:
1868-1873

CITY	1868	1869	1870	1871	1872	1873
BO	.35	.28	.30	.30	.27	.26
AL	.31	.38	.45	.49	.35	.37
PH	.37	.30	.35	.31	.31	.26
PT	.28	.25	.29	.28	.26	.28
BL	.31	.25	.32	.30	.27	.25
CL	.25	.26	.28	.29	.24	.25
CN	.26	.24	.29	.34	.28	.27
CH	.34	.33	.29	.35	.29	.27
DT	.30	.32	.33	.36	.27	.30
ML	.32	.31	.37	.41	.26	.35

KEY: BO - Boston, AL - Albany, PH - Philadelphia, PT - Pittsburgh,
BL - Baltimore, CL - Cleveland, CN - Cincinnati, CH - Chicago,
DT - Detroit, ML - Milwaukee

Source: Annual Report: Comptroller of the Currency 1873,
pp. LXX-LXXI

used by national banks to purchase loans. In order to determine this, the deposit-note ratio will be examined. To reiterate, the expected value of the deposit-note ratio would be zero in the event that national banks purchased loans with notes and did not accept deposits, or infinity if they relied solely on deposit issue. In addition, the model developed in the last chapter predicted that banks might use their capital stock to finance loan purchases with note issue and accept deposits to use as a reserve to finance loan purchases with deposit issue. The deposit-note ratio in this case would be greater than zero, but less than infinity. The deposit-note ratios for the three classes of national banks have been calculated in Table VI.VIII. From Table VI.VIII, it is apparent that the deposit-note ratio is greater than zero, but less than infinity. This implies that national banks were using their capital stock to purchase bonds to deposit with the Treasurer and in return received national bank notes to use for loan purchases. Simultaneously, national banks were accepting deposits to use as a reserve to support loan purchases through deposit issue.⁶

With the use of Table VI.IX, which shows market prices for various state and railroad bonds between 1867 and 1873, we can gain a general idea about the levels of i^L and i^d . If we assume that the interest rate earned on these bonds is the opportunity cost of purchasing a loan, we then have a general indication of regional loan rates (i^L).⁷ This is the last column in Table VI.IX. Having determined the local rate of interest earned on loans, and knowing the actual values of i^b and rr , some conclusions about the rate of i^d can finally be

TABLE VI.VIII

DEPOSIT-NOTE RATIOS BY
NATIONAL BANK CLASS: 1867-1873

<u>YEAR</u>	<u>NRCB</u>	<u>RCB</u>	<u>CRCB</u>
1867	1.85	2.01	6.25
1868	1.09	2.81	6.20
1869	1.01	2.03	7.04
1870	1.07	2.24	5.76
1871	1.10	2.98	6.65
1872	1.14	2.32	6.67
1873	1.18	2.34	6.53

Source: Computed by author from data in Appendix I.

TABLE VI.IX

AVERAGE BOND PRICES FOR VARIOUS STATE AND RAILROAD BONDS: 1867-1873*

BOND	1867	1868	1869	1879	1871	1872	1873	
Connecticut					100	100	100	
New England Range								6%
Pennsylvania 5's	93 1/4	103 1/4	102 1/4	103	101 1/4	100		
New Jersey	101 1/4	101 1/2	102 1/2	103 1/2	105 1/2	100 1/2		
New York Central						93	93	
Northern Pennsylvania R.R.	88	88 1/4	89	93	100 1/2	100 1/4		
Mid Atlantic Range								4 1/2 - 6 1/2%
Virginia	50 1/2	52	53	62 1/4	73	54 1/4	46	
Georgia 7's					91 1/2	88		
South Atlantic Range								7 1/2 - 12%
Tennessee	65 1/2	63 1/2	59 1/2	62	71 1/2	81 1/2		
Alabama 8's				99	83	55		
South West Range								7 - 15%
Michigan					95	94 1/2		
Indiana 1st. Mort.		73	74	77				
Chicago Rock Island 7's					103 1/4	104		
Stubenville & Indiana (1st Mortgage Bonds)	69	73						
Northern Central			83 1/4	90 1/2	92 1/2			
North Central Range								6 - 7 1/2%
Missouri	96 1/2	96 1/2	90 1/2	90	96 1/4	96	94	
Far West Range								6 1/4 - 6 1/2%

*All bonds have a \$100 par value and receive a 6 percent rate of return unless otherwise stated.

Source: All figures received from Bankers' Magazine (various dates).

determined. For example, the average loan rate in New England fluctuated between $5 \frac{3}{4}$ and $6 \frac{1}{2}$ percent. From the previous analysis, the interest earned from deposited bonds was roughly six percent, and the average reserve held in this region for non-reserve city banks was roughly 20 percent. If the value of i^0 were somewhere between two and three percent then banks would do two things simultaneously. They would (1) utilize their capital stock to purchase bonds for deposit with the Treasurer in return for national bank notes to purchase loans while (2) accepting deposits to use as a reserve to make further loan purchases with deposit issue.⁸ In other words, if i^d were less than two percent, there should have been no note issue, and if i^d were greater than three percent, note issuing banks should not have accepted deposits. Although the exact balance of i^d during these years are unknown, these values of i^d certainly seem reasonable.

3. Differences Between National Bank Classes and Across Regions

A. Differences Between National Bank Classes

The model developed in the last chapter predicted that central reserve city banks should be the class most concentrated in deposit issue, non-reserve city banks the most concentrated in note issue, with reserve city banks somewhere in between. Table VI.VIII supports this implication. Deposit-note ratios for central reserve city banks are much higher than for the other two classes of national banks, implying they were the most concentrated in deposit issue. Non-reserve city banks, on the other hand, had the lowest deposit-note ratios implying they were the class most concentrated in note issue. Reserve city

banks lie somewhere in between. Using a Two Sample t Test, the hypothesis that each national bank class realized the same deposit-note ratio can be rejected at the 5 percent level of significance. This is the expected result.

B. Differences Across Regions

To expand the present analysis further, deposit-note ratios are calculated by each state for non-reserve city banks, regionally for non-reserve city banks, and individually for reserve city banks to test if the model can explain variations across regions. These calculations appear in Tables VI.X, VI.XI, and VI.XII, respectively. Regardless of bank size or location, national banks operated in the manner stated above, i.e., banks used their capital to acquire notes for loan purchases and accepted deposits to use as a reserve for loan purchase with deposit issue. However, there is a wide disparity among banks within the same class. We would expect identical deposit-note ratios across regions unless there were regional differences in interest rates (i^L) earned on loans (assuming a uniform rate of i^d), or differences in the actual reserves held by national banks across regions. The higher the regional loan rate, the higher the expected deposit-note ratio. On the other hand, the higher the actual reserve held, the lower the expected deposit-note ratio. Each of these possibilities will be examined below.

It is generally agreed among economic historians that interest rates earned on loans were greater in the South and West. From Table VI.IX, interest rates do seem higher in the South, but were not that

TABLE VI.X

DEPOSIT-NOTE RATIO NON-RESERVE CITY BANKS BY STATE: 1867-1873

<u>ST.</u>	<u>1867</u>	<u>1868</u>	<u>1869</u>	<u>1870</u>	<u>1871</u>	<u>1872</u>	<u>1873</u>
ME	.66	.68	.67	.67	.71	.66	.76
NH	.45	.47	.42	.47	.53	.54	.59
VT	.33	.39	.29	.36	.43	.47	.59
MA	.99	.66	.62	.66	.74	.71	.75
CN	.68	.78	.70	.75	.84	.83	.77
NY	3.99	1.45	1.36	1.48	1.54	1.56	1.59
NJ	1.43	1.46	1.43	1.55	1.75	1.69	1.60
PA	1.91	1.20	1.10	1.09	1.21	1.30	1.34
MD	1.01	2.12	1.00	1.02	.87	1.11	1.01
DE	1.57	.74	1.35	1.42	1.30	1.14	1.20
VA	1.75	1.82	1.61	1.70	1.71	1.91	1.99
WV	1.16	1.23	1.01	1.05	1.09	1.15	1.23
NC	1.49	3.65	3.26	3.19	1.73	1.55	1.63
SC	7.33	8.80	7.35	6.06	1.83	1.22	.89
GA	1.32	2.04	1.76	1.42	1.22	.89	.95
AL	1.47	1.41	1.79	2.16	1.23	1.09	.81
TX	2.03	1.83	1.71	2.17	1.99	2.03	1.67
AK	3.23	3.10	.53	.70	.63	1.13	.64
TN	.73	.75	.65	.92	.49	.50	.54
KT	1.92	2.99	3.31	3.09	1.66	1.66	1.73
OH	1.25	1.21	1.02	1.09	1.24	1.22	1.27
IN	.66	.72	.78	.79	.84	.92	1.04
IL	1.73	1.77	1.65	1.70	1.36	1.53	1.60
MI	1.53	1.40	1.28	1.43	1.43	1.48	1.50
WI	1.55	1.79	1.49	1.43	1.44	1.70	1.94
IO	1.57	2.30	2.02	1.88	1.71	1.77	1.8
MO	2.31	2.72	2.79	3.33	1.72	1.70	1.74
KA	1.74	2.11	2.73	3.24	2.21	1.88	1.79
NB	5.86	6.65	8.07	8.44	3.43	2.95	3.11
CO	2.63	2.83	2.78	3.81	3.72	4.13	4.38

Key: ME - Maine, NH - New Hampshire, VT - Vermont,
MA - Massachusetts, CN - Connecticut, NY - New York,
NJ - New Jersey, PA - Pennsylvania, MD - Maryland,
DE - Delaware, VA - Virginia, WV - West Virginia,
NC - North Carolina, SC - South Carolina, GA - Georgia,
AL - Alabama, TX - Texas, AK - Arkansas, TN - Tennessee,
KT - Kentucky, OH - Ohio, IN - Indiana, IL - Illinois,
MI - Michigan, WI - Wisconsin, IO - Iowa, MO - Missouri
KA - Kansas, NB - Nebraska, CO - Colorado

Source: Computed by author from data in Appendix I.

TABLE VI.XI

DEPOSIT-NOTE RATIOS NON-RESERVE CITY BANKS BY REGION: 1867 - 1873

REGION	1867	1868	1869	1870	1871	1872	1873
NE	.83	.65	.60	.64	.71	.70	.72
MA	2.96	1.36	1.28	1.35	1.44	1.47	1.48
SA	1.56	1.95	1.72	1.72	1.47	1.40	1.39
SW	1.39	1.68	1.76	1.84	1.03	1.00	.94
NC	1.24	1.18	1.09	1.13	1.17	1.24	1.33
FW	2.03	2.55	2.43	2.85	1.94	1.95	2.13

Source: Computed by author from data in Appendix I.

TABLE VI.XII

DEPOSITS-NOTE RATIO RESERVE CITY BANKS: 1867-1873

CITY	1867	1868	1869	1870	1871	1872	1873
BO	1.13	1.71	1.53	1.56	2.08	1.87	1.99
AL	3.84	4.53	4.58	4.28	4.49	3.75	4.55
PH	3.78	4.05	3.82	3.87	4.12	4.22	4.05
PT	1.14	1.28	1.22	1.40	1.42	1.59	1.80
BL	1.63	1.75	1.43	1.71	1.78	1.83	1.89
CL	1.56	1.61	1.70	1.82	2.04	2.46	2.03
CN	1.87	1.15	1.24	.92	1.54	1.40	1.50
CH	1.87	2.69	2.77	3.29	3.06	3.17	2.98
DT	2.51	3.15	3.09	2.49	2.47	2.25	2.16
ML	1.84	2.52	2.25	2.19	2.99	2.51	3.32

KEY: BO - Boston, AL - Albany, PH - Philadelphia, PT - Pittsburgh,
 BL - Baltimore, CL - Cleveland, CN - Cincinnati, CH - Chicago,
 DT - Detroit, ML - Milwaukee

Source: Computed by author from data in Appendix I.

much greater in the West than in the four other regions.⁹ Interest rates in the New England, Mid-Atlantic, and Far West are reasonably comparable, (roughly six to seven percent). However, the South-Atlantic and South West regions had much higher interest rates ranging between seven and 15 percent. Given these regional interest rates, our model predicts: (1) that the South-Atlantic and South West regions should have the highest deposit-note ratios and should be similar to each other, and (2) that the New England, Mid-Atlantic, and Far West regions, (and possibly the North Central region) should have lower deposit-note ratios which should also be similar to each other. Thus, there are 15 predicted paired comparisons (seven for equality, eight for direction). Using Two Sample t Tests, null hypotheses for equality of means could be rejected at the five percent level of significance for all seven tests for the years 1868, 1870, and 1872. For the eight tests of direction, nine were rejected for the years 1868 and 1870 and eleven were rejected for 1872. Thus, for the most part, the observed deposit-note ratios did not accord with the predictions of the model.

The second possible explanation for the disparity in deposit-note ratios across regions is differences in the actual reserves held by national banks. From Table VI.VI, it is observed that the Mid-Atlantic region maintained the lowest average reserve, i.e., roughly 17 percent, the New England, South-Atlantic, and North Central regions maintained an average reserve of roughly 22 percent, and the South West and Far West maintained the highest reserves of roughly 27 and 29 percent,

respectively. Given these results, our model predicts: (1) that the Mid-Atlantic region should have the highest deposit-note ratio, (2) that the New England, South-Atlantic, and North Central regions should have lower deposit-note ratios which are similar to each other and, (3) that the South West and Far West should have the lowest deposit-note ratios which should again be similar to each other. Again there are 15 predicted paired comparisons (four for equality, eleven for direction). Using Two Sample t Tests, null hypotheses for equality of means could be rejected at the five percent level of significance for all four equality tests for the years 1868, 1870, and 1872. For the eleven tests of direction, ten were rejected for the year 1868, nine were rejected in 1870, and twelve were rejected in 1872. Thus, once again the observed deposit-note ratios do not accord with the predictions of the model, and it appears that the model does not explain variations in the bank behavior across regions.

However, there exists a possible alternative explanation for the disparity in deposit-note ratios across regions which is consistent with profit-maximization by national banks. This explanation deals with the constraints on total note issue and the misallocation of national bank notes by the comptroller's office. Together, these two variables distort deposit-note ratio within the same class of national banks.

After the tax on state bank note issue was imposed in 1866, the Comptroller's office gave existing state banks first priority in obtaining a national bank charter over potential new entrants. The

majority of existing state banks at that time were located in the New England and Mid-Atlantic regions. These areas received, therefore, the greater amount of national bank notes. With a maximum ceiling of \$300 million of national bank notes, these two regions quickly exhausted the allotment. This is evidenced in Table VI.XIII. Table VI.XIII shows the apportionment of national bank note circulation as determined by the Comptroller's office in 1873. Both the New England and Mid-Atlantic regions had an outstanding circulation greater than their aggregate apportionment. (The tremendous excess of notes in the New England states accounts for it having the lowest deposit-note ratio). The remaining regions had a deficiency in their circulation. The South-Atlantic and South West regions each realized a deficiency in their apportionment greater than their actual circulation. In addition, this table was calculated by the Comptroller's office in 1873, three years after the aggregate circulation had been increased from \$300 to \$354 million. The \$54 million increase was earmarked for the deficient regions. (Even after this increase in circulation, the regions of the South-Atlantic, South West, North Central, and Far West maintained the deficiency in their note circulation.) Empirically, before 1870, these deficient regions realized relatively higher deposit-note ratios, However, after the increase in the allotment of national bank notes, deposit-note ratios fall for the deficient regions (the exception in both cases is the North Central region). This accounts for various regions having higher (lower) deposit-note ratios before 1870, and relatively lower (higher) deposit note ratios after 1870, as mentioned in the text above. Thus, the misallocation of

TABLE VI.XIII

APPORTIONMENT OF NATIONAL BANK CIRCULATION

ST.	Apportionment to Populaton	Apportionment to Wealth	Aggregate Apportionment	Actual Outstanding	Excess	Deficiency
ME	2,877,818	2,053,200	4,931,018	8,029,252	3,098,234	
NH	1,461,138	1,486,800	2,947,938	4,624,525	1,676,587	
VT	1,517,376	1,380,600	2,897,976	6,932,030	4,034,054	
MA	6,689,889	12,549,300	19,239,189	59,523,671	40,284,482	
CN	<u>2,467,152</u>	<u>4,566,600</u>	<u>7,033,752</u>	<u>17,994,648</u>	<u>10,960,896</u>	
NE	15,013,373	22,036,500	37,049,873	97,104,126	60,054,253	
NY	20,118,813	38,267,400	58,386,213	60,796,006	2,589,793	
NJ	4,159,382	5,540,100	9,699,482	11,026,890	1,327,408	
PA	16,167,317	22,425,900	38,593,217	42,055,781	3,462,564	
DE	573,873	566,400	1,140,273	1,296,615	156,342	
MA	<u>3,584,651</u>	<u>3,787,800</u>	<u>7,323,451</u>	<u>9,252,847</u>	<u>1,880,396</u>	
MA	44,604,036	70,587,600	115,142,636	124,428,139	9,416,503	
VA	5,624,042	2,407,200	8,031,242	3,902,342		4,128,900
WV	2,029,041	1,115,100	3,144,141	2,360,307		783,834
NC	4,918,022	1,539,900	6,457,922	1,819,300		4,638,622
SC	3,239,045	1,221,300	4,460,345	2,319,500		2,140,845
GA	<u>5,435,587</u>	<u>1,575,300</u>	<u>7,010,887</u>	<u>2,365,605</u>		<u>4,645,282</u>
SA	21,245,737	7,858,800	29,104,537	12,767,054		16,337,483
AL	4,576,646	1,185,900	5,762,546	1,541,133		4,221,413
TX	3,757,640	938,100	4,695,740	930,960		3,764,780
AK	2,223,936	920,400	3,144,336	192,495		2,951,841
KT	6,064,027	3,557,700	9,621,727	7,637,900		1,983,827
TN	<u>5,777,118</u>	<u>2,938,200</u>	<u>8,715,318</u>	<u>3,341,736</u>		<u>5,373,582</u>
SW	22,399,367	9,540,300	31,939,667	13,644,224		18,295,443

*Reserve City Banks are included in their respective state of location.

TABLE VI.XIII (Continued)

ST.	Apportionment to Populaton	Apportionment to Wealth	Aggregate Apportionment	Actual Outstanding	Excess	Deficiency
OH	12,234,726	13,151,100	25,385,826	23,876,370		1,509,456
IN	7,714,871	7,469,400	15,184,271	14,706,415		477,856
ILL	11,659,230	12,496,200	24,155,430	17,824,209		6,331,221
MI	5,435,357	4,230,300	9,665,657	7,485,043		2,180,614
WI	<u>4,841,403</u>	<u>4,141,800</u>	<u>8,983,203</u>	<u>3,253,316</u>		<u>5,729,887</u>
NC	41,885,587	41,488,800	83,374,387	67,145,353		16,229,034
IO	5,481,081	4,230,300	9,711,381	5,674,385		4,036,996
MO	7,901,509	7,557,900	15,459,409	6,476,193		8,993,216
KA	1,672,754	1,115,100	2,787,854	1,825,496		962,358
NB	564,592	407,100	971,692	809,500		162,192
CO	<u>182,993</u>	<u>123,900</u>	<u>306,893</u>	<u>538,995</u>	<u>232,102</u>	
FW	15,802,929	13,434,300	29,237,229	15,324,569		13,922,660*

*Net deficiency

Source: Annual Report: Comptroller of the Currency, 1873, p. VII

national bank notes and subsequent increase in deficient regions seems to better explain variations in the deposit-note ratios across regions.

4. Bank Entry

The final test of the model deals with banks entry after the ceiling on national bank notes was increased in 1870 from \$300 million to \$354 million. As stated above, the \$54 million increase in national bank notes was earmarked for the Souh-Atlantic, South West, North Central, and Far West areas of the country. It would be expected that if note issue had been exhausted before 1870, there would have been little incentive to seek a national bank charter. However, after the increase in circulation in 1870, an increase in charters for non-reserve city banks would be expected. Specifically, an increase in charters for non-reserve city banks since it was evident from Table VI.VIII that non-reserve city banks relied most heavily on note issue. To determine if the last implication is correct, the analysis will first focus on the actual circulation of the National Banking System followed by an examination of bank charters.

Table VI.XIV calculates national bank notes outstanding as a percentage of maximum circulation. The table also shows actual circulation outstanding. Before June 1870, virtually the entire national bank note circulation had been issued. In 1871, the ratio fell (as would be expected), and by 1873, note issue was approaching its maximum circulation. This implies that existing national banks and new bank entrants were expanding circulation. This is evidenced in Table VI.XV where the aggregate number of national bank charters is

TABLE VI.XIV

RATIO OF NATIONAL BANK NOTES OUTSTANDING TO MAXIMUM CIRCULATION
AND ACTUAL CIRCULATION: AGGREGATE NATIONAL BANKING SYSTEM:
1867-1873

YEAR	RATIO	CIRCULATION
1867	.97	291,769,553
1868	.98	292,908,264
1869	.97	292,753,286
1879	.97	291,798,640
1871	.89	315,519,117
1872	.92	333,495,027
1873	.96	339,081,709

Source: Col. 11 Computed byt author from data in Appendix I.
Col. III Annual Report: Comptroller of the Currency
1877, pp. 2-7.

TABLE VI.XV

NATIONAL BANK CHARTERS: AGGREGATE
 NATIONAL BANKING SYSTEM: 1867-1873

YEAR	NO. OF CHARTERS	NET CHANGE
1867	1,636	-----
1868	1,640	+4
1869	1,619	-21
1870	1,615	-4
1871	1,723	+112
1872	1,853	+130
1873	1,968	+115

Source: Annual Report: Comptroller of the Currency, 1877, pp. 2-9.

presented. After 1870 when the ceiling on note issue was increased, national bank charters grew rapidly.¹⁰

The question that now arises is what class or classes of national banks were seeking these charters? The answer to this question is found in Table VI.XVI. Table VI.XVI shows national bank charters by class. As is evident from the table, new charters were taken almost exclusively by non-reserve city banks.¹¹ Second, Table VI.XVII analyzes the growth of non-reserve city banks by region. The majority of newly chartered non-reserve city banks were in those regions where a deficiency in national bank note circulation existed.

Conclusion

This chapter has demonstrated that national banks did operate in a manner predicted by the model developed in Chapter V. First, national banks did concentrate their portfolios with one type of asset; loans. Second, national banks relied on both note and deposit issue. The model predicted that given the actual values of i^L and values of i^d (although actual values of i^d are unknown reasonable values were established) national banks would operate in this manner. Third, as predicted, non-reserve city banks were the most concentrated in note issue, central reserve city banks the least concentrated in note issue, i.e., the most concentrated in deposit issue. Here there was little evidence to support the claim that the model could also explain variations across regions although institutional constraints seem to have distorted these findings. Finally, after the ceiling on note issue was increased in 1870, there was a large increase in the number

TABLE VI.XVI
 NATIONAL BANK CHARTERS BY
 NATIONAL BANK CLASS: 1867-1873*

<u>YEAR</u>	<u>NRCB</u>	<u>RCB</u>	<u>CRCB</u>
1867	1688	147	58
1868	1312	148	57
1869	1299	145	55
1870	1285	143	54
1871	1391	149	54
1872	1512	150	51
1873	1611	153	49

Source: Computed by author from data in Appendix I.

*The seemingly large decrease in non-reserve city bank charters between 1867 and 1869 is due to the reporting procedure of the Comptroller's office.

TABLE VI.XVII

NATIONAL BANK CHARTERS, NON-RESERVE CITY
BANKS BY REGION 1867-1873

REGION	1867	1868	1869	1870	1871	1872	1873
NE	566	364	364	364	365	368	370
MA	603	475	468	468	468	473	472
SA	49	49	47	46	60	67	76
SW	34	30	32	33	49	63	70
NC	365	330	325	311	364	421	478
FW	71	64	63	63	85	120	145

Source: Computed by author from data in Appendix I.

of non-reserve city bank charters. This was due to the fact that note issue was more lucrative for non-reserve city banks than for the other two types of national banks.

In the next chapter, some further comments will be made concerning the scope of this thesis along with suggestions for further research.

FOOTNOTES

¹Obviously, the return on loans was greater than the return to bonds during this period.

²The daily premium paid on gold can be found on a monthly basis in Banker's Magazine throughout the entire period in question.

³This accounts for the relatively lower ratio of loans as a percentage of earning assets in the late 1860's.

⁴The year 1867 is omitted. The Comptroller did not include this year in the Annual Report in 1873. The failure of this author to calculate the reserve for 1867 is due to entries appearing on the balance sheets in 1867. Before 1869, all deposits in banker's balances are listed under the entry "due from other banks." After 1869, this entry was divided into "due from redeeming agents," and "due from national banks." The reserve could be calculated for 1867 but would be greatly overstated and therefore meaningless.

⁵The exception for reserve city banks is Albany.

⁶This implies that i^L and i^d lies within the band determined in Tables V.I through V.IX. This allowed banks to use their capital to purchase loans with notes, and accept deposits to purchase loans with deposits.

⁷Since maturities for these bonds were unavailable, I have assumed they are consols and determined their market rate of interest as equal to the ratio of their market rate at par divided by the current market price of the bond.

⁸The rate of i^d would also have been between two and three percent in the Mid-Atlantic, North Central, and Far West. In the South-Atlantic, and South West, the rate of i^d would have been between 3 1/2 and 5 percent.

⁹However, it is uncertain if the interest rates shown in Table VI.IX are a true indication of the local lending rate, especially in the Far West. Therefore it is uncertain if this hypothesis should indeed be rejected.

¹⁰The seemingly large number of banks organized in 1873 is due to the selective process of the Comptroller's office. See Annual Report: Comptroller of the Currency, 1873, pp. III-VII.

¹¹The seemingly large decrease in non-reserve city bank charters in the years 1867 and 1868 was due to the accounting procedure used by the Comptroller's office. Banks which were ceasing operation were included in the aggregate balance sheet data for their respective states. At the same time it was a general practice for the Comptroller's office to charter a new bank to replace the closing bank. These newly chartered banks were also included in the aggregate balance sheet data. Thus for the years 1867 and 1868, there is in essence, a double counting of national banks. After 1868, the Comptroller's office excluded closing banks in their calculations.

CHAPTER VII

SUMMARY AND CONCLUSION

The purpose of this dissertation was to examine and model a unique period in the history of the National Banking System, i.e., a period where note issue was an important aspect of national bank behavior. The contribution of this dissertation has been to build a straight-forward profit maximizing model of national bank behavior. The predictions of the model were then tested against actual national bank behavior between the years 1867 and 1873. The results of the dissertation demonstrate that national banks did operate in a manner predicted by the model.

The model analyzes the profits derived from financing asset purchases with note and deposit issue. National banks had the alternative of purchasing two assets: loans and bonds. In addition, the model assumes that national banks had two alternative measures for financing these assets, national bank notes and deposits. Thus, there existed four investment or profit maximizing alternatives available to national banks. They could (1) purchase loans with notes, (2) purchase bonds with notes, (3) purchase loans with deposits, and (4) purchase bonds with deposits. Generalized profit statements (in equation form) were then calculated for each of these alternatives. Next the method of finance was established. This was determined by first finding the asset with the greatest yield, and then equating the profit statements for financing that asset with note and deposit issue. The same analysis was then applied to a national bank accepting a deposit. Here

the analysis focused on when a national bank would find it profitable to accept a deposit, and if it was profitable for a national bank to accept a deposit, how that deposit would be used, i.e., would it be used to purchase assets directly or as a reserve to support loan purchases with deposit issue. Various levels of i^L and i^d were then calculated to establish which type of liability national banks would use to purchase assets. The expected result was for national banks to finance assets with the liability that generated the greatest return.

After completing the analysis stated above, four implications were derived from the model. The first implication concerned the asset(s) held in national bank portfolios. The model predicted that national banks would not have diversified their portfolios; they would have been heavily concentrated in one asset. In order to maximize profits, national banks would presumably, purchase the asset with the greatest yield. Empirically, national banks were heavily concentrated in one asset; loans. Thus, this prediction of the model conformed to the actual experience.

The second test of the model was to determine the type of liability used by national banks to make loan purchases. Here there existed three possible alternatives. National banks could rely only on note issue and not accept deposits, only on deposit issue, or rely on a combination of the two. In the latter case, actual rates of i^L and rates of i^d (again actual values of i^d are unknown but reasonable rates were established) were such that national banks used their capital stock to purchase bonds, deposit them with the Treasurer and in

return receive national bank notes which they then used to purchase loans. Simultaneously, national banks accepted deposits to use as a reserve to make further loan purchases with deposit issue. Since the empirical deposit-note ratio was greater than zero, but less than infinity, (the expected deposit-note ratio of national banks relying on note and deposit issue to finance loan purchases), national banks relied on both note and deposit issue in the manner described above. Thus, once again the actual experience agreed with the predictions of the model.

The third implication of the model dealt with the different portfolios of liabilities between classes of national banks. Here the model correctly predicted that non-reserve city banks were the class most likely to rely on note issue, central reserve city banks the least likely to rely on note issue, i.e., the most likely to rely on deposit issue, with reserve city banks in between. The one weak implication of the model was that it could not explain variations across regions. One possible explanation for this is that regional interest rates depicted in Table VI.IX are not true indicators of local lending rates. Another possible explanation is the fact that institutional constraints concerning the distribution of national bank notes distort the findings. In any event, this is one area that merits further research.

Finally, the last test of the model dealt with national bank entry after the aggregate ceiling on national bank notes was increased from \$300 to \$354 million in 1870. Here the expected result was for a large increase in the number of non-reserve city banks since they were the

class most likely to utilize note issue. Empirically, virtually all national banks chartered between 1870 and 1873 were non-reserve city banks. Thus, this result also agreed with the predictions of the model.

Our overall findings are that national bank behavior can be explained by a straightforward profit-maximizing model. In the model, however, institutional considerations such as the interest earned on deposited government bonds (i^b), the percentage of reserves allowed to be deposited in banker's balances, and the tax on note and deposit issue were found to play an important role. We found that changes in any of these variables could cause national banks to reallocate their liability portfolios. This finding suggests two possible avenues for further research.

The first area of suggested research entails the expansion of the model developed in this dissertation to the period when there was a low issue of national bank notes. The model developed in this dissertation could easily be altered to account for the institutional changes which were made in 1874, i.e., changing the reserve requirements against notes outstanding from 15 percent for non-reserve city banks and 25 percent for reserve city and central reserve city banks to a five percent redemption fund with the Treasurer. Equations such as those developed in Chapter V could then be calculated for the various investment opportunities realized by national banks. This change in reserves in effect allowed banks to maintain a greater percentage of their reserves in banker's balances. The findings of this dissertation

show that deposit issue becomes more profitable the greater the percentage allowed to be deposited in banker's balances. Historically, deposit issue increased after 1874. Thus, I would expect that there does not exist a conundrum concerning the low issue of national bank notes (as James described it), but put simply, national banks found it more profitable to utilize deposit issue in making loan purchases.

The second area of suggested research entails an analysis of the institutional structure in which banks operate. Banks operating within the structure of the National Banking System operated in a very predictable manner. An interesting topic of research would be to examine the extent to which bank performance is determined by the regulatory structure in which they operate. I would expect that to a large extent bank safety is determined by the regulations imposed on banks and is not an inherent characteristic of laissez-faire banking. It would be wrong to claim that this dissertation represents anything more than a start for such a detailed analysis.

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APPENDIX I*

NATIONAL BANK BALANCE SHEETS FOR: NON-RESERVE CITY BANKS BY STATE;
NON-RESERVE CITY BANKS BY REGION; AGGREGATE NON-RESERVE CITY BANKS;
INDIVIDUAL RESERVE CITY BANKS; AGGREGATE RESERVE CITY BANK; CENTRAL
RESERVE CITY BANKS; AND AGGREGATE NATIONAL BANKING SYSTEM

*The balance sheet entries for non-reserve city banks are drastically overstated for the years 1867 and 1868. This is due to the fact the during those two years, banks that were in the process of ceasing operation were included in the aggregate balance sheet data for their respective states. After 1868, the Comptroller's Office excluded these banks in their calculations.

TABLE A I.1

BALANCE SHEET ENTRIES BY STATE NATIONAL BANKING SYSTEM 1867 - 1873

STATE: Maine

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	9,910,775	8,307,250	1,321,300	271,853	1,560,827	13,544	19,174	685,255	679,850
1868	10,519,632	8,407,250	1,440,050	209,715	1,975,335	6,534	41,251	951,474	125,430
1869	10,852,135	8,380,750	1,436,700	258,891	1,616,034	84,278	20,028	1,064,673	10,000
1870	11,377,010	8,379,750	918,300	359,204	1,772,280	105,835	51,496	1,057,447	5,000
1871	11,842,363	8,369,250	698,150	446,061	1,874,524	121,525	24,134	1,082,281	5,000
1872	12,346,041	8,429,250	611,500	543,257	1,507,711	120,766	22,778	1,002,497	0
1873	13,253,701	8,759,250	597,950	525,767	1,694,670	188,772	24,157	1,111,478	10,000

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	8,985,000	7,381,866	4,848,980	151,632	49,975	60
1868	9,085,000	7,467,771	5,288,465	141,126	48,202	61
1869	9,125,000	7,410,695	4,948,780	149,367	60,904	61
1870	9,125,000	7,404,099	4,943,985	227,015	83,036	61
1871	9,125,000	7,379,507	5,206,081	165,896	20,801	61
1872	9,198,620	7,448,317	4,948,218	188,870	15,205	62
1873	9,440,000	7,687,238	5,868,701	385,075	13,135	63

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.2

BALANCE SHEET ENTRIES BY STATE NATIONAL BANKING SYSTEM 1867 - 1873

STATE: New Hampshire

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	3,682,273	4,772,000	1,152,600	84,400	1,221,978	119,473	6,665	326,889	315,960
1868	4,116,677	4,836,000	1,188,750	54,750	1,170,688	44,407	6,598	467,591	169,970
1869	4,297,453	4,897,000	1,061,600	92,000	1,000,656	54,002	3,837	468,633	30,000
1870	4,853,988	4,877,000	650,050	270,261	915,193	42,775	63,202	463,437	20,000
1871	5,050,895	4,890,000	561,750	242,384	1,247,956	77,405	14,396	489,595	0
1872	5,770,795	5,059,000	581,000	222,748	938,691	99,358	24,038	457,999	0
1873	6,251,663	5,163,000	409,300	211,079	1,053,929	32,181	11,797	516,429	5,000

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	4,735,000	4,161,802	1,868,051	2,262	8,409	39
1868	4,785,000	4,234,331	2,006,173	11,405	22,993	40
1869	4,835,000	4,254,725	1,772,681	5,335	102,625	41
1870	4,835,000	4,259,152	2,011,261	6,989	975	41
1871	4,835,000	4,289,410	2,275,738	259	450	41
1872	4,835,000	4,453,331	2,393,223	1,414	3,500	41
1873	5,135,000	4,542,609	2,658,676	32,679	6,796	42

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.3

BALANCE SHEET ENTRIES BY STATE NATIONAL BANKING SYSTEM 1867 - 1873

STATE: Vermont

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	5,023,356	6,444,000	1,341,400	49,359	959,497	14,498	27,293	529,092	457,450
1868	5,459,505	6,478,000	1,387,750	106,600	1,205,550	15,420	48,126	638,986	169,090
1869	5,847,080	6,695,500	1,190,500	84,600	887,575	101,616	31,585	704,790	110,000
1870	6,775,517	6,706,000	715,200	163,300	798,393	94,083	40,918	788,201	95,000
1871	7,816,205	7,208,900	702,400	271,625	1,167,022	102,382	33,396	790,942	85,000
1872	8,732,434	7,502,000	509,600	373,750	975,595	143,070	30,048	768,586	10,000
1873	9,371,182	7,446,500	477,000	510,300	1,160,217	105,847	38,876	669,524	120,000

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	6,460,000	5,680,435	1,811,201	8,506	2,784	39
1868	6,510,012	5,685,835	2,228,045	27,069	493	40
1869	6,810,012	5,909,023	1,740,947	67,831	2,184	40
1870	6,810,012	5,896,062	2,150,891	28,446	1,302	40
1871	7,510,012	6,359,734	2,658,679	57,069	10,356	41
1872	7,610,012	6,663,760	3,136,903	17,613	11,143	41
1873	7,560,012	6,583,707	3,910,560	34,115	12,205	40

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.4

BALANCE SHEET ENTRIES BY STATE NATIONAL BANKING SYSTEM 1867 - 1873

STATE: Massachusetts

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	97,270,884	64,331,900	12,952,950	1,917,670	15,213,020	311,856	892,640	9,394,009	12,578,350
1868	41,985,595	35,317,050	6,311,350	971,335	8,912,612	175,995	232,258	3,584,581	1,518,790
1869	44,903,794	35,262,450	6,065,750	984,329	6,250,827	855,152	162,533	4,151,466	235,000
1870	49,807,030	35,262,350	4,490,950	955,339	6,927,421	806,744	352,770	4,214,982	215,000
1871	53,033,283	35,156,350	3,664,600	1,192,675	7,792,398	895,727	133,768	4,576,862	110,000
1872	56,121,750	35,910,250	2,870,950	1,168,032	6,856,957	732,960	296,835	4,002,155	35,000
1873	60,470,341	36,648,250	2,017,050	1,043,391	7,318,406	692,480	111,519	3,634,000	785,000

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	79,682,000	56,293,293	55,618,218	11,516,686	1,233,928	206
1868	37,132,000	31,091,046	20,512,311	374,515	81,001	161
1869	37,182,000	30,957,531	19,169,673	943,015	173,167	160
1870	39,172,000	30,888,608	20,504,860	1,075,025	203,797	160
1871	39,272,000	30,941,264	23,015,175	1,246,763	117,125	160
1872	39,581,130	31,603,136	22,563,851	1,578,200	160,884	162
1873	40,422,000	32,268,352	24,346,242	1,698,511	132,183	163

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.5

BALANCE SHEET ENTRIES BY STATE NATIONAL BANKING SYSTEM 1867 - 1873

STATE: Connecticut

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	26,517,787	19,440,000	3,123,350	568,053	5,978,718	248,506	95,769	1,453,783	1,885,730
1868	27,911,250	19,736,200	3,220,150	724,722	6,138,167	209,794	79,459	2,108,581	727,030
1869	29,420,410	19,752,250	2,858,100	693,902	4,346,513	2,349,149	86,796	2,468,081	245,000
1870	30,666,820	19,759,100	1,840,200	876,441	4,772,300	2,188,945	128,745	2,659,425	175,000
1871	33,433,769	20,053,200	1,017,600	884,463	5,724,605	2,423,081	105,677	2,581,611	90,000
1872	35,434,371	20,256,200	610,900	919,707	5,038,312	2,200,788	68,781	2,484,888	45,000
1873	35,673,577	20,252,500	468,500	922,492	5,267,216	2,234,493	58,779	2,458,113	35,000

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	24,234,220	17,055,124	11,513,212	2,227,650	245,309	80
1868	24,624,220	17,346,996	13,487,679	1,067,309	226,534	81
1869	24,606,820	17,218,419	12,191,889	2,752,992	354,183	81
1870	24,806,820	17,287,308	12,980,759	2,236,989	335,796	81
1871	25,056,820	17,513,316	14,699,829	2,878,192	626,809	81
1872	25,156,820	17,829,915	14,764,600	2,448,876	398,988	81
1873	25,324,620	17,824,465	13,698,136	3,059,828	616,248	80

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.6

AGGREGATE BALANCE SHEET ENTRIES BY REGION NATIONAL BANKING SYSTEM - 1867 - 1873

REGION: New England

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	142,339,075	103,295,150	19,891,600	2,945,335	24,932,040	707,877	1,041,541	12,389,028	15,917,340
1868	89,992,659	74,764,500	13,548,050	2,067,122	19,402,352	452,692	407,692	7,751,213	2,710,310
1869	95,320,872	74,987,950	12,612,650	2,133,722	14,101,603	3,444,197	304,779	8,857,643	630,000
1870	103,480,365	70,107,200	8,604,700	2,624,545	15,185,587	3,238,382	637,131	9,183,492	510,000
1871	111,176,515	75,667,700	6,644,500	3,037,208	17,806,505	3,268,765	311,371	9,521,291	290,000
1872	118,405,391	77,152,700	5,083,950	3,227,494	16,824,977	3,296,942	443,380	8,716,125	9,000
1873	125,020,464	77,531,500	3,969,800	4,055,879	16,494,438	3,253,773	245,128	8,389,564	955,000

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	124,096,220	90,572,520	75,659,662	13,906,736	1,540,405	566
1868	82,136,232	65,820,579	43,035,575	1,621,424	379,223	364
1869	82,558,832	65,850,393	39,823,970	3,918,540	693,063	364
1870	84,748,832	65,735,229	42,591,756	3,574,464	624,906	364
1871	85,798,832	66,483,231	47,855,502	4,348,179	775,541	365
1872	86,381,222	67,999,227	47,806,797	4,234,973	589,720	368
1873	87,881,632	68,907,371	49,482,315	5,210,208	780,567	370

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.7

BALANCE SHEET ENTRIES BY STATE NATIONAL BANKING SYSTEM - 1867 - 1873

STATE: New York

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	209,117,793	78,923,350	26,797,450	11,525,377	23,120,259	3,732,113	6,353,205	47,880,798	31,335,800
1868	58,463,905	33,819,850	6,050,450	3,018,481	12,120,259	490,942	336,122	5,027,293	2,671,370
1869	61,228,092	33,063,450	5,040,900	2,881,216	7,326,777	2,933,294	193,470	5,585,770	1,250,000
1870	62,680,152	33,329,750	3,631,050	3,162,634	9,274,787	2,785,972	436,074	6,110,219	790,000
1871	65,229,076	32,962,100	1,767,750	3,077,332	10,570,384	2,798,849	280,251	5,821,038	465,000
1872	69,895,794	33,127,450	2,500,200	3,215,448	9,225,042	2,448,196	156,703	5,602,063	85,000
1873	70,444,236	32,078,150	1,856,100	2,874,128	8,703,597	1,892,611	168,260	4,860,965	860,000

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	115,610,441	66,796,278	266,703,425	55,540,589	14,068,557	307
1868	37,245,241	29,687,403	43,231,275	2,731,578	1,360,461	293
1869	36,572,241	28,950,481	39,470,456	4,367,812	1,216,179	233
1870	36,506,741	28,953,312	43,004,860	3,376,759	1,501,391	233
1871	36,545,741	28,891,171	44,632,588	3,579,719	1,378,905	231
1872	36,509,141	19,068,385	45,426,981	3,317,033	1,514,355	230
1873	35,394,141	18,104,062	44,950,799	4,090,216	1,233,306	222

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.8

BALANCE SHEET ENTRIES BY STATE NATIONAL BANKING SYSTEM - 1867 - 1873

STATE: New Jersey

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	17,655,130	10,432,400	1,531,400	504,731	3,879,465	322,828	132,189	1,271,910	1,382,490
1868	18,123,082	10,615,650	1,252,800	313,948	4,720,935	58,586	58,586	1,785,295	763,430
1869	19,602,136	10,605,500	1,016,950	357,040	3,234,062	37,493	37,493	2,004,515	335,000
1870	20,491,233	10,610,450	709,200	374,598	3,581,859	200,211	200,211	2,031,626	240,000
1871	23,008,021	11,214,150	510,500	374,199	4,378,462	99,040	99,040	2,073,021	160,000
1872	24,416,454	11,645,650	363,850	340,007	4,164,878	105,459	105,459	2,084,209	55,000
1873	25,763,272	12,397,650	337,200	315,859	4,137,556	85,912	85,912	2,168,513	50,000

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	11,333,350	9,057,655	12,972,241	1,596,495	194,495	54
1868	11,483,350	9,229,575	13,467,020	1,155,368	114,204	54
1869	11,465,350	9,240,143	13,204,562	1,886,629	251,015	54
1870	11,515,350	9,211,762	14,288,415	2,236,263	268,401	54
1871	12,340,350	9,673,933	16,965,390	1,894,006	387,370	57
1872	12,790,350	10,213,723	17,271,450	2,008,855	393,447	58
1873	13,833,350	10,898,861	17,461,623	2,475,319	371,263	62

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.9

BALANCE SHEET ENTRIES BY STATE NATIONAL BANKING SYSTEM - 1867 - 1873

STATE: Pennsylvania

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	75,346,962	44,037,200	12,064,950	2,096,525	12,934,635	3,962,882	572,419	14,593,725	12,566,295
1868	31,726,551	23,467,450	5,653,450	819,745	7,156,981	880,715	93,058	4,521,841	1,687,660
1869	33,175,817	23,450,150	4,457,050	902,726	4,423,720	3,199,018	53,787	4,471,564	825,000
1870	35,004,345	23,482,600	3,194,400	1,149,841	4,869,888	3,002,147	125,722	4,693,318	725,000
1871	37,716,575	23,935,350	2,373,900	1,279,147	5,388,203	3,352,090	99,718	4,541,700	440,000
1872	43,228,911	25,082,550	1,755,400	1,607,337	5,069,694	3,074,156	94,187	4,650,479	155,000
1873	47,011,167	26,060,150	1,369,800	1,643,958	5,515,115	3,269,333	48,222	4,847,162	55,000

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	49,377,990	38,066,831	72,858,764	8,362,764	1,436,773	199
1868	23,875,040	20,616,799	24,906,820	1,309,032	247,089	152
1869	24,055,240	20,561,549	22,688,702	2,367,812	299,022	151
1870	24,185,240	20,534,434	24,418,946	1,815,025	396,964	151
1871	24,795,240	21,030,291	25,414,755	1,983,074	481,084	151
1872	25,773,740	22,055,722	28,756,209	2,134,663	509,838	155
1873	26,810,580	22,939,416	30,868,300	2,730,805	548,701	158

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.10

BALANCE SHEET ENTRIES BY STATE NATIONAL BANKING SYSTEM - 1867 - 1873

STATE: Delaware

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	2,059,137	1,348,200	75,500	82,288	350,651	153,227	9,686	172,148	156,510
1868	2,090,707	1,348,200	198,850	79,337	384,384	24,019	10,257	196,169	118,230
1869	2,128,060	1,348,200	61,650	93,754	269,173	104,095	4,819	216,095	80,000
1870	2,195,588	1,348,200	63,350	79,786	233,352	99,292	10,377	202,713	70,000
1871	2,298,019	1,348,200	62,750	81,203	253,239	136,092	2,792	198,643	80,000
1872	2,444,170	1,453,200	60,600	90,177	295,577	192,472	2,853	234,519	50,000
1873	2,447,588	1,453,200	61,050	168,212	233,790	162,155	2,726	274,007	10,000

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	1,428,185	1,196,455	1,203,337	168,822	21,883	11
1868	1,428,185	1,192,360	1,308,204	145,768	12,792	11
1869	1,428,185	1,189,144	1,184,353	195,027	18,528	11
1870	1,428,185	1,190,165	1,223,464	163,517	14,460	11
1871	1,528,185	1,282,676	1,116,011	228,223	26,640	11
1872	1,528,185	1,280,892	1,427,732	289,970	33,840	11
1873	1,528,185	1,285,203	1,342,416	321,106	25,396	11

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.11

BALANCE SHEET ENTRIES BY STATE NATIONAL BANKING SYSTEM - 1867 - 1873

STATE: Maryland

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	17,024,880	10,065,750	1,487,700	874,735	2,143,826	917,024	374,746	3,272,614	1,994,910
1868	2,850,042	2,058,250	623,200	249,897	726,183	322,212	51,841	471,604	135,090
1869	2,893,821	2,058,250	526,800	267,722	464,262	279,211	36,136	485,385	40,000
1870	2,922,312	2,058,250	383,150	269,553	819,326	203,986	27,820	485,703	30,000
1871	3,012,288	2,048,750	295,650	367,313	568,457	214,869	43,211	491,364	30,000
1872	3,185,945	2,208,250	254,700	406,066	506,907	163,842	20,671	489,110	0
1873	3,428,817	2,209,250	263,750	377,511	514,181	152,838	17,010	462,148	0

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	12,390,262	8,715,755	13,684,607	1,785,660	297,851	32
1868	2,398,217	1,765,427	2,351,858	86,132	46,232	19
1869	2,398,217	1,762,471	2,326,756	94,795	27,181	19
1870	2,348,217	1,721,396	2,450,851	66,352	35,700	18
1871	2,348,217	1,787,179	2,328,002	89,474	27,174	18
1872	2,398,217	1,940,433	2,224,319	111,165	19,157	19
1873	2,398,217	1,947,094	2,351,809	92,120	19,327	19

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.12

AGGREGATE BALANCE SHEET ENTRIES BY REGIONAL NATIONAL BANKING SYSTEM - 1867 - 1873

REGION: Mid Atlantic

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	321,213,902	146,806,900	41,957,000	15,083,656	42,428,826	12,820,187	7,442,245	67,191,195	47,436,005
1868	113,254,287	71,309,400	13,699,750	4,481,498	25,108,742	2,668,250	549,864	12,002,202	5,375,780
1869	119,027,926	70,525,550	11,103,350	4,502,458	15,717,994	7,875,784	325,705	12,763,329	2,530,000
1870	123,293,630	70,829,250	7,981,150	5,036,412	18,769,212	5,386,343	800,204	15,351,579	1,855,000
1871	131,173,979	72,760,750	5,010,550	5,179,194	21,158,745	7,861,451	525,012	13,125,766	1,175,000
1872	143,141,274	73,517,100	7,934,750	5,630,480	19,252,504	7,801,438	379,873	13,060,380	345,000
1873	179,095,080	74,198,400	3,887,900	5,265,897	19,103,249	8,626,889	322,130	12,616,995	975,000

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	190,149,228	123,832,794	367,422,359	67,454,330	16,019,659	603
1868	76,430,033	62,491,564	85,445,159	5,427,878	1,780,778	475
1869	75,919,233	61,703,788	78,934,829	8,912,075	1,829,444	468
1870	75,983,733	61,609,071	83,386,536	7,657,916	2,216,916	468
1871	77,557,733	62,665,150	90,396,779	7,774,496	2,301,173	468
1872	78,999,633	64,559,155	95,106,691	8,999,488	2,470,637	473
1873	79,964,473	65,174,736	96,914,947	9,700,566	2,197,993	472

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.13

BALANCE SHEET ENTRIES BY STATE NATIONAL BANKING SYSTEM - 1867 - 1873

STATE: Virginia

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	3,420,755	2,335,800	306,150	72,647	1,087,263	84,874	74,092	498,162	167,820
1868	3,969,946	2,329,800	260,150	59,330	975,411	394,576	112,025	554,665	72,820
1869	3,940,824	2,331,000	253,500	56,897	341,161	390,039	85,905	450,520	5,000
1870	4,479,627	2,331,000	253,500	69,375	402,991	384,256	102,834	586,324	5,000
1871	5,942,835	3,104,000	353,500	77,168	590,289	328,848	82,390	701,041	0
1872	7,782,487	3,704,500	355,000	58,989	905,239	419,280	77,674	827,773	0
1873	8,213,265	3,821,500	453,000	209,211	960,511	588,884	24,591	982,042	0

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	2,400,000	2,058,660	3,610,746	154,342	80,725	19
1868	2,400,000	2,052,125	3,740,267	256,198	83,051	19
1869	2,221,860	2,062,590	3,324,747	156,498	95,859	16
1870	2,223,300	2,067,927	3,526,557	159,115	98,898	16
1871	3,112,500	2,724,480	4,672,457	169,980	143,129	23
1872	3,735,000	3,276,552	6,275,067	260,578	186,395	23
1873	3,835,000	3,418,562	6,804,016	302,109	134,199	24

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.14

BALANCE SHEET ENTRIES BY STATE NATIONAL BANKING SYSTEM - 1867 - 1873

STATE: West Virginia

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	2,455,719	2,243,250	756,150	159,805	457,015	73,425	27,545	453,703	200,720
1868	2,431,436	2,243,250	825,750	179,490	565,432	27,970	38,403	454,940	106,220
1869	2,727,410	2,143,250	519,200	69,030	172,147	197,923	14,673	406,395	65,000
1870	2,886,384	2,143,250	385,450	163,980	283,135	210,760	23,682	453,395	25,000
1871	3,514,587	2,375,750	265,250	167,516	342,054	167,199	24,330	439,425	10,000
1872	4,245,568	2,552,750	222,350	123,537	389,984	545,100	13,030	433,843	0
1873	4,309,358	2,552,750	194,650	61,612	512,161	211,272	9,780	447,683	10,000

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	2,216,400	1,979,167	2,345,495	47,297	70,598	15
1868	2,216,400	1,967,412	2,418,961	59,662	67,775	15
1869	2,116,400	1,884,574	1,909,467	86,548	93,781	14
1870	2,116,400	1,886,756	1,995,826	73,113	68,577	14
1871	2,374,000	2,113,232	2,321,656	67,295	79,168	15
1872	2,596,000	2,243,232	1,692,126	113,292	109,292	17
1873	2,596,000	2,276,596	2,802,450	155,520	113,392	17

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.15

BALANCE SHEET ENTRIES BY STATE NATIONAL BANKING SYSTEM - 1867 - 1873

STATE: North Carolina

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	651,618	346,000	201,150	42,950	140,944	13,826	21,410	147,844	4,490
1868	625,204	365,500	287,350	68,858	86,976	32,629	17,202	488,156	2,880
1869	1,076,283	412,600	307,000	96,429	135,268	166,259	32,307	262,246	0
1870	1,502,780	468,600	295,100	176,976	162,674	179,153	22,240	244,424	0
1871	1,889,942	1,210,000	200,000	294,589	330,629	120,359	43,756	311,123	0
1872	2,658,741	1,700,100	180,000	355,875	361,051	139,815	45,896	375,562	0
1873	3,275,368	1,820,100	101,100	273,633	537,809	162,456	36,517	430,454	0

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	581,200	275,515	411,517	10,918	5,700	5
1868	583,400	315,760	554,168	95,664	6,382	5
1869	833,400	353,525	1,153,357	21,054	5,758	6
1870	850,000	398,550	1,274,606	170,188	30,613	6
1871	1,345,000	1,082,994	1,883,098	70,636	24,029	9
1872	1,850,000	1,527,415	2,380,935	75,888	32,336	9
1873	1,975,000	1,632,585	2,672,530	63,940	51,064	10

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.16

BALANCE SHEET ENTRIES BY STATE NATIONAL BANKING SYSTEM - 1867 - 1873

STATE: South Carolina

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	832,339	170,000	3,800	94,300	168,869	28,491	16,314	262,573	9,540
1868	931,915	204,000	300	102,663	620,760	49,885	17,390	488,156	4,160
1869	1,127,098	277,000	1,000	84,574	493,430	67,547	14,740	282,565	0
1870	1,769,326	340,000	1,000	53,704	184,291	54,872	26,888	171,123	0
1871	2,311,984	1,000,000	100	108,930	196,465	109,242	17,076	309,664	0
1872	3,132,353	1,769,000	0	100,540	287,638	172,990	12,825	495,515	0
1873	3,797,086	2,395,000	0	429,133	364,287	149,758	8,097	323,243	0

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	585,000	122,500	898,160	16,801	33,700	2
1868	685,000	146,090	1,479,776	106,772	15,606	2
1869	823,600	174,900	1,285,956	24,286	48,655	3
1870	823,500	247,500	1,497,966	26,974	83,572	3
1871	1,390,000	763,415	1,399,748	67,983	92,507	5
1872	2,238,050	1,569,190	1,191,725	65,976	163,389	8
1873	3,146,000	2,150,775	1,191,639	67,866	66,778	12

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.17

BALANCE SHEET ENTRIES BY STATE NATIONAL BANKING SYSTEM - 1867 - 1873

STATE: Georgia

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	1,418,511	1,383,500	500,250	43,545	516,721	158,347	37,046	629,962	165,660
1868	1,584,172	1,383,500	400,600	31,759	893,709	176,842	28,441	1,407,615	123,060
1869	2,061,798	1,383,500	100,000	10,436	626,865	242,656	32,690	762,637	75,000
1870	2,273,833	1,283,500	200,000	21,250	115,203	423,660	54,875	583,945	75,000
1871	2,571,212	1,901,000	150,400	64,845	466,769	398,434	77,632	529,859	50,000
1872	3,071,545	2,326,400	150,000	83,957	343,259	283,948	68,011	406,072	50,000
1873	3,541,400	2,466,400	150,500	137,422	282,045	340,228	41,996	546,051	0

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	1,600,000	1,222,824	1,622,283	27,039	28,812	8
1868	1,600,000	1,230,935	2,520,935	75,914	30,585	8
1869	1,600,000	1,232,575	2,172,734	52,683	51,339	8
1870	1,750,000	1,147,120	1,628,915	161,638	56,745	7
1871	2,150,000	1,704,700	2,089,967	42,930	48,635	8
1872	2,575,000	2,091,200	1,871,234	41,456	12,271	10
1873	2,777,730	1,205,439	2,092,200	98,661	25,742	13

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.18

AGGREGATE BALANCE SHEET ENTRIES BY REGION NATIONAL BANKING SYSTEM - 1867 - 1873

REGION: South Atlantic

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	8,778,942	6,478,550	1,767,500	413,247	2,370,812	358,963	176,407	1,992,244	548,230
1868	9,542,673	6,526,050	1,774,150	422,100	3,142,288	681,852	213,461	3,095,305	309,140
1869	10,933,413	6,547,350	1,180,700	317,366	1,768,889	1,064,424	180,315	2,164,363	105,000
1870	12,911,950	6,566,350	1,135,050	485,285	1,148,194	1,382,120	230,519	2,039,487	65,000
1871	16,230,560	9,590,750	959,250	790,216	1,926,206	1,124,082	245,184	2,291,999	60,000
1872	20,890,694	12,052,750	907,350	722,898	2,287,221	1,561,133	217,436	2,538,768	50,000
1873	23,136,477	13,005,750	899,250	1,111,011	2,656,813	1,452,598	121,981	2,129,473	10,000

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	7,382,600	5,658,666	8,858,201	256,397	219,535	49
1868	7,484,800	5,712,322	11,118,707	594,210	203,399	49
1869	7,595,160	5,708,164	9,846,261	341,069	295,392	47
1870	7,762,900	5,747,853	9,923,960	591,028	338,405	46
1871	10,371,500	8,408,821	12,366,926	418,817	387,468	60
1872	12,994,050	10,707,589	15,049,081	557,190	503,683	67
1873	14,329,730	11,683,957	16,290,835	520,186	391,165	76

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.19

BALANCE SHEET ENTRIES BY STATE NATIONAL BANKING SYSTEM - 1867 - 1873

STATE: Alabama

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	475,846	310,500	100,000	53,250	102,787	17,805	35,024	193,379	0
1868	350,560	310,500	50,000	37,083	96,091	65,650	61,746	127,580	0
1869	375,432	310,500	550	101,000	92,683	71,578	44,294	132,195	0
1870	773,441	310,500	550	7,153	25,602	113,788	6,880	55,408	0
1871	559,652	504,000	1,050	17,125	177,153	48,555	36,829	122,648	0
1872	1,356,566	1,042,150	0	4,761	248,671	108,335	33,722	276,159	0
1873	1,629,358	1,430,000	0	59,371	161,234	143,289	36,326	370,688	0

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	400,000	267,910	395,823	6,456	71,209	2
1868	400,000	267,405	378,821	1,037	38,016	2
1869	400,000	262,431	470,914	618	2,780	2
1870	400,000	254,818	551,774	1,545	11,477	2
1871	500,000	446,385	507,154	11,770	36,757	3
1872	1,068,000	924,844	1,007,530	37,158	73,311	10
1873	1,529,300	1,272,409	1,034,596	22,019	44,383	9

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.20

BALANCE SHEET ENTRIES BY STATE NATIONAL BANKING SYSTEM - 1867 - 1873

STATE: Texas

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	383,986	472,100	214,850	22,110	490,288	115,766	294,259	327,244	80,480
1868	535,514	472,100	201,050	49,110	271,986	68,933	255,952	217,537	0
1869	445,595	472,100	200,700	3,410	293,141	87,756	217,182	149,911	0
1870	516,692	485,000	205,500	23,539	198,545	90,364	311,723	182,431	0
1871	725,230	625,000	177,200	58,418	217,854	103,119	237,848	259,554	0
1872	941,723	625,000	179,600	19,738	148,239	140,513	262,935	220,660	0
1873	1,116,736	765,000	176,500	10,534	364,117	115,849	262,319	176,790	0

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	576,350	403,900	819,015	30,420	14,837	4
1868	525,000	391,775	717,445	41,857	13,343	4
1869	525,000	387,785	665,135	2,726	23,645	4
1870	525,000	380,237	825,470	7,892	9,666	4
1871	625,000	502,038	998,931	39,929	13,938	5
1872	625,000	492,752	1,000,890	9,518	22,164	5
1873	775,000	671,401	1,188,567	8,074	8,961	6

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.21

BALANCE SHEET ENTRIES BY STATE NATIONAL BANKING SYSTEM - 1867 - 1873

STATE: Arkansas

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	349,019	150,000	163,450	0	81,624	0	8,898	192,529	0
1868	427,468	200,000	224,000	7,220	122,094	947	2,709	88,009	0
1869	54,627	50,000	0	0	5,020	6,914	367	16,045	0
1870	161,676	200,000	64,350	52,690	28,346	53,496	1,256	58,190	0
1871	206,485	200,000	54,000	46,468	9,028	27,186	5,406	1,866	0
1872	121,162	180,000	53,400	34,739	40,770	64,934	1,763	26,500	0
1873	175,156	205,000	53,450	30,971	44,766	67,484	2,654	67,712	0

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	150,000	135,000	436,268	14,770	0	1
1868	200,000	179,415	556,415	31,912	0	2
1869	50,000	44,477	23,749	9,709	0	1
1870	200,000	178,830	124,832	2,357	0	2
1871	200,000	277,616	112,769	2,071	2,440	2
1872	183,000	139,414	129,791	1,870	0	2
1873	205,000	182,195	177,164	734	0	2

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.22

BALANCE SHEET ENTRIES BY STATE NATIONAL BANKING SYSTEM - 1867 - 1873

STATE: Kentucky

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	2,983,259	2,660,000	376,000	80,300	492,923	133,594	4,284	564,851	251,500
1868	2,603,872	1,769,900	176,000	25,715	338,302	90,694	5,056	387,953	46,400
1869	2,214,900	1,777,900	194,550	7,600	307,238	110,337	3,302	303,983	5,000
1870	2,638,630	1,846,700	52,650	1,600	396,217	181,997	10,246	353,181	0
1871	4,283,272	3,882,500	58,050	37,483	453,085	295,779	6,910	575,494	0
1872	5,672,171	5,099,150	50,000	29,790	614,226	310,431	5,515	601,499	0
1873	6,815,563	5,672,150	50,000	64,386	788,349	306,631	8,342	598,842	60,000

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	2,886,000	2,318,648	1,684,705	115,935	200,000	15
1868	1,885,000	1,536,621	1,153,591	29,829	93,710	11
1869	1,885,000	1,539,133	1,002,080	46,829	117,268	11
1870	2,010,700	1,562,577	1,443,433	35,708	98,241	12
1871	4,086,470	3,380,587	1,644,790	98,163	177,393	21
1872	5,278,600	4,511,880	2,267,662	79,367	157,596	27
1873	5,976,000	5,061,413	2,754,752	119,956	224,848	30

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.23

BALANCE SHEET ENTRIES BY STATE NATIONAL BANKING SYSTEM - 1867 - 1873

STATE: Tennessee

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	2,146,568	1,416,550	987,500	316,138	887,261	147,372	37,269	702,871	324,680
1868	1,721,377	1,179,800	990,000	291,207	691,418	127,274	31,258	623,807	65,070
1869	2,841,261	1,476,200	506,550	306,651	670,534	795,055	24,344	561,811	30,000
1870	3,133,425	1,488,200	636,450	179,085	468,916	469,916	68,722	697,110	0
1871	4,079,425	2,557,350	366,750	123,733	670,726	407,559	50,985	739,603	0
1872	4,898,147	2,908,150	418,950	147,145	822,818	351,540	40,176	698,733	0
1873	5,139,692	3,164,250	469,750	146,647	881,124	454,445	41,300	945,952	0

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	1,890,000	1,093,998	3,645,959	21,144	67,253	12
1868	1,625,300	923,163	2,761,397	30,937	67,152	11
1869	1,987,400	1,141,748	3,786,449	39,650	63,336	13
1870	1,975,300	1,143,210	3,541,504	357,610	96,420	13
1871	2,701,300	2,228,149	3,709,975	168,213	130,141	18
1872	2,914,300	1,568,189	4,256,189	204,191	172,162	19
1873	3,236,000	2,830,837	4,905,590	173,655	86,199	23

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.24

AGGREGATE BALANCE SHEET ENTRIES BY REGION NATIONAL BANKING SYSTEM - 1867 - 1873

REGION: South West

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	6,338,678	5,009,150	1,841,800	471,798	2,054,883	414,537	379,734	1,978,809	656,600
1868	5,098,791	3,932,300	1,641,100	392,220	1,519,891	353,498	356,721	1,444,886	111,470
1869	5,981,307	4,086,700	902,350	418,661	1,363,596	1,062,640	289,479	1,163,607	35,000
1870	7,223,864	4,330,400	959,500	264,067	1,117,626	909,561	398,827	1,387,138	0
1871	9,854,064	7,768,850	626,750	283,227	1,527,846	779,069	337,978	1,699,165	0
1872	13,086,769	9,894,450	701,950	236,173	1,874,724	975,753	344,111	1,823,551	0
1873	14,876,535	11,236,400	901,350	311,909	2,239,590	1,087,698	350,941	2,259,984	60,000

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	6,338,678	5,014,909	6,981,770	188,725	353,358	34
1868	5,098,791	3,298,379	5,567,469	125,779	324,700	30
1869	5,981,307	3,375,574	5,948,327	99,532	207,501	32
1870	7,223,864	3,519,672	6,487,013	405,112	216,307	33
1871	9,854,064	6,734,775	6,973,619	320,146	360,969	49
1872	13,086,769	8,634,323	8,690,062	332,104	425,233	63
1873	14,876,535	10,560,256	9,930,669	236,982	445,436	70

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A 1.25

BALANCE SHEET ENTRIES BY STATE NATIONAL BANKING SYSTEM - 1867 - 1873

STATE: Ohio

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	28,498,404	20,618,000	7,164,650	180,553	4,811,127	1,058,232	62,735	4,715,511	3,191,840
1868	20,503,092	14,864,800	3,641,700	305,456	4,115,062	777,403	64,098	3,293,371	648,670
1869	20,721,005	14,597,800	2,957,350	310,717	1,966,099	1,230,916	28,580	2,957,361	400,000
1870	22,100,006	14,507,600	1,743,850	454,032	2,450,690	1,212,373	75,589	2,956,369	325,000
1871	23,829,459	14,797,150	1,519,700	567,545	3,479,437	1,398,484	49,901	3,096,771	165,000
1872	28,179,534	17,310,950	1,180,800	762,097	3,418,333	1,468,966	39,901	3,537,851	60,000
1873	34,134,966	19,449,750	965,650	959,734	3,861,623	1,475,723	25,754	3,998,020	20,000

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	21,804,700	18,303,487	22,890,432	2,159,406	581,082	136
1868	15,604,700	13,191,062	15,964,814	336,345	237,119	123
1869	15,329,700	12,897,828	13,239,467	347,780	253,797	120
1870	15,304,700	12,775,465	13,969,919	340,528	270,976	119
1871	15,574,700	13,019,249	16,185,479	351,528	202,601	119
1872	17,656,700	13,174,627	18,639,201	514,638	295,599	133
1873	20,228,000	17,317,923	21,969,911	629,789	350,549	158

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.26

BALANCE SHEET ENTRIES BY STATE NATIONAL BANKING SYSTEM - 1867 - 1873

STATE: Indiana

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	12,772,972	12,434,350	2,161,150	226,126	6,161,709	392,266	46,884	2,063,872	1,298,325
1868	13,881,180	12,533,750	1,854,100	160,460	2,562,021	474,782	66,901	2,363,615	326,060
1869	15,723,386	12,493,550	1,590,750	127,282	1,642,824	1,291,962	31,319	2,179,334	90,000
1870	16,705,916	12,505,850	1,226,900	260,641	1,240,260	999,522	259,313	2,037,395	35,000
1871	18,328,747	13,786,200	980,200	405,859	2,895,268	1,547,422	69,039	2,508,538	30,000
1872	22,410,606	15,492,300	810,250	625,483	3,289,676	1,611,867	57,290	2,621,457	5,000
1873	26,581,423	16,120,300	747,750	658,776	3,227,336	1,388,490	36,115	2,612,737	105,000

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	12,667,000	10,925,643	7,208,599	88,339	89,846	69
1868	12,767,000	10,985,239	7,890,060	94,099	107,741	70
1869	12,752,000	10,935,962	8,549,358	120,623	121,673	69
1870	12,777,000	10,907,529	8,650,454	184,820	239,121	69
1871	14,362,000	12,074,451	10,187,568	189,110	473,626	70
1872	16,032,000	13,706,951	12,585,919	302,473	744,065	84
1873	17,292,800	14,323,651	15,026,808	403,053	693,111	91

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.27

BALANCE SHEET ENTRIES BY STATE NATIONAL BANKING SYSTEM - 1867 - 1873

STATE: Illinois

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	17,705,811	10,845,250	2,096,400	271,686	4,353,117	396,627	84,317	4,331,745	1,834,160
1868	9,419,756	6,178,750	1,465,550	225,321	3,088,183	188,513	94,091	1,898,494	266,960
1869	10,669,268	6,362,450	1,063,400	321,541	1,959,268	996,929	77,405	1,748,351	105,000
1870	11,127,303	6,210,850	889,350	259,021	2,146,730	958,465	141,019	1,712,354	90,000
1871	13,399,913	8,582,100	846,800	243,704	2,714,966	1,240,015	97,543	1,786,973	25,000
1872	17,274,169	10,208,100	991,800	507,710	3,499,000	1,357,734	71,725	2,182,825	10,000
1873	19,488,103	10,642,900	1,067,700	477,572	3,806,732	956,562	72,399	2,257,631	0

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	11,620,000	9,438,672	16,320,226	2,295,047	1,234,229	82
1868	6,420,000	5,404,854	9,571,790	22,733	127,093	69
1869	6,570,000	5,509,400	9,118,667	69,067	108,689	69
1870	6,570,000	5,381,895	9,177,326	99,033	114,540	67
1871	8,916,430	7,441,648	10,191,128	103,249	218,862	87
1872	10,604,870	9,046,261	13,914,982	89,247	225,852	106
1873	11,313,000	9,470,866	15,156,096	152,495	202,142	115

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.28

BALANCE SHEET ENTRIES BY STATE NATIONAL BANKING SYSTEM - 1867 - 1873

STATE: Michigan

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	6,703,567	4,357,700	712,700	210,386	1,672,340	104,228	13,063	2,447,838	931,460
1868	4,767,519	3,163,900	374,600	155,255	1,146,426	91,904	23,565	830,447	140,120
1869	5,759,486	3,271,300	298,800	166,143	587,397	415,049	24,452	795,499	55,000
1870	6,478,264	3,279,800	150,000	168,269	679,579	323,144	22,395	872,924	40,000
1871	7,883,295	4,181,650	71,350	181,883	1,080,810	611,822	45,803	976,845	30,000
1872	11,313,653	5,382,750	71,050	180,967	1,029,839	577,406	44,676	1,155,405	20,000
1873	14,008,458	6,241,750	113,650	211,650	1,217,343	455,013	45,457	1,278,167	10,000

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	5,050,010	3,812,062	5,854,251	87,536	105,663	42
1868	3,510,000	2,774,411	3,888,682	40,669	11,696	37
1869	3,810,000	2,853,316	3,670,060	35,399	14,684	38
1870	3,885,000	2,840,856	4,968,556	33,126	62,776	38
1871	5,028,000	3,559,257	5,112,607	23,954	39,651	52
1872	6,432,630	4,728,147	7,010,563	54,560	95,871	64
1873	7,789,280	5,517,057	8,378,343	58,386	140,298	74

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.29

BALANCE SHEET ENTRIES BY STATE NATIONAL BANKING SYSTEM - 1867 - 1873

STATE: Wisconsin

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	3,811,978	2,343,978	876,750	31,385	1,212,752	62,680	17,298	824,614	495,325
1868	2,939,238	1,981,250	491,950	22,031	1,033,849	36,006	23,213	671,110	99,530
1869	2,866,007	1,846,550	348,650	27,222	493,185	241,904	17,141	513,829	50,000
1870	2,850,056	1,823,550	276,250	32,359	474,574	221,842	45,544	498,893	40,000
1871	3,828,226	2,313,750	209,250	88,659	710,484	329,558	10,969	515,978	15,000
1872	4,845,200	2,436,050	162,650	103,380	657,547	255,514	10,757	601,866	0
1873	5,626,284	2,591,050	213,650	110,293	733,221	393,527	14,352	642,019	0

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	2,885,000	2,538,782	3,944,534	259,119	63,366	36
1868	2,010,000	1,747,519	3,122,449	11,093	10,795	31
1869	1,860,000	1,630,447	2,444,066	25,823	12,063	29
1870	1,785,000	1,579,358	2,257,251	8,053	23,299	28
1871	2,481,500	2,021,031	2,928,595	29,377	27,129	36
1872	2,500,000	2,171,510	3,712,583	10,061	67,128	37
1873	2,740,000	2,310,264	4,483,487	16,361	35,494	40

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.30

AGGREGATE BALANCE SHEET ENTRIES BY REGION NATIONAL BANKING SYSTEM - 1867 - 1873

REGION: North Central

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	69,492,732	50,599,270	13,011,650	920,136	13,666,046	2,014,033	224,297	13,009,227	7,751,110
1868	51,510,785	38,722,450	7,827,900	898,523	11,945,541	1,568,608	271,868	9,056,037	1,481,340
1869	55,739,152	38,571,650	6,258,950	1,062,905	6,648,773	4,176,760	178,897	8,194,374	700,000
1870	59,261,545	38,327,650	4,286,350	1,174,322	6,991,551	3,715,346	543,860	7,988,135	530,000
1871	67,269,640	43,660,850	3,627,300	1,487,650	10,809,962	5,127,301	273,255	8,894,805	265,000
1872	84,023,162	48,640,150	3,144,550	2,179,637	12,750,515	5,271,487	224,349	10,100,034	95,000
1873	99,393,234	55,055,750	3,108,400	2,418,025	11,846,255	4,669,315	194,077	10,788,581	135,000

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	54,026,710	45,018,646	56,218,089	4,889,447	2,074,186	365
1868	40,311,700	34,103,085	40,437,795	514,879	494,444	330
1869	40,321,700	33,826,953	37,021,618	598,601	510,906	325
1870	40,321,700	33,485,103	38,123,439	664,556	710,712	311
1871	46,416,620	38,117,636	44,605,377	797,218	961,869	364
1872	53,226,200	44,827,496	55,853,248	970,079	1,428,515	421
1873	59,423,080	48,397,791	65,193,545	1,296,084	1,385,594	478

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.31

BALANCE SHEET ENTRIES BY STATE NATIONAL BANKING SYSTEM - 1867 - 1873

STATE: Iowa

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	4,915,312	3,712,150	892,900	146,023	808,189	154,385	43,364	1,266,545	639,950
1868	5,599,470	3,634,750	882,350	154,420	2,439,352	191,068	64,268	1,579,680	116,310
1869	6,116,510	3,591,750	684,000	192,566	988,211	746,211	36,391	1,357,362	25,000
1870	6,163,752	3,575,750	451,750	226,096	989,114	694,076	76,887	1,176,236	25,000
1871	7,348,476	4,402,000	385,750	183,198	1,256,441	655,798	66,624	1,348,538	10,000
1872	8,961,518	4,069,000	450,000	203,257	1,576,399	719,940	40,249	1,463,109	10,000
1873	1,0455,466	5,743,000	550,850	216,903	2,024,486	786,695	34,177	1,652,367	0

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	3,792,000	3,211,430	5,043,125	58,496	92,495	45
1868	3,742,000	3,142,772	7,274,300	48,918	70,653	44
1869	3,171,000	3,079,033	6,242,155	97,092	102,152	43
1870	3,740,000	3,074,617	5,795,211	72,475	119,316	43
1871	4,633,600	3,189,915	6,556,523	64,882	57,276	55
1872	5,134,550	4,504,468	8,001,402	163,673	129,276	62
1873	5,952,000	5,097,413	9,475,675	123,866	184,420	75

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.32

BALANCE SHEET ENTRIES BY STATE NATIONAL BANKING SYSTEM - 1867 - 1873

STATE: Missouri

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	8,116,932	3,774,100	1,043,450	916,244	1,091,451	206,125	104,253	1,619,544	843,390
1868	1,494,581	797,900	280,077	123,195	503,846	54,774	28,498	372,048	25,450
1869	1,619,827	797,900	230,800	187,787	305,435	173,566	27,888	272,988	10,000
1870	1,826,088	797,900	255,150	248,107	471,391	325,140	42,968	351,876	10,000
1871	2,784,878	1,681,400	81,700	165,126	367,398	400,171	19,943	445,916	10,000
1872	4,014,421	2,313,500	83,050	445,420	664,874	433,561	18,701	593,818	0
1873	5,053,778	2,595,500	60,100	511,374	749,101	285,363	13,647	567,113	0

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	7,059,300	2,260,402	5,235,899	1,816,854	592,753	16
1868	990,000	663,990	1,809,285	3,595	15,879	10
1869	1,000,000	663,362	1,855,340	31,393	44,639	10
1870	900,000	681,606	2,271,231	64,628	91,982	10
1871	1,815,700	1,456,515	2,510,724	72,260	110,620	17
1872	2,335,000	2,053,205	3,494,044	175,392	175,392	25
1873	2,685,000	2,291,980	4,902,697	278,010	295,496	29

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.33

BALANCE SHEET ENTRIES BY STATE NATIONAL BANKING SYSTEM - 1867 - 1873

STATE: Kansas

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	328,246	352,000	316,550	7,596	467,631	20,316	1,347	226,749	59,920
1868	201,829	182,000	70,000	30,343	163,346	9,375	220	86,895	5,090
1869	258,756	182,000	68,450	25,167	40,408	130,689	1,118	108,129	0
1870	347,783	184,000	71,300	8,909	76,150	238,497	3,947	130,275	0
1871	789,275	385,000	155,150	34,855	79,018	218,578	3,432	149,227	0
1872	1,949,456	1,255,000	479,950	110,993	493,363	418,754	4,788	402,677	0
1873	2,631,826	1,655,000	531,600	164,214	608,799	580,502	3,436	443,791	0

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	350,000	310,255	542,385	32,393	28,883	4
1868	200,000	159,316	277,693	521	7,338	3
1869	200,000	159,290	435,717	2,581	2,130	3
1870	210,000	258,195	513,546	6,971	9,197	3
1871	460,000	337,703	746,134	23,522	15,333	6
1872	1,387,300	1,120,002	1,026,134	56,774	61,547	20
1873	1,935,000	1,469,110	2,633,492	40,183	57,803	26

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.34

BALANCE SHEET ENTRIES BY STATE NATIONAL BANKING SYSTEM - 1867 - 1873

STATE: Nebraska

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	456,732	190,000	322,950	50,546	458,649	1,309	8,679	230,787	48,940
1868	600,689	225,000	451,200	36,913	833,494	17,990	10,790	264,973	13,230
1869	864,369	235,000	512,750	50,169	326,404	66,137	14,974	336,780	0
1870	1,080,858	235,000	469,950	145,201	519,786	114,336	16,457	249,223	0
1871	980,025	440,000	409,050	154,120	390,708	39,914	12,061	231,615	0
1872	1,465,790	800,000	401,650	234,427	605,023	241,398	21,605	220,013	0
1873	1,756,856	850,000	450,600	239,881	804,722	264,169	5,147	291,969	0

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	250,000	165,450	969,843	19,611	11,137	3
1868	375,000	168,700	1,123,077	18,267	224,642	4
1869	400,000	169,500	1,287,288	7,909	48,189	4
1870	500,000	166,059	1,402,424	47,766	113,672	4
1871	440,000	379,512	1,303,170	70,094	95,307	4
1872	800,000	708,072	2,089,026	123,180	91,953	8
1873	850,000	759,448	2,365,435	168,565	80,505	9

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.35

BALANCE SHEET ENTRIES BY STATE NATIONAL BANKING SYSTEM - 1867 - 1873

STATE: Colorado

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	393,705	297,000	204,600	3,432	231,976	10,963	6,380	279,894	2,100
1868	431,125	297,000	200,500	2,692	360,474	13,999	38,925	163,780	500
1869	495,609	297,000	154,600	16,038	138,651	66,966	30,520	153,927	0
1870	566,537	297,000	154,500	14,610	294,354	403,376	19,606	236,928	0
1871	812,607	354,000	270,000	16,896	232,336	142,633	25,985	158,655	0
1872	1,120,685	460,000	220,000	25,195	246,598	185,304	54,359	185,150	0
1873	1,644,270	530,000	220,000	1,567	427,946	173,315	84,331	329,393	0

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	350,000	254,000	669,573	37,864	2,287	3
1868	350,000	254,000	717,718	67,889	1,562	3
1869	350,000	254,000	707,584	18,523	1,838	3
1870	350,000	254,000	969,498	20,670	45,701	3
1871	350,000	315,000	1,174,344	80,224	45,404	3
1872	500,000	369,000	1,525,540	52,576	70,574	5
1873	575,000	477,000	2,089,748	96,933	97,970	6

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.36

AGGREGATE BALANCE SHEET ENTRIES BY REGION NATIONAL BANKING SYSTEM - 1867 - 1873

REGION: Far West

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	14,210,927	8,325,250	2,780,450	1,123,841	3,057,896	393,098	164,023	3,623,337	1,594,300
1868	8,239,303	5,136,650	1,884,750	847,563	4,300,512	298,147	142,701	1,301,581	160,580
1869	9,335,071	5,103,650	1,650,600	471,727	1,799,109	1,283,569	110,960	2,229,186	35,000
1870	9,985,020	5,089,650	1,402,650	642,923	1,660,840	1,775,425	159,865	2,144,538	35,000
1871	12,643,261	7,262,400	1,301,650	554,195	2,325,901	1,457,094	128,035	3,452,921	20,000
1872	17,511,870	9,897,500	1,683,700	1,019,292	3,589,257	2,423,876	139,702	2,964,767	10,000
1873	21,542,196	11,373,500	1,813,150	1,133,939	4,615,054	2,090,044	140,738	3,284,633	0

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	11,801,300	6,111,537	12,460,815	1,965,218	727,555	71
1868	5,657,000	4,388,778	11,221,776	139,190	320,074	64
1869	5,667,000	4,325,185	10,528,084	157,498	198,948	63
1870	5,700,000	4,334,477	12,359,897	232,438	379,868	63
1871	7,699,300	6,308,645	12,290,895	310,928	323,940	85
1872	10,156,850	8,754,747	17,136,195	572,086	528,742	120
1873	11,997,000	10,043,951	21,467,047	707,557	716,194	145

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.37

BALANCE SHEET ENTRIES: AGGREGATE NON-RESERVE CITY BANKS 1867 - 1873

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	562,374,256	320,514,270	81,250,000	20,958,013	88,510,503	16,708,695	9,428,247	100,183,840	73,903,585
1868	277,638,498	200,401,350	40,375,700	9,109,026	65,419,326	6,022,505	1,942,307	34,651,224	10,148,620
1869	297,572,133	199,822,850	33,708,600	8,906,839	41,399,964	18,907,374	1,390,135	35,372,502	4,035,000
1870	316,156,101	195,250,500	24,369,400	10,227,554	44,873,110	16,407,177	2,770,406	38,094,369	2,995,000
1871	348,348,019	216,711,300	18,170,000	11,331,690	55,555,165	19,617,762	1,820,835	38,985,947	1,810,000
1872	397,159,251	231,154,650	19,456,250	13,015,974	56,579,198	21,330,629	1,748,851	39,203,625	590,000
1873	433,609,996	242,401,300	14,579,850	14,296,660	56,955,399	21,180,317	1,374,995	39,469,230	2,135,000

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	393,794,736	275,296,551	517,550,690	88,660,853	20,934,698	1,688
1868	217,118,556	175,705,107	197,313,324	8,423,360	3,502,618	1,312
1869	218,043,232	174,394,057	182,100,989	14,127,315	3,726,254	1,299
1870	227,441,029	174,432,803	192,518,701	13,125,514	4,487,114	1,285
1871	237,441,029	18,8728,228	214,629,398	13,969,784	5,110,960	1,391
1872	245,703,554	205,481,769	239,645,048	15,666,820	5,946,530	1,512
1873	268,472,450	214,221,462	259,189,668	17,671,583	5,916,949	1,611

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.38

BALANCE SHEET ENTRIES BY RESERVE CITY NATIONAL BANKING SYSTEM - 1867 - 1873

RESERVE CITY: Boston

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	58,198,667	29,044,350	5,936,500	1,149,650	7,919,982	141,189	725,278	6,727,051	9,331,980
1868	65,891,620	29,376,350	5,420,300	455,600	11,394,368	290,109	2,261,301	9,498,627	6,416,450
1869	71,698,010	29,968,650	3,918,150	353,543	5,923,734	2,817,008	643,905	7,830,598	4,845,000
1870	74,873,826	29,980,650	3,051,150	545,081	8,641,869	2,811,098	3,617,911	5,478,236	4,290,000
1871	83,182,162	30,397,500	3,583,150	574,069	10,447,556	3,272,690	1,512,919	10,707,445	2,490,000
1872	85,428,010	30,141,500	1,670,850	359,443	10,893,105	3,626,915	1,649,339	8,906,325	925,000
1873	90,166,494	30,177,500	678,650	285,800	10,896,560	3,876,407	1,015,427	9,708,866	1,225,000

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	42,550,000	25,221,746	37,515,077	10,814,017	1,044,135	45
1868	42,750,000	25,589,549	43,768,538	14,549,729	1,268,582	46
1869	46,050,000	25,679,902	39,456,192	13,080,822	1,591,393	46
1870	47,800,000	25,517,937	39,811,025	13,740,708	1,938,114	46
1871	48,600,000	25,073,002	52,339,470	15,810,672	2,540,954	48
1872	48,600,000	25,843,398	48,416,033	14,518,208	2,237,957	48
1873	49,400,000	25,809,948	51,838,794	15,838,794	2,479,070	49

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.39

BALANCE SHEET ENTRIES BY RESERVE CITY NATIONAL BANKING SYSTEM - 1867 - 1873

RESERVE CITY: Albany

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	5,887,251	2,492,100	599,900	1,438,994	3,073,362	117,205	30,180	556,971	1,662,740
1868	7,093,460	2,488,000	1,093,950	1,353,041	4,296,353	185,066	40,379	915,093	1,204,840
1869	6,933,950	2,145,000	546,100	906,130	2,389,434	1,160,036	12,120	1,439,245	540,000
1870	6,246,411	2,184,000	333,050	631,722	3,166,248	1,676,564	10,547	1,501,972	345,000
1871	6,699,411	2,146,000	356,750	532,776	4,213,373	990,828	10,791	1,473,776	235,000
1872	8,241,479	2,219,000	358,500	91,511	2,420,195	836,383	8,259	1,416,100	60,000
1873	9,132,383	2,297,000	341,400	79,652	3,454,240	1,054,784	7,415	856,633	825,000

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	3,000,000	2,201,424	8,466,577	1,281,327	341,568	8
1868	3,000,000	2,195,127	9,948,199	2,100,379	947,980	8
1869	2,650,000	1,878,929	8,607,833	1,948,647	387,169	7
1870	2,650,000	1,879,846	8,057,206	2,334,799	54,654	7
1871	2,650,000	1,884,829	8,472,991	2,275,299	531,316	7
1872	2,650,000	1,958,676	7,345,390	2,177,884	440,284	7
1873	2,650,000	2,030,370	9,243,697	2,118,788	478,489	7

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.40

BALANCE SHEET ENTRIES BY RESERVE CITY NATIONAL BANKING SYSTEM - 1867 - 1873

RESERVE CITY: Philadelphia

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	33,912,026	13,118,000	4,885,900	1,447,047	4,547,220	467,412	417,109	9,305,126	7,298,990
1868	36,292,900	13,009,000	4,843,250	1,551,122	5,446,780	614,371	233,714	10,268,271	6,668,200
1869	39,056,839	13,068,700	2,061,400	1,206,254	1,284,231	3,160,317	140,068	8,299,915	5,790,000
1870	38,923,765	13,066,700	1,611,200	1,693,223	1,483,610	2,802,612	789,142	7,701,063	8,970,000
1871	43,732,135	13,608,200	905,750	1,724,590	2,365,323	3,088,847	124,148	10,532,796	4,290,000
1872	44,718,288	13,505,200	820,850	1,482,085	4,979,605	3,877,001	124,154	12,227,568	900,000
1873	46,665,303	13,779,200	1,733,00	1,451,022	4,449,591	4,084,598	167,431	4,872,737	5,685,000

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	16,517,150	11,004,214	41,629,553	5,592,515	962,411	30
1868	16,517,150	10,994,005	44,528,577	6,168,059	946,290	30
1869	16,555,150	10,981,662	41,989,367	5,864,014	947,505	30
1870	16,255,150	10,947,469	42,415,563	6,710,605	1,249,230	29
1871	16,031,900	11,566,274	47,725,913	7,110,683	1,828,242	30
1872	16,735,000	11,720,329	49,561,017	6,937,838	1,702,798	29
1873	16,935,000	11,834,605	47,977,661	6,648,299	737,999	29

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.41

BALANCE SHEET ENTRIES BY RESERVE CITY NATIONAL BANKING SYSTEM - 1867 - 1873

RESERVE CITY: Pittsburgh

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	11,902,049	7,677,000	998,650	37,547	1,619,245	101,572	74,385	1,515,673	1,599,370
1868	12,597,584	7,677,000	870,000	166,455	2,370,468	120,551	41,521	2,270,233	894,470
1869	13,862,606	7,704,500	390,950	189,522	1,491,305	387,769	38,850	1,580,682	645,000
1870	14,225,338	7,704,500	254,150	99,588	2,001,139	623,781	127,177	2,092,180	425,000
1871	14,667,432	7,658,500	192,400	59,547	2,180,484	696,732	46,823	2,073,849	210,000
1872	16,187,426	7,658,500	185,500	59,193	1,953,102	583,678	38,677	2,572,868	0
1873	16,658,636	7,585,000	219,950	34,463	2,377,910	985,157	38,101	2,673,463	100,000

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	9,000,000	6,675,922	7,659,031	397,582	164,417	16
1868	9,000,000	6,681,358	8,587,358	609,170	295,964	16
1869	9,000,000	6,676,464	8,163,898	720,321	257,270	16
1870	9,000,000	6,633,142	9,344,468	747,599	297,445	16
1871	9,000,000	6,625,168	9,408,576	987,731	548,169	16
1872	9,000,000	6,608,291	10,515,889	1,278,533	517,400	16
1873	9,000,000	6,550,768	11,842,528	1,277,264	737,999	16

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.42

BALANCE SHEET ENTRIES BY RESERVE CITY NATIONAL BANKING SYSTEM - 1867 - 1873

RESERVE CITY: Baltimore

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	17,024,880	10,065,750	1,787,700	874,735	2,143,826	258,255	374,746	3,272,614	1,994,910
1868	14,837,112	8,007,500	948,200	717,124	2,094,002	161,712	430,196	3,016,964	1,414,660
1869	15,933,128	8,007,500	840,650	728,377	1,240,064	354,388	326,186	2,030,944	1,060,000
1870	17,670,680	8,007,500	400,650	794,460	2,391,849	450,265	117,815	2,716,281	1,293,000
1871	18,484,221	8,127,000	401,750	739,311	2,153,373	520,337	264,385	3,284,747	505,000
1872	19,983,851	8,182,000	411,000	527,741	2,748,081	597,805	128,541	2,785,633	90,000
1873	20,432,852	8,182,000	510,950	554,076	2,974,734	793,943	65,029	1,991,160	1,170,000

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	9,991,985	6,962,982	11,410,235	1,651,480	286,415	13
1868	10,191,985	7,158,182	12,394,683	2,098,474	236,922	13
1869	10,391,985	7,059,054	10,254,228	1,793,679	340,920	13
1870	10,891,985	7,024,278	12,032,503	2,713,917	399,009	13
1871	11,091,985	7,145,481	12,749,738	2,229,846	274,566	14
1872	11,241,985	7,210,149	13,261,537	2,628,666	262,566	14
1873	11,241,985	7,199,656	13,666,769	3,087,683	301,060	14

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.43

BALANCE SHEET ENTRIES BY RESERVE CITY NATIONAL BANKING SYSTEM - 1867 - 1873

RESERVE CITY: Cincinnati

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	6,402,219	3,768,000	2,840,850	5,500	805,985	162,830	9,080	1,426,550	754,760
1868	5,112,102	3,768,000	2,902,450	16,000	1,030,669	85,292	84,664	1,176,267	770,400
1869	5,405,387	3,428,000	1,882,900	23,600	920,585	348,813	15,949	1,083,077	150,000
1870	5,726,841	3,428,000	974,800	41,246	1,313,717	313,224	217,648	721,286	70,000
1871	6,551,220	3,501,500	1,221,250	31,246	1,897,156	1,149,906	79,731	1,339,711	105,000
1872	8,607,663	3,894,500	951,550	94,188	1,827,538	578,430	64,541	1,341,200	0
1873	9,058,989	3,617,200	963,800	115,687	1,990,940	580,464	59,672	965,000	500,000

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	4,000,000	3,262,630	5,132,666	1,643,173	227,052	8
1868	3,651,000	3,241,215	3,754,743	2,156,255	298,229	7
1869	3,500,000	2,904,925	3,611,422	2,117,547	325,789	6
1870	3,500,000	2,904,290	2,663,358	2,346,310	305,482	5
1871	3,800,000	2,981,725	4,600,903	2,916,109	620,338	5
1872	4,000,000	3,259,770	4,570,599	3,426,356	594,732	5
1873	4,000,000	3,188,795	4,800,859	3,900,852	574,902	5

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.44

BALANCE SHEET ENTRIES BY RESERVE CITY NATIONAL BANKING SYSTEM - 1867 - 1873

RESERVE CITY: Cleveland

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	3,398,603	2,084,000	666,850	3,529	635,790	125,678	4,872	460,575	482,530
1868	3,658,663	2,084,000	613,650	9,249	740,606	124,817	14,529	367,131	373,960
1869	4,367,383	2,284,000	581,200	9,512	547,605	389,456	2,265	524,601	275,000
1870	4,683,501	2,278,500	311,200	2,000	624,732	269,327	2,851	645,601	190,000
1871	5,667,476	2,359,000	374,900	50,000	1,138,642	355,590	2,358	735,850	70,000
1872	7,282,475	2,367,000	318,000	50,000	804,333	570,674	2,487	962,577	20,000
1873	7,966,204	2,601,000	160,000	60,624	723,460	474,332	1,472	945,000	50,000

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	2,200,000	1,846,729	2,892,890	222,551	91,842	5
1868	2,300,000	1,840,540	2,971,751	108,533	71,989	5
1869	3,087,699	1,828,665	3,116,459	140,000	6,522	6
1870	3,300,000	1,836,215	3,343,887	139,384	48,716	6
1871	3,300,000	2,098,056	4,289,340	256,580	145,774	6
1872	3,700,000	2,099,075	5,164,860	228,030	168,276	6
1873	4,550,000	2,233,770	4,523,325	325,939	151,404	6

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.45

BALANCE SHEET ENTRIES BY RESERVE CITY NATIONAL BANKING SYSTEM - 1867 - 1873

RESERVE CITY: Chicago

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	8,892,206	4,675,500	566,600	98,040	2,176,148	165,560	13,063	2,447,838	931,400
1868	13,164,499	4,765,700	595,700	75,910	4,500,493	501,544	46,162	3,205,615	846,720
1869	14,771,438	4,880,700	241,650	208,736	2,842,785	720,008	40,351	3,282,541	590,000
1870	18,296,408	5,090,000	82,500	344,937	2,456,382	1,429,510	128,067	3,963,470	420,000
1871	19,586,735	6,006,600	246,000	464,037	4,061,228	1,331,160	99,651	5,517,219	205,000
1872	25,304,063	7,052,600	454,100	191,667	3,823,061	1,458,793	115,029	5,692,545	25,000
1873	25,591,376	7,039,300	261,563	261,563	3,891,629	1,703,062	125,453	6,240,279	0

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	5,200,000	4,069,050	7,612,643	2,250,214	1,129,098	13
1868	5,550,000	4,150,636	11,265,496	5,145,676	2,079,782	14
1869	5,700,000	4,271,677	11,854,879	3,511,994	2,409,301	13
1870	5,920,000	4,436,330	14,669,532	4,331,182	3,245,100	14
1871	5,950,000	5,341,389	16,258,889	5,016,773	4,072,926	16
1872	8,200,000	6,253,629	19,869,552	5,699,684	4,476,163	18
1873	8,950,000	6,261,400	18,715,692	6,502,994	4,731,454	20

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.46

BALANCE SHEET ENTRIES BY RESERVE CITY NATIONAL BANKING SYSTEM - 1867 - 1873

RESERVE CITY: Detroit

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	2,485,967	1,093,800	250,000	33,790	792,639	121,835	1,686	449,890	226,730
1868	2,823,963	1,093,800	250,000	36,652	1,286,402	55,030	1,687	525,505	198,540
1869	3,208,567	1,093,800	250,000	1,000	531,665	321,362	371	566,493	150,000
1870	3,087,536	1,193,800	250,000	0	544,402	218,960	2,491	561,140	150,000
1871	3,322,030	1,250,800	250,400	5,000	784,769	414,581	20,670	669,808	60,000
1872	3,833,834	1,295,800	250,000	25,500	506,541	288,303	1,196	667,710	20,000
1873	4,084,969	1,445,800	250,000	20,000	609,499	385,119	360	796,888	0

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	1,550,010	984,841	2,386,105	84,760	62,194	4
1868	1,550,010	949,025	2,993,428	172,278	67,090	4
1869	1,450,000	939,873	2,901,192	157,366	92,335	3
1870	1,750,000	933,104	2,325,370	243,557	112,217	3
1871	1,750,000	1,097,060	2,713,498	277,042	173,348	3
1872	1,750,000	1,149,454	2,587,077	337,001	235,775	3
1873	1,900,000	1,287,860	2,792,667	304,045	254,556	3

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.47

BALANCE SHEET ENTRIES BY RESERVE CITY NATIONAL BANKING SYSTEM - 1867 - 1873

RESERVE CITY: Milwaukee

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	1,324,992	791,500	315,900	11,600	460,912	19,923	7,283	316,133	177,520
1868	1,469,953	791,500	310,500	22,375	771,703	154,870	10,533	394,642	100,750
1869	1,571,891	791,500	303,650	24,382	376,241	99,535	6,814	411,009	40,000
1870	1,232,363	690,000	300,250	9,900	544,618	111,361	3,501	321,846	15,000
1871	1,690,586	735,000	206,750	8,180	944,287	225,407	9,836	387,458	0
1872	1,903,581	735,000	372,750	5,790	336,695	175,135	5,237	465,498	0
1873	2,139,700	735,000	343,450	30,400	830,242	116,163	8,149	418,363	20,000

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	850,000	693,450	1,276,154	242,573	61,030	5
1868	850,000	693,370	1,752,579	343,759	100,659	5
1869	850,000	692,550	1,417,212	343,460	133,015	5
1870	750,000	601,780	1,322,867	262,952	177,135	4
1871	750,000	638,380	1,972,185	440,580	221,475	4
1872	750,000	657,600	1,654,025	417,780	267,757	4
1873	750,000	655,500	2,176,564	496,379	367,508	4

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.48

BALANCE SHEET ENTRIES: AGGREGATE RESERVE CITY BANKS - 1867 - 1873

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From National Banks	Due From State Banks	Specie	Legal Tenders	Other Reserves
1867	146,346,308	74,810,000	18,848,850	15,400,432	24,174,109	1,681,559	1,657,682	26,478,421	24,460,930
1868	166,067,030	73,060,850	47,848,000	4,403,528	33,931,853	2,293,365	3,164,686	31,638,348	18,888,990
1869	176,808,199	73,372,350	11,016,650	3,651,056	17,447,649	9,758,692	1,226,879	27,049,105	14,085,000
1870	184,966,669	73,623,650	7,568,950	3,763,402	23,168,566	10,706,602	5,077,150	25,523,472	16,168,000
1871	230,574,408	75,790,100	7,839,100	4,188,765	30,185,191	12,946,078	2,171,312	36,136,659	8,170,000
1872	221,580,980	77,087,100	5,793,150	2,887,118	30,292,256	12,593,117	2,137,460	37,039,024	1,230,000
1873	231,887,906	77,432,500	5,359,600	2,893,287	32,198,985	14,054,029	1,488,509	29,468,389	9,575,000

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	94,859,135	62,886,135	125,981,868	24,280,192	4,370,162	147
1868	95,360,135	63,393,007	141,966,246	27,284,253	6,313,488	148
1869	99,234,834	62,850,701	131,272,682	29,667,850	6,491,219	145
1870	101,817,135	62,714,471	135,985,779	33,571,013	8,322,102	143
1871	104,823,975	64,441,264	160,532,504	37,321,315	10,957,108	149
1872	106,626,985	66,760,371	162,954,049	37,649,980	10,804,053	150
1873	109,376,985	67,042,672	167,193,517	40,501,037	10,816,441	153

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.49

BALANCE SHEET ENTRIES: AGGREGATE CENTRAL RESERVE CITY BANKS - 1867 - 1873

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From National Banks	Due From State Banks	Specie	Legal Tenders	Other Reserves
1867	147,596,459	42,487,800	19,961,000	6,230,048	9,340,153	2,959,935	6,034,306	43,385,049	24,240,100
1868	177,271,463	42,284,950	18,747,950	5,454,177	8,617,948	1,385,105	15,297,975	30,670,116	33,427,190
1869	174,493,295	41,914,450	7,838,400	6,322,799	12,199,790	2,210,378	15,471,229	16,380,839	30,615,000
1870	177,412,488	41,561,550	9,957,550	7,436,639	12,805,766	2,353,729	22,767,226	26,642,194	27,305,000
1871	192,209,597	39,066,400	10,508,050	5,937,644	14,101,974	2,442,788	14,093,422	43,927,922	21,670,000
1872	198,711,181	36,412,100	7,799,000	3,435,084	13,980,464	2,434,722	19,414,489	41,178,641	9,200,500
1873	195,531,730	34,196,100	4,357,750	3,799,086	15,890,584	10,073,865	23,581,175	30,963,875	11,790,000

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	75,009,700	34,775,030	217,663,962	49,714,962	12,294,349	58
1868	74,809,700	35,083,477	217,666,187	69,325,850	15,674,022	57
1869	73,510,000	34,538,498	243,378,535	55,215,481	16,382,334	55
1870	72,935,000	33,533,379	193,192,977	66,262,226	18,454,939	54
1871	73,235,000	31,060,528	206,660,328	80,303,076	22,762,288	54
1872	71,785,000	28,264,808	188,598,415	76,878,841	20,328,456	51
1873	70,985,000	27,724,596	181,196,512	74,853,321	19,294,021	49

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

TABLE A I.50

BALANCE SHEET ENTRIES: AGGREGATE NATIONAL BANKING SYSTEM - 1867 - 1873

Year	Loans	United States Bonds Circulation	Other United States Bonds	Other Earning Assets	Due From Redeeming Agents	Due From Other Banks	Specie	Legal Tenders	Other Reserves
1867	588,450,396	377,684,250	84,002,650	21,452,615	92,308,911	9,663,322	11,128,672	102,534,613	75,488,220
1868	655,729,546	399,569,100	80,921,500	20,007,327	114,434,097	8,642,456	20,755,919	100,166,100	64,378,420
1869	686,347,755	338,699,750	55,102,000	20,777,560	62,912,636	44,697,423	18,455,090	80,934,119	49,815,000
1870	715,928,179	340,857,450	37,705,300	23,614,721	66,275,668	43,151,301	18,460,011	79,324,577	43,345,000
1871	831,522,210	364,475,800	41,741,150	24,517,159	86,878,608	55,298,031	13,252,998	109,414,735	25,075,000
1872	877,197,923	382,046,400	27,622,300	23,533,151	80,717,071	47,463,471	10,229,756	105,121,104	13,850,000
1873	944,220,116	388,330,400	23,629,850	23,709,034	96,134,120	53,436,553	19,868,469	92,522,663	20,610,000

Year	Capital	National Banks Notes Outstanding	Individual Deposits	Deposits Due to Other National Banks	Deposits Due to State Banks	Number of Banks
1867	418,558,148	291,769,553	539,599,076	89,821,751	22,659,267	1,636
1868	420,105,011	294,908,264	575,842,070	113,306,346	27,355,314	1,640
1869	422,659,260	292,753,286	574,307,382	100,933,910	28,046,771	1,619
1870	430,399,301	291,798,640	501,407,586	100,348,191	29,093,910	1,615
1871	458,255,696	315,509,117	600,868,486	131,730,713	40,211,971	1,767
1872	479,629,174	333,495,027	613,290,671	110,147,347	33,789,083	1,919
1873	491,072,616	339,081,799	622,685,563	133,672,732	39,298,148	1,976

Source: Annual Reports: Comptroller of the Currency 1867 - 1873.

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A PROFIT-MAXIMIZING THEORY OF NATIONAL BANK BEHAVIOR

by

Bruce Warne Hetherington

(ABSTRACT)

The National Banking System operated during the 50 year period between 1863 and 1913. It was believed at the time of its conception that individuals seeking a national bank charter would do so for the privilege of issuing national bank notes. Paradoxically, for the majority of the National Banking System's existence note issue was of relatively minor importance. The one exception where note issue was an important aspect of national bank behavior was the period between 1867 and 1873.

The purpose of this dissertation is to examine this period when national bank note issue was an important aspect of national bank behavior and determine why note issue was so important. In order to determine this, a straightforward profit maximizing model is developed and various predictions are made concerning national bank behavior. These predictions are then tested and evaluated using actual national bank balance sheet data to determine if actual national bank behavior conforms to the predictions of the model.