

THE EVOLUTION OF THE BANK REGULATORY STRUCTURE: A REAPPRAISAL

F. Ward McCarthy Jr.

INTRODUCTION

The banking industry is regulated by an elaborate institutional structure that exercises extensive authority over virtually every aspect of banking activity. The sheer size and complexity of the system is overwhelming and has been a source of confusion in the administration of the supervision and regulation, of banks. For this very reason, the Task Group on Regulation of Financial Services, chaired by Vice President George Bush, has studied the federal regulatory structure in order to reorganize and improve it. The agency reorganization proposed by the Task Group, however, merely rearranges authority under the existing agency structure and does not reduce the number of bank regulators.

A first step toward resolution of the reorganization dilemma is to gain a better understanding of the origin and development of the institutions that comprise the current regulatory framework. Students of bank regulation offer two familiar explanations for government control of banking. Public regulation of banking is typically rationalized on the idealistic grounds that it enhances economic stability by fostering honest and sound practices. An alternative view disputes the existence of the correspondence between regulation and the public interest and regards public regulation as a means of protecting the banking industry from competition. While each of these perspectives contributes to our understanding of government regulation of banking, neither provides an adequate explanation of the genesis and development of the institutional structure of the regulatory frame-

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work. In order to understand this evolution, it is necessary to recognize that government regulation of the banking industry has enhanced the revenue generating capabilities of government authorities. The institutional structure of bank regulation has served as an instrument of public finance.

This article traces the major developments in the evolution of the bank regulatory structure in this country in order to gain some insight into the process that generated the current regulatory framework. Two major themes are developed: (1) government intervention in banking was motivated by considerations of public finance and (2) there has been a pronounced reluctance of government agents to divest themselves of regulatory authority once they have gained it.

The article begins with an examination of the colonial period when government control of banking was initiated and the principle of government intervention was established. Section II explains the post-colonial development of charter regulation under state legislative control and notes the attempt to establish federal regulatory authority through the central bank functions of the First and Second Banks of the United States. Section III discusses the erosion of state legislative control of bank entry and the implementation of free banking over the second quarter of the century. The reestablishment of dual federal and state regulatory control under the National Bank Act, and the extension of federal regulatory authority through the creation of the Federal Reserve System are examined in sections IV and V, respectively. Section VI presents a brief review of the reform measures of the 1930s that established the Federal Deposit Insurance Corporation and extended the authority of the Federal Reserve System. Concluding remarks are offered in section VII.

THE ORIGINS OF GOVERNMENT REGULATION OF BANKING

The prevailing public policy regarding banking during the colonial period¹ was to substitute government control for market competition. Colonial governments promoted government financial interests and obstructed the development of private banking organizations. Due to this government intervention, public enterprises dominated the colonial banking era and private banks seldom survived.

The precedent for government control of banking in the colonies was established in 1690 when the Commonwealth of Massachusetts became the first American government to circulate an inconvertible paper currency. The notes were issued in anticipation of taxes to replenish a treasury that had been depleted by an unsuccessful military expedition. Over the next several years the colony accommodated treasury deficits by expanding note issues, delaying or extending redemption periods and replacing redeemed issues with more tax anticipation notes. This inflationary finance contributed to a general depreciation of paper currencies, a disappearance of precious metals from circulation, and a decreased public willingness to pay taxes. Nonetheless, these first issues of paper currency established the pattern for early monetary and banking developments. By 1712 six other colonies had followed the example of Massachusetts and were utilizing public banks as an expeditious method of public finance.²

Colonial governments guarded the right to circulate paper currency as a privileged monopoly and, in so doing, impeded private banking institutions.³ If

¹ Banking and other financial functions were provided on a limited basis in the American colonies. Barter and book credit were used extensively and many mercantile needs were met by British merchants. Commercial banks, which played an important role in the economic development of the United States, did not appear until after independence. In their absence, private merchants and banks of issue were the primary sources of domestic banking services.

Colonial banks were not at all commercial in character. Several histories of colonial banking refer to them simply as "batches of paper money." See, for example: Davis R. Dewey, *Financial History of the United States* [7], John Jay Knox, *A History of Banking in the United States* [23], Horace White, *Money and Banking* [55].

² New Hampshire, Rhode Island, Connecticut, New York, New Jersey, and South Carolina were all issuing paper currency. Pennsylvania, Maryland, Delaware, Virginia and Georgia fell into line by 1760.

³ Prior to 1690, all banking projects appear to have been private. The establishment of the public bank in Massachusetts in 1690 coincided with a temporary end to attempts to issue notes by private banks. Unfortunately, there is very little documentation of this period in bank-

the purpose of this policy can be deduced from its effects, then the motivation clearly was to enhance the ability of colonial governments to raise revenue. In the absence of market discipline, colonial governments were free to exploit their self-imposed monopoly power and to reap the financial benefits of regulation by circulating a variety of currencies through their banks.⁴

Even when regulatory action was rationalized as being in the public interest, the government often was a beneficiary of the intervention. For example, in 1714 the Commonwealth of Massachusetts rejected a private proposal for a land-collateralized private note issue as contrary to the public interest.⁵ The Massachusetts General Court's objection to the proposal centered on two issues: (1) the inadequacy of real estate as security for note issue, and (2) the inequity of granting the privileges and profit opportunities of note issue to private individuals. The colony promptly revealed its true intentions, however, when it agreed to accommodate the private demands for currency by issuing its own treasury bills backed by real estate. Although this note issue was intended to diminish support for the private bank, it actually did the reverse. For this -application of a double standard "increased the zeal and raised a strong resentment"⁶ in those who supported the development of private banks.

ing history and it is impossible to reconstruct the policy behavior of the government at that time. However, in 1711 the Commonwealth did preempt private interests by issuing a loan to merchants in need of funds to finance supplies for a private project. For details see Dewey [7] and A. D. Eliason, *The Rise of Commercial Banking Institutions in the United States* [9], pp. 10-13.

⁴ One banking historian provided the following unflattering description of public banks.

... they were monotonously alike in character, in origin, and in results. Ingenuity in devising variations of the main principle appears to have been exhausted. There were interest-bearing notes, some of which were legal tender, while others were not; there were non-interest-bearing notes, some of which were legal tender for future obligations but not for past debts; some were legal tender for all purposes, and others not legal tender between private persons, but receivable for all public payments. In some instances funds arising from certain sources of taxation were pledged for the redemption of the notes, in others not. In some cases they were payable on demand; in others, at some future time. Sometimes they were issued by committees, and sometimes by a specially designated official.

Dewey [7], p. 24.

⁵ The plan was entitled "A Projection for Erecting a Bank of Credit in Boston, New England, Founded on Land Security." The preamble recited that the decline in trade necessitated a greater circulation of a medium of exchange.

⁶ Hutchinson, *History of Massachusetts from 1628 to 1774*, as quoted in White [55], p. 390.

Eventually the conflict between private and public bank interests was decided by crown authorities who had ultimate jurisdiction over such matters because the colonies were part of the realm of England and subject to English law. British authorities were initially sympathetic to private banks and countermanded colonial government policies that conflicted with English law. In 1735, the Lords of Trade⁷ in London overruled Massachusetts legislation that explicitly prohibited the circulation of notes by a private partnership. The Lords recognized that private credit issues were permissible under common law as long as the notes were not made legal tender. This ruling effectively removed the major constraint on private banking.

The view that the business of banking could be conducted independently of government influence prevailed, however, for only a short period. In 1741, Parliament extended the principal provisions of the so-called "Bubble Act" of 1720 to the colonies.⁸ The purpose of the original act was to strengthen the British government's control over unincorporated joint-stock companies.

The occasion for the extension of this legislation to the colonies was the establishment of a private land bank in Massachusetts, a revival of the abortive 1714 proposal. Opposing the new land bank were those who distrusted private ownership of the bank and feared that it would lead to an increase in the volume of bills of credit circulating in the colony.⁹ Chief among the opponents was the governor of the colony who published a proclamation warning that the land bank notes were fraudulent and harmful to trade. Since the governor and his supporters lacked the legal authority to restrain the land bank, they petitioned Parliament to do so. In passing the extension to the Bubble Act, Parliament referred explicitly to the land bank as one of the offenders which was to be suppressed. In so doing, Parliament reversed the earlier position taken by Whitehall in upholding the

⁷ In 1696, Parliament created the Board of the Lords of Trade and Plantations to oversee the colonies, make them more useful to England and suppress industries detrimental to England's interests.

⁸ The act is entitled "For restraining and preventing several unwarrantable schemes and undertakings in His Majesty's colonies and plantations in America." The act states that all clauses of the Bubble Act "did do and shall extend to and are and shall be in force and carried into execution" in America.

⁹ The colony of Massachusetts was an aggressive note issuer and, with the exception of 1732 and 1739, issued bills every year between 1702 and 1741 inclusive. There was also a large inflow from Rhode Island, often referred to as the most reprobate of the colonies for its lack of monetary restraint.

legality of private banks and paper money issues in the colonies, and firmly established the requirement of government sanction as a major principle of bank regulation in this country.

II.

CHARTER REGULATION

The experience of the colonial era influenced both the post-colonial regulatory framework and the commercial banking industry that developed within this framework. To avoid repetition of the colonial experience with inflationary paper currency issues, the Constitution prohibited the individual states from issuing paper money. This restriction prevented the reappearance of public banks and created the potential for private enterprise banking.

This potential, however, was not realized because the individual state governments had the incentive to utilize banking as an instrument of public finance just as the colonial governments had done. State governments were able to circumvent restrictions on direct monetary authority by chartering banks as corporations with the power to issue debt obligations.¹⁰ Government control of banking was perpetuated because state-chartered banks could legally circulate the paper currency that the states themselves could not. As a result, commercial banking in America began with incorporation and the specific governmental sanction of charter regulation.

Under charter regulation, which characterized the first fifty years of commercial banking, the establishment of a new bank required a charter that was granted only by a special legislative act.¹¹ This enabled the legislatures to control the number of banks in operation and set the range of the permissible and obligatory activities for banking institutions. Charter

¹⁰ The constitutionality of state banks was upheld in *Briscoe v. Bank of Kentucky*, 36 U.S. (11 Pet.) 257 (1837). The Supreme Court ruled that state banks could issue notes, even when stock in the state bank was held by the state.

¹¹ With the two notable exceptions of the First and Second Banks of the United States, each of which was chartered by Congress, charter regulation was essentially a system under the control of the individual states. However, Congress also sanctioned the Bank of Pennsylvania in 1780 which was established to furnish supplies for the Continental armies and ceased operations in 1784. In 1781, Congress approved a charter for the Bank of North America although there was doubt concerning Congressional legal authority to grant a corporate charter since the power to incorporate was universally accepted as an implied and exclusive right of the individual state legislatures. Consequently, the bank also obtained charters from the states of Delaware, Massachusetts, New York and Pennsylvania.

regulation, then, presented state governments with a potential source of revenue because a charter conferred a valuable corporate privilege on terms specified by the state. States were able to exact favorable financial arrangements in the form of bonuses and low-interest loans in exchange for granting banks the opportunity to earn monopoly profits.

In order to enhance the stature of government-sanctioned banks, charters were often couched in language designed to encourage public acceptance of chartered institutions. Of far greater significance to the value of a charter, however, was the conviction that a charter also conferred a monopoly privilege. The earliest chartered banks were understood to be monopolies even when monopoly power was not explicitly granted. Of course, this interpretation of charter rights was encouraged by those possessing charters, but also was reinforced by a commonly held misconception regarding competition. New institutions, chartered or unchartered, were thought to represent an inherent threat to the stability of all banking interests. In short, competition was viewed as an evil. This misconception prevailed for several years even after experience proved it to be indefensible.

For example, there were no provisions in the original charter of the Bank of North America granting exclusive rights to banking in Pennsylvania.¹² Nonetheless, the bank maintained its monopoly for ten years after its establishment in 1781 because of fears that banking could not survive under a competitive framework. The fear of competition stemmed from the erroneous assumption that the specie requirements of an additional bank would prevent the possibility of profitable bank operations.

A new bank produces no new deposits of specie. There is not a dollar more money added to the circulation. A new bank divides the deposits of specie and of course diminishes the advantages of credit. For it is manifest that two banks with small capitals will do less than one bank with both capitals. Besides the ordinary banking risks, each institution is in danger from the others.¹³

Even after events demonstrated that bank entry and competition did not have the feared effects, opposition to competitive banking remained among both those who wished to maintain monopoly power and those who wished to restrain it. Established banking

¹² For an excellent discussion of this controversy see Anna J. Schwartz, "The Beginning of Competitive Banking in Philadelphia, 1782-1809" [38], pp. 417-432.

¹³ From "On Banks" an article written anonymously in the *Gazette of the United States*, March 10, 1792, as quoted in Schwartz [38].

institutions continued to resist new entry in order to maintain their monopoly privileges and profits. These monopoly privileges, in turn, induced a popular resentment of banks, the privileged status of which was seen as smacking of aristocracy, as constituting a threat to the existence of individual freedom, and as being in need of restraint. In short, contemporary popular opinion equated corporate power with monopoly power. For this reason, an increase in the number of bank charters was interpreted as an "expansion of privilege rather than a division of it,"¹⁴ and a restriction on the number of corporations was viewed as the effective method of limiting monopoly power. Ironically, the opponents of banking formed a coalition with established banking interests in pursuit of the common goal of restricting bank entry.

Although the states succeeded in limiting the number of banks by controlling entry, charters were not indispensable in the early years of charter regulation. In fact, some banks operated for years without receiving legislative sanction. This practice, however, was curtailed around 1800 with the appearance of so-called "restraining acts." These laws attempted to restrict banking to chartered banks and made it illegal for anyone unauthorized by law to become a member or a proprietor of any banking institution. As a consequence of the restraining laws, the common law right to borrow was distinguished from the right to borrow by issuing obligations intended to circulate as money; the business of banking was legally reserved to corporations chartered by the state.¹⁵ This legal restraint on entry permitted the state legislatures to solidify their control of banking and protected the monopoly power of chartered institutions from encroachment by private non-sanctioned interests.

Once the restraints on unincorporated banking were in effect, the competition for new bank charters intensified. As the demand for banking services grew with economic expansion, more entrepreneurs attempted to enter the banking industry. State legislators, who controlled the rights to a valuable franchise, were solicited both by existing charter-holders who lobbied to protect their privileges and by would-be bankers who lobbied for new charters. Thus, in

¹⁴ Bray Hammond, *Banks and Politics in America* [19], p. 67.

¹⁵ These restraining acts also gave birth to the unregulated financial sector because they did not prohibit other incorporated and unincorporated businesses outside the field of banking, such as canal companies and water companies, from going into debt by issuing notes. These notes often were accepted as money.

the early part of the 19th century, banking was an integral part of the political system.

Since they were bargaining from a position of strength, state legislatures were able to insist on a variety of favorable financial arrangements in exchange for the profit opportunities conferred by charters. The allure of profits was also strong enough to motivate aspiring charter holders to provide a variety of pecuniary inducements to individual legislators. Charges of corruption were widespread and were proven in some cases.¹⁶ Although monopoly banking privileges were diluted as state-chartered banks grew more numerous, the benefits of any resulting competition were severely limited. Indeed, many chartered banks were handicapped from the start because they were forced to fulfill unsound commitments as the price of obtaining a charter.

The federal government did not have the constitutional authority to regulate banks by statute, but exerted a strong regulatory influence through the First (1791-1811) and Second (1816-1836) Banks of the United States which were chartered by Congress.¹⁷ The First Bank of the United States was

¹⁶ One historian described the chartering process in New York :

The evidence . . . afforded a most disgusting picture of the members of the legislature and indeed of the degradation of human nature itself. The attempt to corrupt, and in fact, corruption itself, was not confined to any one party. It extended to individuals of all parties.

Jabez Hammond, *History of Political Parties in New York*. Albany, 1843, I, p. 337 as quoted in Hammond, "Free Banks and Corporations: The New York Free Banking Act of 1838" [18], p. 190.

¹⁷ There are no clauses in the Constitution pertaining to banking, per se. The monetary clauses of the Constitution are:

Article 1, section 8 which gives Congress the power

"To regulate Commerce with foreign Nations, and among the several States, and with the Indian Tribes; To establish a uniform Rule of Naturalization, and uniform Laws on the subject of Bankruptcies throughout the United States; To coin Money, regulate the Value thereof, and of foreign Coin, and fix the Standard of Weights and Measures. . . ."

Article 1, section 10 which restrains state activities to the extent that

"No State shall enter into any Treaty, Alliance, or Confederation; grant Letters of Marque and Reprisal; coin Money; emit Bills of Credit; make any Thing but gold and silver Coin a Tender in Payment of Debts; pass any Bill of Attainder, ex post facto Law, or Law impairing the Obligation of Contracts, or grant any Title of Nobility."

Article 1, section 8, clause 18 which concluded the specific grants of power by granting Congress the power

"To make all Loans which shall be necessary and proper for carrying into Execution the foregoing Process, and all other processes vested by this Constitution in the Government of the United States or any Department or Officer thereof."

established to serve as a fiscal agent for the Treasury, to furnish credit to the federal government, and to issue a uniform national paper currency. Although it was federally chartered, it was mostly privately owned and was intended to compete with other private commercial banks. The First Bank was not established as a central bank. That is, it was not intended to serve as a central depository, clearinghouse and lender of last resort for a banking system. Indeed, there was no integrated banking system as such. For when the First Bank was chartered in 1791, each of the four banks in existence comprised an isolated banking system of its own and did not need any of the functions provided by a central bank. Furthermore, while Congress's right to charter any bank was hotly disputed, its right to charter a central bank was not even considered a possibility under contemporary interpretations of the Constitution. A central bank was a genus that had not been clearly differentiated from other banks by 1791.

Much to the chagrin of the state governments, however, the First Bank emerged as a central bank and the general regulator of money and state chartered banking institutions.¹⁸ Because of its size, fiscal agency functions, large reserve holdings and interstate branches, the First Bank was able to constrain the activities of the state banks by presenting the notes of state banks for redemption in specie. In so doing, the First Bank imposed restraints on the note issues of state banks and, consequently, the public finance potential of state chartering authority. This role was later adopted and expanded by the Second Bank of the United States which attempted to assert itself in central bank activities.¹⁹ Even though central bank authority was not prescribed by statute, the bank "performed these functions deliberately and avowedly-with a consciousness of quasigovernmental responsibility and of the need to subordinate profit and private interest to that responsibility."²⁰

¹⁸ Richard H. Timberlake, Jr. *The Origins of Central Banking in the United States* [43], p. 10.

¹⁹ The Second Bank of the United States did not always impose restraint on state bank note issues. Initially the bank's policy was expansive in order to appease state banks and encourage them to redeem their notes in specie. The Second Bank agreed to exchange its own notes for a large sum of state bank notes, to hold these state bank notes in its vault and to accommodate state currency needs during financial crises. It was not until the latter part of the decade that the Second Bank began to redeem state bank notes on a large scale. See Murray N. Rothbard. *The Panic of 1819: Reactions and Policies* [37].

²⁰ Hammond, *Banks and Politics* [17], p. 324. See also Timberlake, *The Origins of Central Banking* [43], chaps. 3 and 4. for a discussion of the role of the Second Bank of the United States.

Early attempts by the states to check the authority of the Second Bank by taxation were curtailed by the Supreme Court in the *McCulloch v. Maryland* case of 1819. The Court was petitioned to rule in a suit brought against the Second Bank by the state of Maryland for failure to pay a tax that the state imposed on all banks not chartered by the Maryland legislature. Similar taxes had been imposed or were being considered by a number of other states opposed to the Second Bank. The case was of immediate importance because the taxes were a threat to the existence of the Bank, but the more important issue was the extent and strength of federal powers. In upholding the Second Bank as a legitimate exercise of the implied "necessary and proper" powers delegated to the federal government by the Constitution, the Court ruled the Maryland tax to be an unconstitutional "power to destroy" federal government authority:

If the states may tax one instrument employed by the [federal] government in the execution of its powers, they may tax any and every other . . . means employed by the [federal] government, to an excess that would defeat all the ends of [federal] government.

This Supreme Court ruling helped to extend the life of the Second Bank until its charter expired in 1836. However, partly because it was generally believed that the Bank had extended its powers without license at the expense of state governments, bills for renewal of the Bank's charter were first vetoed by President Jackson and then delayed indefinitely. This effectively curtailed federal central banking activities until the organization of the Federal Reserve System in 1913, and returned the control of bank regulation to the individual states.

III.

THE FREE BANKING ERA

Public dissatisfaction with both the corruption and instability of the banking system under charter regulation led to the development of several experimental regulatory systems.²¹ Two of the most important of these systems were free banking and the safety fund system, both of which apparently had their American origin in New York state.

In 1825, a New York legislative committee report recommended reform of the chartering system. The

²¹ Prohibition was not uncommon. Arkansas, California, Iowa, Oregon and Texas all prohibited banking for various periods.

reform was intended to eliminate the parceling of monopoly banking privileges so that "whatever advantages are to be derived from banking operations all citizens would be free to enjoy alike."²² The following year, a similar committee report decried the charter system as "odious to the free spirit of our civil institutions" and detrimental to sound banking because the "[c]onfidence, induced by the supposed sanctity of a charter, enables the unworthy and dishonest managers of [a bank's] concerns to flood the country with a circulation"²³ that would not exist otherwise. This committee recommended the removal of legislative control of entry and an increase in competition to improve public welfare and the performance of the banking system. Within a year plans for a banking system with easier entry and increased competition were proposed. However, the state legislature was able to resist, at least temporarily, the political pressure to divest itself of its chartering authority.

Instead, the state satiated public demands for reform when it enacted the Safety Fund Act which introduced the idea of guaranteeing creditors against loss due to bank failure. Under the safety fund system, the state maintained its ability to utilize the banking system as an instrument of public finance because the legislature maintained control over the issue and terms of bank charters. In addition, each bank was required to contribute a portion of its capital to a fund which was to be used to liquidate the liabilities, capital stock excluded, of failed banks participating in the system. The contributions to this fund were controversial for two reasons. First, bankers objected to being subjected to the additional costs of safety fund membership because they already contributed to the state legislature in return for the grant of a charter. Second, critics of the system noted that the flat rate contribution to the fund meant that low risk banks subsidized bankers with high risk preferences. The uniform contribution did not reflect the relative riskiness of the individual contributors as would a fee that varied directly with risk. In addition, by eliminating the risk assumed by the public, the uniform contribution also reduced public incentive to monitor and discipline individual bank behavior. This aspect of the plan was soundly criticized by opponents who anticipated the recent prob-

²² New York State Senate Journal, 1825, as quoted in Robert E Chaddock, *The Safety Fund Banking System in New York 1829-1866* [4]; p. 371.

²³ Report of the committee on banks and insurance companies on petitions. Albany, 1826. As quoted in Chaddock [4], p. 372.

lems associated with the flat rate premium of FDIC deposit insurance²⁴ by some one hundred and fifty years.

The gravest objection to the system, is the creation of the *Bank fund*, by the half per cent, annual contribution of the banks. This is represented by the "Union Committee," as being one of those defects "endangering the soundness of the currency," and also "unjust," inasmuch as it renders banks responsible for others, over which they have no control; as offering a "premium in favor of misconduct, at the expense of those which are wisely and cautiously maxiaaged; . . ."²⁵

In addition to introducing an insurance principle to bank regulation, the Safety Fund Act did initiate the transfer of the authority of direct state control of banking from special legislative statute to delegated authority. The law provided for three bank commissioners. One was appointed by the state governor and the other two were appointed by the banks. These commissioners were empowered to examine the condition of banks and apply for injunctions against those which were judged to violate safety fund law provisions. The supervisory powers furnished in this legislation formed the basis of current bank supervision.

In 1838 New York removed the requirement of specific legislative sanction for bank entry when it passed free banking legislation.²⁶ In permitting banking to be open to an indefinite and unlimited number of banks, this free banking act was both revolutionary and controversial. It departed from the legal convention of granting incorporation through special enactment and delegated the powers to charter an unlimited number of corporations to an administrative authority.²⁷ In the spirit of *laissez faire*, it restored the common law right to engage in the business of banking and disassociated banking from the status of privileged monopoly that had characterized banking from early colonial times.

Free banking, however, did not completely eliminate either legal restrictions on entry or portfolio

restrictions designed to aid states in raising revenue. Under free banking, prospective bankers were entitled to a charter only if they met minimum legal capital requirements. Banks chartered under free banking laws were entitled to issue their own notes but were required to deposit designated state government bonds as security for all notes issued. This security requirement helped to supply a market for government bonds and compensated the states for the loss of the financial assistance that was routinely required from banks under state charter regulation. In addition to these restrictions, free banks were required to redeem all circulating notes on demand in specie, and were entitled to earn interest on the securities as long as they remained solvent. If a free bank failed to redeem its notes, the state closed the bank and reimbursed the noteholders with the proceeds of a sale of the bank's assets.

The success of free banking as a reform movement is a point of considerable debate. The traditional appraisal of free banking, which is used as support for government regulation, is that it was dismal. The system has been judged harshly because of its heterogeneous currency and because it witnessed many bank failures, failures which caused note holders to suffer losses which were substantial in some cases. To critics of free banking, the period is characterized by the behavior of the so-called wildcat banks which gained infamy due to their purported success in exploiting the potential for fraud in the free banking system. The Governor of Indiana expressed his concern with wildcat banks in an 1853 address:

The speculator comes to Indianapolis with a bundle of bank notes in one hand and the stock in the other; in twenty-four hours he is on the way to some distant point of the Union to circulate what he denominates a legal currency authorized by the Legislature of Indiana. He has nominally located his bank in some remote part of the State, difficult of access, where he knows no banking facilities are required, and intends that his notes shall go into the hands of persons who will have no means of demanding their redemption.²⁸

However, episodic evidence of the exploits of wildcat banks leaves a stronger impression of the difficulties associated with free banking than a more complete view of the experience would justify. Evidence of satisfactory performance can be found in the statements of contemporaries who were intimately connected to the banking of the era. For example, the state auditor of Indiana appraised the results of free banking much more favorably than

²⁴ For a discussion of the current controversy see Eugenie D. Short and Gerald P. O'Driscoll, Jr., "Deregulation and Deposit Insurance" [39], pp. 11-23.

²⁵ An anonymous pamphleteer, as quoted in Fritz Redlich, *The Molding of American Banking, Men and Ideas* [31], vol. 1, p. 93.

²⁶ Michigan passed the first free bank act in 1837.

²⁷ As early as 1811 small manufacturing firms were permitted to incorporate without special legislative sanction. Toward the latter part of the period of charter regulation, legislation was passed to charter a specified number of banks, but there were no laws permitting general incorporation of banks until free banking.

²⁸ As quoted in Knox [23], p. 318.

one might have expected in light of the governor's speech three years earlier.

The experiment of free banking in Indiana, disastrous as it has been in some particulars, has demonstrated most conclusively the safety and wisdom of the system. The original bill was crude and imperfect, admitting of such construction as held out to irresponsible men inducement and facilities for embarking largely in the business of banking, without the ability to sustain themselves in a period of revulsion. That revulsion came . . . and yet the loss to which the bill-holder was necessarily subjected, in many cases, did not exceed five per cent, and in no case exceeded twenty per cent of the amount in his hands.²⁹

Recent study of the free banking era provides more conclusive evidence that the experience under free banking varied considerably and that the kind of misconduct conventionally attributed to wildcat banking was atypical.³⁰ Many banks were profitable and, of the banks that did fail, many redeemed their notes at par. Many of the difficulties of the period occurred in the first few years of free banking and seem to have been associated with the organizational difficulties of instituting the system. For example, the free banking system in New York was a disaster initially, but after some of its defects were corrected it became the model for other free banking states. Moreover, the regulations imposed on free banks may themselves have been a source of instability. For example, the requirement that government bonds be deposited as security for bank notes increased bank exposure to term structure risk and forced the retirement of bank notes as bond prices fell. Recent evidence suggests that regulated free bank portfolios were more important determinants of bank failure than misconduct or mismanagement.

Despite its alleged failures, the free banking movement gained widespread acceptance. By 1860, more than half of the thirty-two states, including some of the most populous, possessed some form of free banking. Moreover, in 1863, some of the features of free banking were initiated on a national level with the passage of the National Bank Act and the establishment of the National Banking System.

²⁹ As quoted in Hugh Rockoff, *The Free Banking Era: A Re-Examination* [34], p. 22.

³⁰ The remainder of this section is based on the following: Rockoff [34]; Arthur J. Rolnick and Warren E. Webber, "New-Evidence on the Free Banking Era [35], and "The Causes of Free Bank Failures; A Detailed Examination" [36].

IV.

THE NATIONAL BANKING SYSTEM

The idea for a national system of banks evolved over a long period of time. In the *McCulloch v. Maryland* case of 1819, the Supreme Court established the constitutional foundations of a national banking system. A decentralized system was advocated as early as 1834 by banking reformers who were opposed to the financial power of a central bank and favored "abolishing all monopoly, and for substituting in the place of a National Bank a National System of Banking."³¹ Long before the National Bank Act, it was recognized that a system of national banks could be organized to provide the national currency desired by some bank reformers. Moreover, it was also understood that the circulation of a national currency backed by federal government securities could help to create a market for government bonds and satisfy the funding needs of the federal government even in the absence of a central bank like the Bank of the United States. For example, Millard Fillmore, the Comptroller of the Currency in New York, who advocated the extension of free banking throughout the country, noted that should

Congress authorize such notes as were secured by stocks of the United States, to be received for public dues to the National treasury, this would give such notes a universal credit, co-extensive with the United States, and leave nothing further to be desired in the shape of a national paper currency. This would avoid all objection to a national bank, by obviating all necessity for one for the purpose of furnishing a national currency. The National Government might be made amply secure.³²

However, neither a national currency nor a national banking system was feasible given the prevailing political climate and the acceleration of the free banking movement during the antebellum period. It was only because the Civil War put great financial pressure on the federal government to exploit the revenue generating potential of a national currency that a national banking system was established.

The first federally sponsored proposal for a system of national banks appeared in the Annual Report of the Secretary of the Treasury in 1861. In this Report, Secretary Chase outlined a plan for a national

³¹ "Essays on the Currency on Which is Proposed the Enactment by Congress of a General Bank Law" Boston, 1834, quoted in Leonard C. Helderman, *National and State Banks* [20].

³² Buffalo Historical Society Publications, X, pp. 282-283, quoted in Helderman [20].

system based on the principles of New York's free banking law. He advocated a free banking framework "because it has the advantage of recommendation from experience. It is not an untried theory. In the State of New York and in . . . other States it has been subjected . . . to the test of experiment, and has been found practicable and useful."³³ Of course, Chase's plan differed from the New York plan or any state free banking system because it substituted federal control of a national currency backed by United States securities for the heterogeneous bank-note issues of the individual banks.

As was the case with previous instances of government intervention, a national banking system was rationalized as being in the public interest. For example, Chase hailed the proposed national currency as potentially "the safest currency which this country has ever enjoyed."³⁴ As was the case with previous instances of government intervention, however, the government also was intended to be a beneficiary of the control scheme. Chase argued that national banks would provide the "further advantage of a large demand for government securities . . . [and] increased facilities for obtaining the loans required by the war."³⁵ Indeed, Chase clearly viewed the banking system as a potential source of financial assistance for the beleaguered United States Treasury. In the absence of a central bank, a national currency backed by federal government securities was the most convenient means of tapping this source:

To enable the government to obtain the necessary means for prosecuting the war to a successful issue, without unnecessary cost, is a problem which must engage the most careful attention of the legislature.

The Secretary has given to this problem the best consideration in his power, and now begs leave to submit to Congress the result of his reflections.

The circulation of the banks of the United States constitutes a loan without interest from the people to the banks, costing them nothing except the expense of issue and redemption and the interest on the specie kept on hand for the latter purpose; and it deserves consideration whether sound policy does not require that the advantages of this loan be transferred, in part, at least, from the banks, representing only the interests of the stockholders, to the government, representing the aggregate interests of the whole people.³⁶

³³ Report of the Secretary of the Treasury on the State of the Finances for the Year Ending June 30, 1861 [32], p. 19.

³⁴ *Ibid.*, p. 19.

³⁵ *Ibid.*

³⁶ *Ibid.*, p. 17.

There was considerable opposition to a national system. The first two attempts to enact legislation authorizing a national currency and a national banking system were defeated in spite of recommendations of the Secretary of the Treasury and the President. In 1863, however, Congress established the National Banking System by enacting the National Currency Act, now known as the National Bank Act.³⁷ The original bill passed the Senate by only two votes and, given the antifederal persuasion of the southern states, the bill would not have been enacted had the South been represented in Congress.

The act marked the beginning of the dual banking system, the division of regulatory authority between state and federal governments. The law provided the federal government with the authority to charter and supervise national banks and to regulate the national currency by establishing the Office of the Comptroller of the Currency within the Treasury Department. Since the national banking system was modeled after free banking, a group of five or more persons was permitted to form a national bank by satisfying the minimum statutory capital requirement and filing articles of association with the Comptroller. Each national bank also was required to deposit United States bonds with the Comptroller and in exchange received national bank notes equal to 90 percent of the lesser of the par or market value of the deposited bonds. The act also imposed a number of restrictions on bank activity that were rationalized as enhancing bank soundness and financial stability including : (1) a requirement to maintain reserves against both deposit and note liabilities,³⁸ (2) restrictions on the scope of operations primarily to accepting deposits and making short-term, self-liquidating loans to business,³⁹ and (3) a requirement to provide periodic reports of condition to the Comptroller.

³⁷ The original national banking law was approved on February 25, 1863 and was entitled "An act to provide a national currency, secured by a pledge of United States stocks, and to provide for the circulation and redemption thereof." This law was repealed and a revised version was enacted July 3, 1864. On June 10, 1874 Congress declared that the act "shall hereafter be known as the National Bank Act."

³⁸ For an excellent discussion of the rationales and functions of reserve requirements, see Marvin Goodfriend and Monica Hargraves, "A Historical Assessment of the Rationales and Functions of Reserve Requirements" [16].

³⁹ This concept of the proper functions of banking, widespread in the 19th century, is frequently referred to as the "banking principle" and was derived from the "real bills" doctrine. The "banking principle" and other 19th century banking theories are discussed in Loyd W. Mints, *A History of Banking Theory* [25].

Two factors hindered the growth of the National Banking System initially. First, most bankers preferred to continue to conduct business under state charters which typically had fewer restrictions and offered more attractive profit opportunities than national charters. In addition, the Comptroller exercised arbitrary discretion in granting charters, discretion that discouraged entry. In considering charter applications the Comptroller made subjective appraisals both of the economic potential of the community and the extent of potential competition and also required the endorsement of a prominent citizen or, sometimes, even a member of Congress.⁴⁰ This policy was neither consistent with the Congressional design for an expanding national banking system nor was it specifically granted by an allegedly free-bank statute.

Strong measures, however, were soon taken to coerce greater participation in the national banking system. In 1865 Congress imposed a ten percent tax on any bank paying out state bank notes after July 1, 1866. In his speech proposing the bill⁴¹ on February 27, 1865, Senator John Sherman left no room for doubt that the tax was intended to eliminate state banking by prohibiting profitable issue of state bank notes:

A still more important feature of this bill is the section to compel the withdrawal of State bank notes . . . national banks were intended to supersede the State banks. Both cannot exist together . . . the power of taxation cannot be more widely exercised . . .⁴²

Resistance to the national banking legislation remained strong. A Maine bank challenged the tax and the constitutionality was tested in the *Veazie Bank v. Fenno* case which was considered by the Supreme Court in 1869. The bank contended that the tax was a direct tax that had not been apportioned among the states as required by the Constitution. Furthermore, it argued that the tax exceeded Congressional authority because it impaired a franchise granted by the state. The Court, however, absolved Congress of any wrongdoing, confirmed the validity

⁴⁰ Ross M. Robertson, *The Comptroller and Bank Supervision* [33], pp. 57-69.

⁴¹ An act to amend an act entitled "An act to provide internal revenue to support the Government, to pay interest on the public debt, and for other purposes," approved June 13, 1864.

⁴² As quoted in Walter Wyatt, "Constitutionality of Legislation Providing for a Unified Commercial Banking System" [57], p. 244.

⁴³ 75 U.S. (8 Wall) 533.

of the tax and disposed of any lingering notion of states' rights regarding currency issues. The reasons for the decision, which virtually assured the expansion of the national system first proposed by former Secretary of the Treasury Chase, were summarized in the statement of the by-then Chief Justice of the Supreme Court Chase :

. . . the judicial cannot prescribe to the legislative departments of the Government limitations upon the exercise of its acknowledged powers. The power to tax may be exercised oppressively . . . [and not] be pronounced contrary to the Constitution [by the Judiciary] . . . [Furthermore] [i]t cannot be doubted that under the Constitution [Congress is given] the power to provide a circulation of coin . . . [and] bills of credit. . . Having thus, in the exercise of undisputed Constitutional powers, undertaken to provide a currency for the whole country, it cannot be questioned that Congress may, constitutionally, secure the benefit of it to the people by appropriate legislation.⁴⁴

In rejecting the majority opinion, the dissenting justices argued that the decision had no historical or legal precedent. State banking organizations had been accepted members of the financial community since the early years of the nation and their constitutionality had been upheld by the Supreme Court twenty-two years earlier in the *Briscoe v. Bank of Kentucky* case. In the view of the dissenting justices, the tax was "an unprecedented amputation of state authority."⁴⁵

Through its power to tax, Congress persuaded a large number of state banks and new entrants to apply for a national charter. Ambitions, however, for a banking system comprised solely of nationally chartered banks were never realized because the tax on state bank notes did not effectively restrain state banks. By the time the tax on state bank notes was imposed, deposits were supplanting currency as the primary medium of exchange, and commercial banking was emerging as a profitable deposit banking business immune to the Congressional tax on state bank notes. As the innovation of deposit banking spread, state banking underwent a resurgence. The less restrictive state charters again were potentially more profitable than national charters, just as they had been before the tax on state bank notes. With much more limited corporate powers, national banks were never able to attain the supremacy envisioned by the creators of the National Bank Act.

⁴⁴ Wyatt [57], pp. 245-246.

⁴⁵ Gerald T. Dunne, *Monetary Decisions of the Supreme Court* [8], p. 50.

V.

THE REFORM MOVEMENT AND THE ADVENT OF THE FEDERAL RESERVE SYSTEM

The period between 1875 and 1913 was marked by a series of attempts to remedy perceived inadequacies in the banking system. The retirement of bond-backed national bank notes and greater utilization of private clearinghouse arrangements were central to the reform movement. Congress was slow to respond to this reform agitation that endorsed a decrease in federal regulatory authority, but eventually responded by enacting legislation roughly based on clearinghouse principles. In so doing, however, Congress expanded and solidified the federal government's control over the banking industry and enhanced the revenue-generating capabilities of the federal regulatory framework with the formation of the Federal Reserve System in 1913.

The primary motivation for reform was the vulnerability of the financial system to liquidity crises and panics. Contemporary observers focused on two essential causes of this instability: (1) the pyramiding of reserves and (2) the alleged inelasticity of the money supply.⁴⁶

Pyramiding occurred because banks operated on a fractional reserve system that permitted them to hold part of their required reserves as deposits with other banks. So-called country banks maintained reserve deposits at designated reserve city banks, and the latter held deposits at central reserve city banks. Reserve city and central reserve city banks held only a fractional reserve against the reserve deposits they held for other banks and thus were able to use some of the reserve deposits of depositing banks to meet their own required reserves. As a consequence, the actual cash reserve was a smaller fraction of aggregate deposits than the numerical reserve ratios stipulated by statute for individual institutions. Moreover, reserves tended to be highly concentrated in the large money center banks that had a significant correspondent business. While a fractional reserve banking system is vulnerable to bank runs in the absence of a lender of last resort, this pyramiding of reserves sometimes exacerbated the problem. Any systematic drain on the reserves of a sizable group

of banks caused a liquidity problem for the large city correspondents as the banks experiencing the drain would have to draw down their reserve deposits at the city banks. A sustained large drain could cause problems of crisis proportions. This reserve system obviously affected the deposit-to-currency convertibility and, consequently, the total amount of money available.

The alleged inelasticity of national bank notes was viewed as a separate defect of the system. This was so because the size of the note issue was determined by the level of government debt and, therefore, was fairly rigidly fixed within short periods of time.⁴⁷ National bank notes did not satisfy the popular notion of an elastic currency because they did not vary with cyclical and seasonal fluctuations in business activity. For this reason, reformers considered a currency based on national bank notes to be a serious flaw in the financial system.

In order to remedy these perceived defects, reformers recommended both a move away from a bond-secured currency and the development of a market mechanism to serve a lender of last resort function. Two of the most important reform measures based on these ideas were the "Baltimore Plan" of the 1894 American Bankers Association convention and Theodore Gilman's "Graded Banking System."⁴⁸ The Baltimore Plan focused on currency reform as the remedy to financial instability and proposed revisions of the National Bank Act including amendments (1) to repeal the requirement that federal government bonds be deposited as security for bank notes, (2) to provide for a new national currency backed by bank assets, and (3) to provide for the relief of liquidity crises with the circulation of an emergency currency issued under heavy taxation in order to encourage retirement after the emergency.

Like the Baltimore Plan, the "Graded Banking System" stressed the 'ability of banks to generate reserves to meet short-term increases in the demand for currency as the key to the stability of the banking system. This proposal called for the organization of clearinghouse associations to perform the lender of last resort function. Clearinghouses developed in this country in order to facilitate interbank transactions, and eventually operated in all of the reserve

⁴⁶ Friedman and Schwartz note that this view of inelasticity was due partly to a failure to recognize fully the significance of deposits as money, and partly "[to] a particular manifestation of the ubiquitous 'real bills' doctrine." Milton Friedman and Anna Jacobson Schwartz, *A Monetary History of the United States 1867-1960* [13], p. 169.

⁴⁷ In order to increase its note circulation, a national bank required time to (1) purchase the government bonds that serve as security, (2) transfer the bonds to the United States Treasurer, (3) notify the Comptroller to forward the notes and (4) transport the notes.

⁴⁸ Theodore Gilman, *A Graded Banking System* [14].

cities of the national bank system and in other financial centers. Clearinghouses, though privately owned by the member banks they served, nevertheless functioned like a central bank in at least two ways : first, by requiring member banks to hold a cash reserve against deposit liabilities, and second, by creating new reserves for member institutions in emergencies. Also, the clearinghouses innovated new arrangements to help their members cope with panics. For example, clearinghouses attempted to alleviate the problem of reserve drain, without the costly procedure of maintaining 100 percent reserves, by utilizing emergency currencies to stretch the reserve base of member banks in order to relieve liquidity crises.⁴⁹ These clearinghouse innovations have been recognized as the market's response to the need for central bank functions and "the specifically American solution to a problem with which central banks in other great commercial nations were faced."⁵⁰

The principles embodied in clearinghouse arrangements and currency reform represented a potentially effective means of rectifying the unstable characteristics of the banking system and, for this reason, were central to a number of reform proposals considered by Congress. Such proposals, however, were opposed in some quarters because they diluted the federal government's control over the banking system, threatened the financial power that the bond-backed currency provided to the federal government, and sanctioned private competition in the issue of currency.⁵¹ Congress was reluctant to adopt any reform that diluted federal regulatory authority.

In fact, no substantial reform legislation emerged from Congress for several years. After the financial panic of 1907, a panic marked by a widespread run on banks and an inability of those institutions to convert deposits into cash upon demand, the Aldrich-Vreeland Act was enacted in an attempt to establish a mechanism to relieve liquidity crises and to prevent bank failures in a way similar to that practiced by clearinghouses. The Aldrich-Vreeland Act was the first legislation to provide for a currency backed by short-term assets and "also marked the first tendency

⁴⁹ R. H. Timberlake, Jr., "The Central Banking Role of Clearing-House Associations" [42], p. 4.

⁵⁰ Redlich [31], part II, p. 158.

⁵¹ The utility of clearinghouse issues was recognized by many of its harshest critics. The major criticism of clearinghouse operations is that they were illegal because the federal government exercised an exclusive authority to issue money. For a discussion of this point! see Timberlake, "The Central Banking Role of Clearing-House Associations" [42], pp. 14-24.

for legislation to [encourage] . . . centralization and cooperation among banks."⁵² The act, however, did not bring about any major reduction in federal control of banking. First, it was only a temporary measure. Second, it established the Secretary of the Treasury as the regulator of the emergency currency of the National Currency Associations. More significantly for basic reform, however, it did establish the National Monetary Commission to study the currency and banking situation and report its findings to Congress.

After the National Monetary Commission completed its deliberations on domestic and foreign banking practices, it submitted a summary of the perceived defects of the banking system and remedies for these defects. The Commission's reform proposal, known as the Aldrich Plan, called for the establishment of a National Reserve Association to be comprised of a central executive office and fifteen branches, each of which was to be divided into local associations. The organizational structure of the National Reserve Association was modeled after the clearinghouse system and it was intended to function as a clearinghouse. Senator Aldrich was quite explicit on this matter :

The organization proposed is not a bank, but a cooperative union of all the banks of the country for definite purposes and with very limited and clearly defined functions. It is, in effect, an extension, an evolution of the clearing-house plan modified to meet the needs and requirements of an entire people.⁵³

Membership in the National Reserve Association was to be voluntary and the entire paid-in capital stock was to be owned by the members. National banks were to be able to join without any qualifications, while state banks and trust companies needed only to conform to specified reserve and capital requirements to become members. Under the Aldrich Plan, the government had little control over banking because the Commission adhered to the principle that practitioners were the best qualified to manage clearinghouse operations. The Commission also sought to remove the incentive for members to manipulate the organization for profit by placing a ceiling on the dividends that the stockholders could receive. The National Reserve Association was intended to be responsive to the public interest and insulated from conflict of interest.

⁵² Robert Craig West, *Banking Reform and the Federal Reserve 1863-1923* [52], p. 51.

⁵³ As quoted in West, *Banking Reform* [52], p. 73.

The great central banking potential that clearing-house operations offered was never realized because federal authorities would not relinquish regulatory authority. The control of the National Reserve Association became the focal point of the contemporary dialogue on reform. The Aldrich proposal was criticized for promoting monopolistic tendencies because the procedure for selecting directors gave greater influence to banks with a larger number of shares in the National Reserve Association. Critics also noted the virtual absence of government control over the Reserve Associations. The sharpest critics dismissed the National Reserve Association as a poorly disguised scheme for a central bank.⁵⁴

Congress, however, was not content to remedy these perceived defects. It was simply opposed to the privately controlled structure of the National Reserve Association and determined to replace it with a government-controlled institution, although there was disagreement concerning the degree of centralization of that authority. Ultimately, Congress established the Federal Reserve System. That System was intended to serve the same clearinghouse functions as the National Reserve Association and consequently, had an organization that was quite similar to that of the National Reserve Association except, of course, that the Federal Reserve was under closer control of the federal government.⁵⁵ The capstone of the system, the Federal Reserve Board, was located in Washington and, with the exception of its *ex officio* members (the Secretary of the Treasury and the Comptroller), all of its members were Presidential appointees.⁵⁶

⁵⁴ See Timberlake, *Origins of Central Banking* [43], p. 192. It was very important that any reform measure avoid the appearances of a central bank. A central bank was offensive to both those who feared large bank domination of the financial system and those who feared political control. In the words of a contemporary:

No, there is no way possible to keep a central bank free from Wall St., without [it,] it couldn't be a success, again you can't keep it out of the hands of Monopolists and politics, . . .

M. Lauretson, president of the First State Bank of Tyler, Minnesota as quoted in Eugene N. White, *The Regulation and Reform of the American Banking System, 1900-1929* [54], p. 93.

⁵⁵ The striking similarity between the Aldrich Plan and the Federal Reserve Act is documented in Paul M. Warburg, *The Federal Reserve System, Its Origins and Growth* [48], pp. 178-406.

⁵⁶ The idea of the Board has been attributed to political expediency. (For details, see West [52], chaps. 5 and 6.) President Wilson is often credited with this suggestion. However, the idea probably originated with Professor J. Laurence Laughlin who recommended a central board in his reform proposal called "Plan D." See J. Laurence Laughlin, *The Federal Reserve Act: Its Origins and Problems* [24].

While proponents of the Federal Reserve Act criticized the Aldrich Plan for proposing a central bank, they declined to recognize the central bank features of the Federal Reserve System.⁵⁷ The central authority was depicted as a benign coordinating agency that would function as a public utility or perhaps even a "supreme court of American finance." The assumption underlying this view obviously was diametrically opposed to the laissez faire principle that the National Monetary Commission adopted when it recommended the Aldrich Plan. The proponents of the Federal Reserve Act also declined to recognize the potential for political conflict embodied in the central organization and occasionally invoked a "people-control-it-through-the-government" ⁵⁸ doctrine to dismiss this notion. Federal government control of the Federal Reserve was considered to be a strong feature because it placed "great power in the hands of the people."⁵⁹ Carter Glass was one of the more eloquent adherents to this principle.

No financial interest can prevent, or control [the Board]. It is an altruistic institution, a part of the Government, itself, representing the American people, with powers such as no man would dare misuse . . . strictly a board of control . . . doing justice to the banks, but fairly and courageously representing the interests of the people . . . the task of political control [of the Board] is the expression of a groundless conjecture.⁶⁰

The major point of departure for adversaries of the proposed Federal Reserve System was the central organization which made the system a central bank. The "public control doctrine" simply was not acceptable to those who embraced the practical view that "control through a Government bureau, by political appointees, is not synonymous with control by the

⁵⁷ Carter Glass denied that the Fed was a central bank after it had been in operation for almost a decade.

"What are these regional banks?

There is no mystery about them . . . they are banks of banks. They do not loan, can not loan, a dollar to any individual in the United States . . . but only to stockholding banks . . .

At the head of these 12 regional banks we put a supervisory board. It is not a central bank."

Carter Glass. "Truth About the Federal Reserve System." Speech in the Senate of the United States, January 16-17, 1922 [15], p. 8.

⁵⁸ Timberlake, *Origins of Central Banking* [43], p. 194.

⁵⁹ H. H. Seldomridge, 60th Congress, 1st session, as quoted in Timberlake, *Origins of Central Banking* [43], p. 194.

⁶⁰ Carter Glass, as quoted in Timberlake, *Origins of Central Banking* [43], pp. 193-194.

people and for the people."⁶¹ This view also had its spokesman in Congress.

This bill creates a "central bank." This plan is much more centralized, autocratic, and tyrannical than the Aldrich plan. It is true that we are to have 12 regional banks; but these are but the agents of the grand central board, which absolutely controls them. The power is not, with them; they are not in any material matter given the right of independent,⁶² action; they must obey orders from Washington.

The Federal Reserve Act did not repeal the National Bank Act or abolish the Office of the Comptroller of the Currency, but rather superimposed a second regulatory system on the existing National Banking System and created a second regulatory agency. In so doing, federal authorities strengthened their control over national banks by requiring the latter to become members in the Federal Reserve System, even though bankers had little representation in the System's central decision-making process. Also, by vesting new regulatory authority in this second regulatory agency, Congress created a new avenue to bring state-chartered banks under the scope of federal control, preempted profitable operations of private clearinghouses and permitted the federal government to maintain exclusive control over the issue of paper currency.

In enacting the Federal Reserve Act, Congress diluted the authority of the Comptroller and camouflaged the link between the Treasury and bank regulation. There was a conscious decision not to sever this link completely, however. Indeed Congress declined to abolish the Office of the Comptroller of the Currency or to put it under the control of the Federal Reserve System despite sentiment to extinguish "remnants of an undemocratic, antiquated and dangerous"⁶³ system.

In addition, Congress established the Federal Reserve to function as an instrument of public finance. Because the Fed was granted the authority to purchase and rediscount assets in exchange for its own non-interest-bearing liabilities, Fed operations were potentially quite profitable. Section 7 of the Federal Reserve Act required that "all net earnings [of the Federal Reserve Banks] shall be paid to the United States as a franchise tax." While the

Act provided for the retirement of national bank notes, it attempted to ensure the continuation of a strong market for government bonds by authorizing every Federal Reserve bank to "buy . . . bonds and notes of the United States . . . with a maturity . . . not exceeding six months, issued in anticipation of the collection of taxes." Section 4 also authorized the issue of Federal Reserve bank notes "under the same conditions and provisions of law as relate to the issue of circulating notes of national banks secured by bonds of the United States bearing the circulating privilege, except that the issue of such notes shall not be limited to the capital stock" of each Federal Reserve Bank. Finally, Congress spelled out the relationship of the new Federal Reserve System to the U.S. Treasury Department as follows:

Nothing in this Act contained shall be construed as taking away any powers heretofore vested by law in the Secretary of the Treasury which relate to the supervision, management, and control of the Treasury Department and bureaus under such department, and wherever any power vested by this Act in the Federal Reserve Board or the Federal Reserve Agent appears to conflict with the powers of the Secretary of the Treasury, such powers shall be exercised subject to the supervision and control of the Secretary of the Treasury.⁶⁴

Almost from the start, the Comptroller of the Currency and the Fed were in conflict. The controversy revolved around bank supervisory and examination functions and the authority of the Fed to have access to the information gathered by the Comptroller in examination reports.⁶⁵ The Fed believed that access to information on bank financial conditions was necessary to the proper discharge of its responsibilities. The Comptroller, however, was reluctant to share confidential information with the Fed, and for a period of time only sent abstracts of examination reports to the Fed. The Comptroller's position seemed to be based on the notion that access to confidential financial information on the banking system was not vital to the successful operation of the new central bank. This attitude was reflected in a

⁶¹ Frank Mondell, 60th Congress, 1st session, as quoted in Timberlake, *Origins of Central Banking* [43], p. 195.

⁶² Horace M. Towner, 63rd Congress, 2nd session, as quoted in West, *Banking Reform* [52], p. 119.

⁶³ Paul M. Warburg, "Political Pressure and the Future of the Federal Reserve System" [49], p. 72.

⁶⁴ Federal Reserve Act, section 10. The legislative history of this passage gives little insight into its intent because it was not debated in Congress. The provision appeared during the Senate discussion of the bill on one of the several new prints of the bill intended to incorporate 'minor changes. No one directly claimed authorship, although the Senate Committee chairman implied that it was suggested by the Treasury. Regardless of its intent, it contributed to the jurisdictional friction between the two federal agencies. For a discussion of this passage in the law, see A. D. Welton, "The Reserve Act in Its Implicit Meaning" [51], p. 57.

⁶⁵ Robertson [33], p. 107.

report written by a committee that was commissioned by the Comptroller to study the jurisdictional issue:

In requesting access to the complete reports of examination, the Federal Reserve banks appear to be operating upon the assumption that the credit extended by them is an extra hazardous risk and of an abnormal character justifying them in demanding information not exacted by other banking institutions and in no way relating to the solvency of the bank. This point of view is not warranted by past banking experience and if the extending of accommodations is to be restrictive and surrounded with burdensome exactions, the success of the system is in jeopardy.⁶⁶

In any event, the Comptroller declined to cooperate with the Fed or explain what purpose this confidential information served to the Treasury Department.

The friction between the two federal agencies eventually put the Comptroller's office in jeopardy. By 1921, Congress had introduced a number of bills to abolish the Comptroller's Office and resolutions to investigate the agency's behavior. Opponents of the Comptroller argued that it would be more democratic if the autocratic powers exercised by the Comptroller were vested in a board.⁶⁷ It was argued that the Federal Reserve Act had made the Comptroller redundant and that its continued existence would constitute an unnecessary source of "costly delays, duplication of work, inefficiency and unbearable irritation."⁶⁸ These accusations, predictably, were denied by the Comptroller. Nothing of significance came of any of these bills or resolutions, in part because the relations between the two agencies did improve after 1923. Without the embarrassment of open hostilities between the two federal agencies, Congressional incentive to rectify the overlapping authority disappeared.

VI.

THE EXTENSION OF THE FEDERAL BANK REGULATORY STRUCTURE

The advent of the reformed and dually executed federal regulatory framework coincided with fundamental changes in the financial environment in the United States. The outbreak of European hostilities in 1914 presented unusual demands for funds and stimulated activity in the financial services industries. After the United States entered the war, the inte-

⁶⁶ Quoted in Robertson [33], p. 108.

⁶⁷ Congressional Record, 65 Congress, 3rd session, 1919.

⁶⁸ Warburg, "Political Pressure" [49], p. 72.

gration of commercial and investment banking activities was encouraged by the federal government which enlisted broad commercial bank support in underwriting and distributing Liberty Bonds to help finance the government's enormous demand for funds. Participation in this distribution provided many commercial banks with the expertise necessary for expanded securities operations and helped to educate a general public that became more willing to invest funds in the capital markets during the ensuing era of prosperity.

Consequently, even after the war, commercial bank involvement in all aspects of the securities markets continued to increase. The general prosperity enabled many nonfinancial corporations to reduce indebtedness to banks or to utilize the accommodative securities markets as a substitute for bank loans to finance business.⁶⁹ Commercial borrowing at banks declined, threatening the profitability of traditional loan activities and leaving the banking industry with surplus funds. Many banks relied on the longer term capital markets to offset the reduction in loan revenue. Since state banks were not constrained by federal regulations, they directly accelerated their activity in the investment banking business; national banks were forced to rely more on trust company or securities affiliates. By the mid 1920s, investment banking and security services had become so popular with the public that many banks found it necessary to provide investment services in order to remain competitive.

Both branch banking and securities activities of national banks were the focus of reform proposals prior to the depression. While the national banking system was growing relative to state-chartered banking in terms of numbers,⁷⁰ the proportion of total deposits attributable to national banks was declining due to the attrition of many of the larger national banks. These defections reflected an effort to gain access to the most favorable regulatory framework. For example, many national banks were able to increase their branching capabilities⁷¹ by converting to state charters or merging with a state bank and retaining state-charter status. National banks seek-

⁶⁹ Lauchlin B. Currie, "The Decline of the Commercial Loan" [5], and William N. Peach, *The Security Affiliates of National Banks* [27], chaps. 2 and 4.

⁷⁰ Raymond P. Kent, "Dual Banking Between the Two World Wars" in *Banking and Monetary Studies* [22], p. 45.

⁷¹ The National Bank Act did not forbid branching by national banks. However, the Comptroller interpreted the law to preclude branching. See Robertson [33], pp. 57-69.

ing more direct participation in the securities business had the same incentives to operate under state regulation. As a consequence, the Comptroller was especially concerned that national bank powers be broadened in order to curtail national bank defections.⁷² The so-called McFadden Act, which was passed in 1927, included provisions intended to equalize competition between national and state banks. The law reduced inequities in branching regulations and granted explicit authority to national banks to buy and sell marketable securities.

Shortly thereafter, commercial bank involvement in securities activities accelerated as commercial banks became aggressive innovators in the investment banking industry. By the end of the 1920s, "commercial banks and their security affiliates occupied a position in the field of long-term financing equal to that of private investment bankers, both from the standpoint of investment banking machinery and from the standpoint of the volume of securities underwritten and distributed by the two groups of institutions."⁷³

Following the stock market crash of 1929 and the subsequent collapse of the banking system, however, concern for more rigid control over banking activities, especially investment practices, resurfaced. In 1930, Congressional committees studied the causes of the 1929 collapse, which many believed to be the root cause of the economic and financial distress. Bank investment practices, especially the extent to which bank credit had been funneled into the stock market, became the focus of investigation and criticism. Indeed, to many who witnessed the developments of the late 1920s, the sequence of events seemed to provide formidable evidence of commercial bank culpability :

No sooner had the McFadden Act taken effect, then the great bull market had gotten underway! During the period from 1928 through 1930, commercial banks had substantially increased their share of the new bond issues and had begun to make inroads in the equities market.⁷⁴

In addition, the Congressional investigations exposed instances of conflict of interest, speculative abuse and personal enrichment by officials at some of the larger commercial banks. These revelations helped to reinforce a general impression of bank culpability and put the banking community on the defensive. Although the scope and pervasiveness of

these abuses are still subject to debate, the dramatic nature of the Congressional hearings had a strong influence on public sentiment, and thereby contributed to both the lack of public confidence in the banking system and to the popular belief that stronger bank regulation was necessary.

Dispassionate study, however, suggests that the banking system was as much a victim as a cause of the financial instability because the central bank that was intended to serve the lender of last resort function failed to serve this purpose.⁷⁶ In the absence of an organized private lender of last resort mechanism, previously provided by private clearinghouses, the banking system had no means of self-correcting its reserve deficiencies and stemming a financial crisis. As a consequence, conditions in the banking system deteriorated until the "bank holidays" broke the momentum of the panic.

The severity of the banking emergency led to the adoption of several reforms intended to prevent the recurrence of events that were perceived to have contributed to the collapse of the banking system. The reforms, however, reflected quite different attitudes regarding the deficiencies of the private and public sectors. Because the banking community bore the greatest share of the blame for the financial crisis, many of the legislated reforms restricted the scope of bank activities. On the other hand, the failure of the federal regulatory structure either to prevent or to alleviate the financial crisis brought an entirely different legislative response. Congressional reform expanded and strengthened the federal regulatory system. Rather than enhance the banking system's ability to deal with financial crises independently, Congress increased federal regulatory control over banking. The two most important reforms introduced deposit insurance on a national level and altered the organization and power of the Federal Reserve System.

Deposit insurance, however, was a very controversial reform measure. Since the New York Safety Fund System had been established both to satisfy the public demand for reform and to permit the New York legislature to maintain its chartering authority, there had been several experiments with deposit guarantees. All had failed during times of crisis. The unpopularity of deposit insurance with bankers had been responsible for many conversions from state to

⁷² See for example the Annual Report, Comptroller of the Currency, 1924.

⁷³ Peach [27], p. 20.

⁷⁴ Edwin J. Perkins, "The Divorcement of Commercial and Investment Banking: A History" [29], p. 500.

⁷⁵ See, for example: Friedman and Schwartz [13], chaps. 7 and 8 and Clark Warburton, *Depression, Inflation and Monetary Policy: Selected Papers, 1945-1953* [50], chaps. 14 and 15.

national charters in states with deposit guarantee systems.⁷⁶ Bankers objected to deposit insurance on a number of grounds, but the strongest objection was that it subsidized risky management by “imposing a heavy expense and a heavy burden on the sound institution for the benefit of the weaker institution.” As had been the case one hundred years earlier in New York state, deposit insurance represented a means of restoring public confidence in both the banking system and the regulatory framework without sacrificing any regulatory authority. Consequently, Congress established deposit insurance under the administration of the Federal Deposit Insurance Corporation (FDIC).

In some respects, the establishment of the FDIC was analogous to the creation of the Federal Reserve System. First, there was no clear separation between the Treasury and the FDIC. The Comptroller was appointed as one of the three members of the board of directors of the FDIC that elects the FDIC chairman. Second, the creation of the FDIC did not significantly alter or reduce the power of the Comptroller or the Federal Reserve. The FDIC simply was superimposed on the existing framework. Third, the FDIC inherited the existing federal regulatory jurisdiction because all banks under federal regulation-national banks and state-chartered members of the Federal Reserve-were required to have their deposits insured by the FDIC. Moreover, the FDIC paved the way for the extension of federal regulatory authority by permitting state-chartered banks to be admitted to insurance coverage subject to FDIC supervision. The FDIC succeeded in extending federal regulatory control over state-chartered banks to a much greater extent than either the National Banking System or the Federal Reserve System because of the importance of deposit insurance to public confidence.

In addition to establishing the FDIC, the reform legislation of the 1930s altered the organization and operations of the Federal Reserve System. The Federal Reserve Board-renamed the Board of Governors of the Federal Reserve System-and the Open Market Committee were reconstituted to reduce the influence of the individual Federal Reserve banks and increase the centralization of control of the system. While both the Secretary of the Treasury and the

Comptroller were removed as *ex officio* members of the Board and the franchise tax on the Federal Reserve earnings was abolished, the reform did not eliminate the importance of the Federal Reserve System to the Treasury financing program. To the contrary, this reform legislation broadened the authority of the Federal Reserve to, purchase federal government securities as a fundamental tool of Federal Reserve operations. This broadened authority has helped to maintain the market for government debt that the federal government first attempted to ensure when it passed the National Bank Act. In addition, a variety of Fed-Treasury pecuniary transfers have continued since the banking legislation of the 1930s and have increased dramatically in recent years.⁷⁸

* * *

Statutory changes in the federal regulatory framework since 1935 have been basically of a technical nature, although there has been some strengthening and extension of the authority of the federal regulatory agencies. In addition, there have been several proposals for reorganizing and simplifying the regulatory structure. These efforts, however, have not resulted in substantial reorganization but rather have led to attempts to increase inter-agency coordination by establishing committees composed of members of the various agencies. For example, the Federal Financial Institutions Examination Council (FFIEC), which is comprised of the heads of the FDIC, Federal Reserve and the Comptroller as well as other federal regulators, was formed in order to reduce the inefficiencies and redundancies of the system and improve cooperation. It is possible, however, that the FFIEC may itself become an independent agency.

VII.

CONCLUDING COMMENTS

Public regulation of banking was established during the colonial period to enable colonial governments to finance public expenditures. The institutional structure of regulation that has evolved since that time also has served as an instrument of public finance. Charter regulation permitted state governments to circumvent Constitutional restrictions on state monetary authority. State legislatures were able to exact favorable financial arrangements in exchange for the charter privilege of issuing currency. However, the elimination of direct state legislative control of entry

⁷⁶ After the panic of 1907, Kansas, Mississippi, Nebraska, North and South Dakota, Oklahoma; Texas and Washington passed laws establishing bank, deposit guarantee systems.

⁷⁷ Susan Estabrook Kennedy, *The Banking Crises of 1933* [21], p. 216.

⁷⁸ See Goodfriend and Hargraves [16] on this point, especially pp. 13-16.

under free banking did not eliminate the public finance function of government regulation. Free banking strengthened the market for state government debt by requiring bank notes to be secured with government bonds. This framework was eventually established on the federal level with the enactment of the National Bank Act which provided for a national currency collateralized by federal government bonds. The establishment of the Federal Reserve System and the Federal Deposit Insurance Corporation enabled the federal government to satisfy public demand for banking reform and maintain the public finance function of federal regulation.

The structure of bank regulation in the United States has evolved over the better part of three centuries. Since a primary motive for regulation has been an expansion of the financial power of various government authorities, the structure of regulation has been designed to serve this purpose. In addition, the structure of bank regulation has become more complex at each stage of its evolution because of the reluctance of government agents to divest themselves of regulatory authority. Any consolidation of the federal regulatory structure would represent a significant reversal in a secular trend that has continued since the colonial period.

Bibliography

1. Burns, Helen M. *The American Banking Community and New Deal Banking Reforms 1933-1935*. Westport, Conn. : Greenwood Press, 1974.
2. Cagan, Phillip. "The First Fifty Years of the National Banking System-An Historical Appraisal." In *Banking and Monetary Studies*. Edited by Deane Carson. Homewood, Ill.: Richard D. Irwin, 1963.
3. Carosso, Vincent P. *Investment Banking in America: A History*. Cambridge: Harvard University Press, 1970.
4. Chadduck, Robert E. *The Safety Fund Banking System in New York 1829-1866*. Prepared for the National Monetary Commission, 1910; reprint ed., New York: Johnson Reprint Corporation, 1972.
5. Currie, Lauchlin B. "The Decline of the Commercial Loan." *Quarterly Journal of Economics* 45 (August 1931).
6. Davis, Joseph Stancliffe. *Essays in the Earlier History of American Corporations*. Cambridge : Harvard University Press, 1917; reprint ed., New York: Russell and Russell, 1965.
7. Dewey, Davis R. *Financial History of the United States*. New York: Augustus M. Kelley, 1968.
8. Dunne, Gerald T. *Monetary Decisions of the Supreme Court*. New Brunswick, N. J.: Rutgers University Press, 1960.
9. Eliason, A. D. *The Rise of Commercial Banking Institutions in the United States*. New York: Burt Franklin, 1970.
10. *Federal Reserve Act as Amended Through 1976*. Washington: Board of Governors of the Federal Reserve System, 1976.
11. "Federal Reserve Act of 1913." In *First Annual Report of the Federal Reserve Board 1914*, pp. 25-44. Washington: Board of Governors of the Federal Reserve System, 1915.
12. Federal Reserve Committee on Branch, Group, and Chain Banking. "The Dual Banking System in the United States." Prepared for the Federal Reserve System. Washington: Federal Reserve Board, n.d.
13. Friedman, Milton, and Schwartz, Anna Jacobson. *A Monetary History of the United States 1867-1960*. Princeton : Princeton University Press, 1963.
14. Gilman, Theodore. *A Graded Banking System*. Boston and New York: Houghton Mifflin, 1898.
15. Glass, Carter. "Truth About the Federal Reserve System." Speech in the Senate of the United States, January 16-17, 1922.
16. Goodfriend, Marvin, and Hargraves, Monica. "A Historical Assessment of the Rationales and Functions of Reserve Requirements." *Economic Review*, Federal Reserve Bank of Richmond (March/April 1983).
17. Hammond, Bray. *Banks and Politics in America*. Princeton : Princeton University Press, 1957.
18. ———. "Free Banks and Corporations: The New York 'Free Banking Act of 1838.'" *Journal of Political Economy* 44 (April 1936).
19. Hedges, Joseph Edward. *Commercial Banking and the Stock Market Before 1863*. Baltimore: Johns Hopkins Press, 1938.
20. Helderman, Leonard C. *National and State Banks*, n.d.
21. Kennedy, Susan Estabrook. *The Banking Crisis of 1933*. Lexington, Ky.: University Press of Kentucky, 1973.
22. Kent, Raymond P. "Dual Banking Between the Two World Wars." In *Banking and Monetary Studies*. Edited by Deane Carson. Homewood, Ill.: Richard D. Irwin, 1963.
23. Knox, John Jay. *A History of Banking in the United States*. New York: Bradford Rhodes and Company, 1900.
24. Laughlin, J. Laurence. *The Federal Reserve Act: Its Origins and Problems*. New York: The Macmillan Company, 1933.
25. Mints, Loyd W. *A History of Banking Theory*. Chicago: University of Chicago Press, 1975.
26. *Original Acts Pertaining to National Banks in Chronological Order*, vol. 1. Washington: U. S. Comptroller of the Currency, n.d. (Processed.)

27. Peach, William N. *The Security Affiliates of National Banks*. Baltimore: Johns Hopkins Press, 1940.
28. Peltzman, Sam. "Toward a More General Theory of Economic Regulation." *Journal of Law and Economics* 19 (August 1976).
29. Perkins, Edwin J. "The Divorcement of Commercial and Investment Banking: A History." *The Banking Law Journal* 68 (June 1971).
30. Posner, Richard A. "Theories of Economic Regulation." *Bell Journal of Economics* 5 (Autumn 1974).
31. Redlich, Fritz. *The Molding of American Banking, Men and Ideas*. 2 vols. New York: Johnson Reprint Co., 1968.
32. *Report of the Secretary of the Treasury on the State of the Finances for the Year Ending June 30, 1861*. Washington : Government Printing Office, 1861.
33. Robertson, Ross M. *The Comptroller and Bank Supervision*. Washington: U. S. Comptroller of the Currency, 1968.
34. Rockoff, Hugh. *The Free Banking Era: A Re-Examination*. New York: Arno Press, 1975.
35. Rolnick, Arthur J., and Webber, Warren E. "New Evidence on the Free Banking Era." *American Economic Review*, 73 (December 1983).
36. ———. "The Causes of Free Bank Failures: A Detailed Examination." Federal Reserve Bank of Minneapolis, July 1983. (Mimeographed.)
37. Rothbard, Murray N. *The Panic of 1819: Reactions and Policies*. New York and London: Columbia University Press, 1962.
38. Schwartz, Anna J. "The Beginning of Competitive Banking in Philadelphia, 1782-1809." *The Journal of Political Economy* 55 (October 1947).
39. Short, Eugenie D., and O'Driscoll, Gerald P. Jr. "Deregulation and Deposit Insurance." *Economic Review*, Federal Reserve Bank of Dallas (September 1983).
40. Sprague, O. M. W. *History of Crises Under the National Banking System*. Prepared for the National Monetary Commission, 1910; reprint ed., New York: Augustus M. Kelley, 1968.
41. Stigler, George J. *The Citizen and the State: Essays on Regulation*. Chicago: University of Chicago Press, 1975.
42. Timberlake, Richard H., Jr. "The Central Banking Role of Clearing-House Associations," n.d. (Mimeographed.)
43. ———. *The Origins of Central Banking in the United States*. Cambridge : Harvard University Press, 1978.
44. U. S. Comptroller of the Currency. *Annual Report, December 1, 1924* Washington : Government Printing Office, 1924.
45. U. S. Congress. House. *Amendments to Federal Reserve Act*. H.R. Report 1026 to Accompany S. 5236, 65th Cong., 3rd sess., 1919.
46. ———. *Changes in the Banking and Currency System of the United States*. H.R. Report 69 to Accompany H.R. 7837, 63rd Cong., 1st sess., 1913.
47. U. S. National Monetary Commission. "Report of the National Monetary Commission," "Suggested Plan for Monetary Legislation," and "Suggested Plan for Monetary Legislation-Revised Edition." In *Publications of the National Monetary Commission*, vol. I. Washington: U. S. Government Printing Office, 1912.
48. Warburg, Paul M. *The Federal Reserve System, Its Origins and Growth*, vol. 1. New York: The Macmillan Company, 1930.
49. ———. "Political Pressure and the Future of the Federal Reserve System." In *The Federal Reserve System—Its Purposes and Work*. The American Academy of Political and Social Science Annals 99 (January 1922).
50. Warburton, Clark. *Depression, Inflation and Monetary Policy: Selected Papers, 1945-1953*. Baltimore: Johns Hopkins Press, 1966.
51. Welton, A. D. "The Reserve Act in Its Implicit Meaning." In *The Federal Reserve System—Its Purposes and Work*. The American Academy of Political and Social Science Annals 99 (January 1922).
52. West, Robert Craig. *Banking Reform and the Federal Reserve 1863-1923*. Ithaca : Cornell University Press, 1977.
53. ———. "Bank Regulation in the United States from the Colonial Period to the Present." Federal Reserve Bank of Kansas City, n.d. (Mimeographed.)
54. White, Eugene N. *The Regulation and Reform of the American Banking System, 1900-1929*. Princeton : Princeton University Press, 1983.
55. White, Horace. *Money and Banking*. Boston: Ginn and Company, 1935.
56. Willis, Henry Parker. *The Federal Reserve System*. New York: The Ronald Press Company, 1923.
57. Wyatt, Walter. "Constitutionality of Legislation Providing for a Unified Commercial Banking System for the United States." *Nineteenth Annual Report of the Federal Reserve Board, 1932*. Washington : Government Printing Office, 1933.

THE 1983 M1 SEASONAL FACTOR REVISIONS: AN ILLUSTRATION OF PROBLEMS THAT MAY ARISE IN USING SEASONALLY ADJUSTED DATA FOR POLICY PURPOSES

Timothy Q. Cook

I.

INTRODUCTION

Early each year the Federal Reserve uses the past year's data to revise the seasonal factors used to seasonally adjust the money stock. As shown in Table I, the 1984 revisions in the seasonal factors caused unusually large revisions in the seasonally adjusted 1983 monthly M1 growth rates for the second year in a row.^{1,2} In addition, the revisions shifted some of the growth in M1 in 1983 from the first to the second half of the year. Table I also shows that, with one exception, the effect of the 1984 revisions on the 1983 monthly growth rates was in the opposite direction from the effect of the 1983 revisions on the 1982 monthly growth rates.

The revisions in the 1983 seasonally adjusted M1 growth rates were of unusual interest because they influenced expectations regarding Federal Reserve behavior and the economy. In July 1983 the Fed had reset (or "rebased") the 1983 target range for M1 to run from the second quarter to the fourth quarter of the year. Originally the weak growth of M1 in late 1983 had caused it to fall to the lower end of the range, which contributed to expectations in some

quarters that the Fed would "ease" policy. The revisions lifted M1 to the midpoint of its range and altered expectations that such a policy move was imminent.^{3,4}

³The range for M1 from the second quarter to the fourth quarter was 5 to 9 percent. The money stock revisions raised the growth rate of M1 over this period from 5.5 to 7.2 percent. Most of the revision in the monthly growth rates of M1 was due to revisions in the seasonal factors. However, a portion (20 percent) was due to benchmark revisions in the unadjusted data.

*For example, "The money supply's faster growth reduces any incentive for the Fed to ease credit conditions, several analysts said" ("Interest Rates Rise as Analysts Worry that Fed Won't Be Loosening Reins Soon," Wall Street Journal, February 4, 1984, p. 45).

Table I
END-OF-YEAR REVISIONS OF SEASONALLY
ADJUSTED M1 GROWTH RATES DUE TO
SEASONAL FACTOR REVISIONS

	(percentage points)			
	Revisions in Monthly Growth Rates			
	1982	1983	Average Revisions in Monthly Growth Rates	
January	-1.3	4.1	1973	0.1
February	4.0	-7.8	1974	0.8
March	-1.1	-2.9	1975	2.3
April	-8.7	4.6	1976	0.4
May	10.9	-5.8	1977	2.3
June	4.1	-1.4	1978	1.3
July	3.0	-0.4	1979	2.2
August	-0.1	3.0	1980	1.7
September	-1.7	2.0	1981	2.0
October	-5.8	2.7	1982	3.9
November	-3.8	2.3	1983	3.1
December	1.8	-0.2		

¹The measure of the money stock discussed in this paper is the narrowly-defined M1, which includes currency, demand deposits, other checkable deposits, and nonbank travelers checks. There were also revisions in the broader measures of the money stock, M2 and M3. The formal position of the Federal Reserve in 1983 was that it was placing greater weight on M2 and M3 than on M1 for policy purposes. The focus on M1 in this article is not meant to imply anything about the weight placed on M1 versus the other monetary aggregates for policy purposes in 1983. Rather it reflects three other factors: (1) the revision in the level of M1 was by far the greatest relative to its target range and generated the most public interest; (2) the possible seasonal adjustment problems with M1 were a major concern in policy discussions at the Federal Reserve Bank of Richmond in the latter months of 1983; and (3) this paper evolved from those discussions.

²All growth rates referred to in the paper are on an annualized basis.

The seasonal factor revisions also influenced expectations concerning the near-term future course of the economy. Many economists place a high weight on changes in the growth rate of the money stock as a determinant of short-run economic activity. The M1 growth rate originally dropped from 14.1 percent over the six months ending May 1983 to 3.4 percent over the six months ending January 1984, causing fears of a recession in the first half of 1984.⁵ The money stock revisions reduced the deceleration in M1 from 12.7 percent in the six months ending May 1983 to 5.9 percent in the six months ending January 1984. According to press reports at the time, this lessened expectations of a deceleration in economic activity in 1984.⁶

Most importantly, the 1983 revisions are of interest because the underlying forces that caused them illustrate two major problems faced by monetary policymakers trying to use seasonally adjusted money stock data as a guide to policy: (1) changes in government regulations and policies can cause abrupt changes in the effect of a seasonal event (such as a holiday or a tax date) on the demand for money, and (2) the current year's seasonal factors may at times be inappropriately influenced by past movements in the money stock not related to seasonal events. The purpose of this article is to discuss the goal and possible pitfalls of using seasonally adjusted data as a guide to policy and to illustrate these pitfalls by examining two factors that contributed to the 1983 revisions.

II.

THE GOAL OF USING SEASONALLY ADJUSTED MONEY STOCK DATA FOR POLICY PURPOSES

It is widely believed that the monetary authority should focus on seasonally adjusted money stock data

⁵ See, Milton Friedman, "A Recession Warning," *Newsweek*, January 16, 1984, p. 68. Also, "More Analysts Doubt Consensus Prediction of Brisk 1984 Growth," *Wall Street Journal*, January 19, 1984, p. 1.

⁶ For example, "[Several analysts said] that the revised figures also should make Reagan Administration officials somewhat happier. Some administrative officials have voiced concern that the Fed was being too restrictive in its credit policy and that the money supply's slow growth since last July might produce a new recession sometime this year [1984]" ("Interest Rates Rise," *Wall Street Journal*, February 7, 1984, p. 45). Of course, the money supply decelerated sharply even with the revisions. Hence, concern regarding the likelihood of a recession persisted in some quarters. For example, see the comments by Anna Schwartz in "Bonds Continue to Fall on Expectations Fed's Tight Credit Grip May Last a While," *Wall Street Journal*, February 8, 1984, p. 47.

in order to reduce seasonal variations in interest rates.⁷ In discussing this goal, it is useful to focus on two behavioral relationships: the public's demand for money and the Federal Reserve's policy reaction function. The public's demand for money varies inversely with interest rates and positively with the volume of monetary transactions and has a random element that reflects movement in money demand not explainable by interest rates or transactions. The Federal Reserve reaction function links movements in various policy targets—such as the money stock or national income—to the Federal Reserve's policy instrument.⁸ For instance, when the money stock is growing at a greater-than-desired rate, the Federal Reserve might move its policy instrument in order to put upward pressure on the Federal funds rate and other short-term rates, which, in turn, would decrease the demand for money and bring the money stock back to its desired path.

In terms of the goal of eliminating seasonal movements in interest rates, an ideal seasonal adjustment procedure would have two features. First, it would construct seasonal factors that eliminate movements in the money stock due to the effect of seasonal events (i.e., events that recur at around the same time every year) on the demand for money. The major seasonal events that bring an increase in transactions are holidays (especially Christmas) and tax dates (especially April). The logic here is straightforward. The effect of these seasonal events on the demand for money is temporary. Hence, if the Federal Reserve initially reacts to them by moving its policy instrument in order to put upward pressure on the funds rate and other short-term rates, it will subsequently react by reversing this action. For instance, there is a huge seasonal increase in the demand for money in April to pay Federal income taxes. If the Federal Reserve reacted to this strength by moving its policy instrument in order to put upward pressure on short-term interest rates, this movement in rates would simply have to be reversed in May after the seasonal movement in the demand for money subsided.

⁷ See [1, pp. 37-39], [4, pp. 292-96] and [9, p. 1] for discussions of the goals and effects of seasonally adjusting the money stock.

⁸ The question of what is the Federal Reserve's policy instrument is purposefully left vague here for two reasons, which are discussed in Wallich [13]. First, over the years the policy instrument has changed (at different times it has been the Federal funds rate, the level of nonborrowed reserves, the level of borrowed reserves, etc.). Second, observers occasionally differ as to what term best describes the Federal Reserve's policy instrument at any point in time.

The second feature of an ideal seasonal adjustment procedure would be to avoid eliminating movement in the money stock not due to the effect of seasonal events on the demand for money. In particular, an ideal seasonal adjustment procedure would prevent the seasonal factors from being influenced by movement in the money stock of an apparent seasonal nature that is not due to seasonal events.⁹ Such movements could occur if (1) the random term in the money demand equation by chance temporarily has a seasonal pattern, or (2) the Federal Reserve reaction function by chance temporarily introduces seasonality into the Federal funds rate which in turn causes seasonality in the demand for money. The logic here is that seasonality in the money stock due to these forces will not be of a recurring nature. Hence, if the seasonal factors are changed to reflect these temporary forces, in subsequent years the Federal Reserve may react inappropriately to observed seasonally adjusted money. To see why, consider the following example. Suppose for some reason it happens that for two or three years in a row the Federal Reserve moves its policy instrument in a manner that puts downward pressure on the Federal funds rate and other short-term rates in the second half of the year, and as a result money grows more rapidly in the second half of the year than the first. If seasonal factors are constructed that eliminate this movement, then in subsequent years (i.e., after this intra-yearly pattern of short-term rates is no longer present) seasonally adjusted money growth will actually be inappropriately low in the second half of the year. In this case the Federal Reserve might react inappropriately to the perceived weakness in the money supply.

In practice, identifying whether movement in the money stock is in fact due to seasonal events can be very difficult. Although one can identify seasonal events fairly easily, their effect on the demand for money can change over time, sometimes abruptly. Government action as well as technological change can alter the seasonal demand for money related to any specific event. Consider, for example, the April tax date when the seasonal demand for money is positively related to the amount of nonwithheld Federal income taxes that have to be paid. Government action could increase the tax date effect on M1 by raising taxes, decrease its effect on M1 by increasing

⁹ Also, the ideal seasonal adjustment procedure would not allow one-time events, such as the 1980 credit controls, to be transmitted to the estimates of the seasonal factors. See [3, pp. 880-81] for a discussion of the effect of the credit controls on the money stock and the action taken to prevent it from distorting the seasonal factor estimates.

withholding of taxes at other times during the year, or change the timing of the effect by changing the tax date. Similarly, technological change could influence the seasonal movement in money by increasing the ease of substitution between M1 and other assets or by contributing to the development of new assets not included in M1 with transactions capabilities, such as money market funds.

The question remains: How well does the actual seasonal adjustment procedure incorporate the two features of an ideal seasonal adjustment procedure discussed above, and under what circumstances does the actual procedure depart from this ideal procedure? Prior to 1982, the money stock was seasonally adjusted using the X-11 seasonal adjustment program developed at the Bureau of the Census of the U.S. Commerce Department. Since then, the money stock has been seasonally adjusted with a variant of the X-11 procedure called X-11-ARIMA.

The X-11 program is essentially a ratio-to-moving average seasonal adjustment procedure.¹⁰ For a monthly series the basic steps of this procedure are (1) a 12-month centered moving average of the original series is constructed; (2) this centered average is then divided into the original series to get ratios (called seasonal-irregular ratios) for each month in the series; and (3) a moving average of these ratios is computed separately for each month (i.e., a separate average of the ratios for January, the ratios for February, etc.). This average is an estimate of the seasonal factor for each month. The use of a moving average of the ratios allows for a seasonal pattern that changes gradually over time.

The version of X-11 used to adjust the money stock data derives seasonal adjustment factors for each individual month in the series primarily from a weighted 7-term moving average of the ratios in the corresponding calendar months of surrounding years. For example, the adjustment factor for January 1980 is derived primarily from a weighted average of the January ratios for the years 1977-1983 inclusive. Where a month is in one of the terminal years of the series, the span of the moving average is reduced since data for a full centered 7-term moving average are not available.

¹⁰ This is a highly simplified description. For a detailed description of the procedure see Shiskin [11]. Lawler [S] contains a step-by-step summary of the X-11 seasonal adjustment of the money stock. Two more recent articles describing the X-11 and X-11-ARIMA procedures are Cleveland and Pierce [3] and Hein and Ott [5]. Cleveland and Pierce also give an excellent discussion of the work done by the staff of the Board of Governors on methods to improve the seasonal adjustment procedures.

The X-11-ARIMA modification of the X-11 procedure differs only in that it uses an ARIMA (autoregressive-integrated-moving-average) model to generate forecasts of future values of the money stock.¹¹ The forecasted values are then used to project the money stock series into the future, thereby enabling the same weights to be applied to this extended series as are applied to years when all the actual necessary data are available.

There are at least two major sets of circumstances under which this seasonal adjustment procedure departs from the requirements of the ideal procedure discussed above. First, seasonal factors will not fully adjust in one year to an abrupt change in the effect of a seasonal event on the demand for money. Of course, the seasonal factors will not reflect the change at all if it occurs in the current year. Second, the seasonal adjustment procedure can not effectively distinguish between movement in money due to seasonal events and movement of an apparent seasonal nature due to other factors. Hence, the possibility exists that the seasonal factors will at times be inappropriately affected by movements in money not due to seasonal events.^{12,13}

These two problems represent opposite extremes for the X-11 seasonal adjustment procedure. The procedure could deal more effectively with abrupt changes in the effect of seasonal events on the demand for money by shortening the number of years used to calculate a given year's seasonal factors. However, doing so would increase the risk that the seasonal factors would be influenced by movement in the

¹¹ This and other proposed modifications to the X-11 seasonal adjustment procedure are discussed in [9, Section 3].

¹² It should be emphasized that this discussion does not imply that there is some easy way to deal with these problems. Following the recommendation of the Committee of Experts on Seasonal Adjustment Techniques [8], a continuing research program on seasonal adjustment methods has been established at the Board of Governors. The Board's staff has studied numerous possible improvements in the seasonal adjustment process, one of which was the ARIMA modification to the basic X-11 model. (See [3].) Another recommendation of the Committee of Experts was to study "model-based" approaches to seasonal adjustment of the money stock which would in part relate the seasonal factors directly to seasonal events. The staff of the Board of Governors responded to this recommendation by developing an experimental model-based approach to construction of the seasonal factors [10]. There is some evidence that this procedure is better able to identify seasonal movement in money strictly due to seasonal events than is X-11. (See footnote 21 later in this article.)

¹³ A third problem, not discussed in this paper, is that there can be one-time events whose distortions are transmitted to the estimates of the seasonal factors (see footnote 9).

money stock due to policy or random events. Conversely, the risk of the seasonal factors being influenced by policy or random events could be reduced by lengthening the number of years used to calculate a given year's seasonal factors. But this would make the seasonal factors less responsive to abrupt changes in the influence of seasonal events on the demand for money.

In the remainder of this article it will be argued that the initial seasonally adjusted money stock data in 1983 were distorted by both of these problems. Section III will discuss an abrupt change in the effect of seasonal events on the demand for money caused by a change in government regulations. Section IV will discuss the possible impact on the original 1983 seasonal factors of past movements in money not due to seasonal events.

III.

AN ABRUPT CHANGE IN THE EFFECT OF A SEASONAL EVENT ON MONEY DEMAND: THE INTRODUCTION OF MONEY MARKET DEPOSIT ACCOUNTS

In December 1982, the money market deposit account (MMDA) was authorized by the Depository Institutions Deregulation Committee (DIDC). The principal features of the account were that it was not subject to an interest rate ceiling, it required an initial deposit and maintenance balance of at least \$2500, and depository institutions could not promise to pay any fixed or indexed rate for a period greater than a month. Also, MMDAs were allowed only three transactions by check per month. For this reason the expectation was that they would be treated by investors as "savings" rather than "transactions" accounts and they were not included in M1.¹⁴ This was similar to the decision that had been made in 1980 with respect to money market fund (MMF) shares, which were not included in M1 because most MMFs limit minimum check size to \$500 [12]. The expectation regarding the use of MMDAs for transactions purposes has proved correct: the turnover rate of MMDAs has been about three times per year, which is actually a little below that of regular savings deposits. Table II combines MMDAs with MMF shares to get a total measure of non-M1 accounts with some transaction capabilities. The table shows that

¹⁴ A second account, the "Super-NOW," introduced in January 1983, was allowed unlimited transactions and included in M1.

Table II

THE CHANGING COMPOSITION OF TRANSACTIONS AND SAVINGS ACCOUNTS

Asset	Amount Outstanding (\$ billions)						Turnover Rate*	Can Be Used Directly for Transactions	Included in M1	
	Nov. 1980	Apr. 1981	Nov. 1981	Apr. 1982	Nov. 1982	Apr. 1983				Nov. 1983
Demand deposits and other checkable deposits	297.7	306.6	309.9	318.4	338.9	354.2	371.0	35**	Yes	Yes
MMDAs and money fund shares (general purpose and broker/dealer)	62.1	94.3	143.0	161.8	190.8	489.6	511.7	about 3	Yes	No
Savings deposits	414.5	375.3	343.4	346.6	366.8	321.9	315.4	3 to 4	No	No

* Turnover rates are for consumer deposits.

** This estimate of the turnover rate on consumer demand deposits is from [12, p. 100].

by April 1983 the amount of these accounts outstanding was considerably greater than either transactions accounts included in M1 or regular savings accounts.

Despite their low turnover rate, MMDAs (and MMF shares) can be used just like regular savings deposits to cover large seasonal needs, such as tax payments in April and Christmas-related expenditures. Unlike regular savings deposits, however, these accounts can be used *directly* for seasonal transactions purposes, and this can reduce the seasonal use of M1 that normally occurs at the April tax date and at Christmas. The reasoning is as follows. Regular savings deposits have to be moved into transactions accounts before they can be used to cover seasonal transactions needs. Ordinarily, these funds are moved into demand deposits, which are included in M1. Consequently, unadjusted M1 rises before the April tax date and before Christmas and then subsequently falls. In contrast to savings deposits, MMDA and MMF accounts can be used at tax time and Christmas time without being moved into M1. To the extent this is done, it reduces the buildup and subsequent contraction of M1 deposits. Consequently, the greater the use of non-M1 transaction accounts to cover seasonal transaction needs, the smaller will be the amplitude of the cycle in unadjusted M1 for any given seasonal event. The possible effects of MMDAs and MMFs on the seasonal demand for M1 around the April tax date and Christmas in 1983 are considered below.

The April Experience

Because transactions related to the April tax date are concentrated over a very short period of time, it is possible—at least for 1983—to use weekly MMDA

and MMF data to illustrate the effect of the use of MMDAs and MMFs on the normal seasonal buildup in M1. The Treasury normally takes the week of the tax date (April 15) and the following two weeks to fully process and collect tax payments. Table III shows that changes in MMDAs and MMF shares the week including April 15 and the following two weeks were very low relative to the surrounding weeks. Since these three weeks coincide with the period in which transactions balances normally decline as the Treasury collects tax payments, it is reasonable to attribute the weakness in MMDAs and MMFs at this time to their use for tax payments.

Table III also shows a hypothetical path for MMDAs and MMF shares that would have occurred in the absence of the tax date. The path is based on the assumption that were it not for tax payments, weekly changes in MMDAs and MMF shares would have been at least equal to the smallest weekly change for the two weeks on either side of the three-week tax period. The total difference of \$8.8 billion between the hypothetical and actual paths of MMDAs and MMF shares is a very rough estimate of the extent to which these accounts were used for tax purposes.¹⁵ The total amount of nonwithheld indi-

¹⁵ This estimate does not imply that nothing else was affecting the weekly flows of MMDAs and MMF shares over the period shown in Table III, only that the weakness of each asset in the weeks from April 20 through May 4 relative to the surrounding weeks can be attributed to tax payments. A number of specific points related to this general comment are: (1) The weakness in MMF shares and the strength in MMDAs over the whole period shown in Table III reflects the movement of funds out of MMFs into MMDAs during this period. The estimate in the text abstracts from this movement by comparing the growth of each asset in the tax payment period to its own growth in the surrounding weeks. (2)

Table III

WEEKLY CHANGES IN MMDAs and MMF SHARES

(\$ billions)

1983	MMDAs			MMF Shares (general purpose and broker/dealer)		
	Actual	Hypothetical	Difference	Actual	Hypothetical	Difference
March 23	5.7			- 1.0		
March 30	4.0			- 1.6		
April 6	5.6			- 1.3		
April 13	5.7			- 1.6		
April 20	1.7	4.4	2.7	- 3.1	- 1.6	1.5
April 27	1.1	4.4	3.3	- 2.5	- 1.6	0.9
May 4	4.1	4.4	0.3	- 1.7	- 1.6	0.1
May 11	5.2			- 1.0		
May 18	4.4			- 0.1		
May 25	3.8			- 0.1		
June 1	3.0			- 0.2		

Note: Hypothetical path equals the smallest change for two weeks on either side of the three tax payment weeks.

vidual income tax payments in April and May of 1983 was \$33.1 billion. Hence, this estimate implies that about one-fourth of these payments were made with MMDAs and MMF shares.

This \$8.8 billion figure can be used to get a rough estimate of the effect of MMDAs and MMFs on the M1 growth rate in April. A dollar of funds that is moved into demand deposits to pay taxes stays there about one-half of a month.¹⁶ On the basis of this

estimate, MMDAs and MMFs together lowered the monthly average level of M1 in April by \$4.4 billion. If the assumption is made that the M1 seasonal factors had already fully captured the effect of the MMF shares outstanding in April 1982 (\$161.8 billion-or 33.0 percent of the April 1983 combined level of MMDAs and MMF shares), then the introduction of MMDAs lowered the seasonally adjusted level of M1 in April 1983 by \$2.9 billion and reduced the seasonally adjusted growth rate by 7.0 percentage points.

Christmas

A second major period of seasonal need for transactions funds occurs in the months preceding Christmas. Typically the monthly average level of unadjusted M1 begins to rise in September, peaks in December and then falls through February.¹⁷ Because of this pattern, the seasonal factors reduce the growth rate of M1 in the period from September through December and increase it in January and February.

Unlike the April tax date, when transactions are

Tax refunds may have been boosting MMDAs throughout this period, but there is no reason to believe they were boosting MMDAs in the tax payment weeks any less than in the surrounding weeks. (3) There may have been some buildup in MMDAs in early April for tax payment purposes. However, the use of a post-tax date week to get the hypothetical MMDA path should prevent this possibility from affecting the path. (4) The monthly flow of funds into IRAs in 1983 reached its peak in April. Growth in IRAs at commercial banks, thrift institutions, and MMFs was \$4.8 billion in April compared to an average 1983 monthly increase of \$2.0 billion. Some part of these funds probably came out of MMDAs and MMF shares at around the tax date. If so, the procedure used in the text may bias upward the estimated effect of these accounts on M1 growth. However, the increased IRA payments in April are small compared to the payments for nonwithheld taxes, so the bias should be small.

¹⁶ This estimate is based on the ratio of the strictly seasonal movement in M1 in April-calculated as the difference between the unadjusted and seasonally adjusted changes-to total nonwithheld individual income taxes in April and early May, which ranged from 46 to 51 percent in the years from 1976 through 1980. (The ratios in the years after 1980 are excluded because they were probably affected by the growth of MMFs.) While this estimate might seem high, it is evident from the weekly unadjusted data that the buildup in M1 starts well before the 15th and the contraction in M1 takes till the end of the month.

The slowness of the contraction in M1 following the tax date occurs because it takes the Treasury 2 to 3 weeks to process and collect all the tax payments. (The daily pattern of Treasury tax collections is available from the Daily Statement of the U. S. Treasury).

¹⁷ For more detail on the behavior of unadjusted M1 around Christmas see Broadus and Cook [2].

concentrated at one date, Christmas-related expenditures are distributed over a period of months, making it difficult to illustrate the use of these accounts at Christmas by looking at weekly data. Also, as noted above, MMDAs are limited to three transactions by check per month and most MMFs limit minimum check size to \$500. The April tax payment is ideally suited to these accounts since it involves only one large payment. In contrast, Christmas expenditures involve numerous smaller transactions, not all of which can be handled directly by these accounts because of the limitations on transactions. However, one can also use these accounts at Christmas indirectly by making numerous small expenditures with a credit card before Christmas and one large transaction in January with an MMDA or MMF account. To the extent that this was done, the use of MMFs and MMDAs to finance Christmas-related expenditures was spread out over an even longer period going well into January.

Tables IV and V present evidence that MMDAs and MMFs were used around Christmas for transactions purposes both directly and indirectly in conjunction with credit cards. Table IV shows that redemptions of MMDAs and MMF shares were high in both December and January. The high level of redemptions in January suggests that credit cards were in fact used in conjunction with MMDAs and

MMFs to circumvent the restrictions on the use of those accounts for transactions purposes. If this was the case, then revolving (i.e., credit card) installment credit (on a seasonally adjusted basis) should have grown relatively rapidly in the months prior to Christmas and then relatively weakly after Christmas as people wrote checks against their MMDA and MMF accounts. As shown in Table V, revolving installment credit grew at a much faster rate than non-revolving installment credit in the months prior to Christmas and at a much slower rate in January. From December to January the differential between the growth rate of revolving installment credit and other installment credit fell by 17 percentage points.¹⁸

Additional evidence on the possible effect of

¹⁸ A couple of caveats should be made about the interpretation of the differential between the growth rates of revolving and non-revolving installment credit. First, the monthly growth rates of revolving and non-revolving installment credit are volatile. There are other instances when this differential has fallen by as much as 17 percentage points, although not over the December-January period. Hence, the swing in this differential should only be viewed as consistent with-not proof-of-the position that credit cards were used in conjunction with MMDAs around Christmas. Second, the growth rates referred to are seasonally adjusted rates. If the seasonal pattern of revolving installment credit has changed around Christmas, then the revolving credit seasonal factors will change over time to reflect this. In future years the sharp drop in the differential between the growth rates of revolving and other installment credit from December to January will be eliminated. The situation is analogous to the impact of MMDAs on the M1 seasonal factors.

Table IV

REDEMPTIONS AND TURNOVER RATES OF MMDAs AND MMF SHARES

(\$ billions)

1983-1984	MMDAs			MMFs (excluding institutions-only)		
	Monthly Redemptions	Outstanding (monthly avg.)	Turnover Rate	Monthly Redemptions	Outstanding (average of end of current and previous months)	Turnover Rate
July	50.3	217.0	2.8	26.6	130.3	2.4
August	54.6	217.5	3.0	27.7	130.3	2.6
September	53.5	219.7	2.9	26.8	129.4	2.5
October	58.4	222.0	3.2	24.9	128.7	2.3
November	53.3	225.3	2.8	24.0	128.7	2.2
December	62.2	228.4	3.3	26.7	127.2	2.5
January	66.1	232.5	3.4	29.4	127.0	2.8
February	56.8	236.5	2.9	24.6	129.5	2.3

Source: MMDA data are from April 17, 1984 Federal Reserve Statistical Release G.6, "Debits and Deposit Turnover at Commercial Banks." MMF data are from various issues of Donoghue's Money Fund Report of Holliston, MA 01746.

Note: Turnover rate equals monthly redemptions multiplied by 12 and divided by amount outstanding.

Table V

THE BEHAVIOR OF REVOLVING CREDIT OVER THE 1983-84 M1 CHRISTMAS PERIOD

(seasonally adjusted)

	Revolving Installment Credit		Other Installment Credit		Difference
	Change in Outstanding (\$ millions)	Percentage Increase (SAAR)	Change in Outstanding (\$ millions)	Percentage Increase (SAAR)	(in percentage points)
July	821	14.8	4,019	16.7	- 1.9
August	313	5.6	3,075	12.6	- 7.0
September	479	8.5	1,896	7.7	0.8
October	1,145	20.1	3,740	15.1	5.0
November	1,300	22.5	3,371	13.4	9.1
December	1,720	29.3	4,890	19.3	10.0
January	504	8.4	3,996	15.4	- 7.0
February	1,270	20.9	5,340	20.5	0.4

Source: Federal Reserve Statistical Release G.19.

MMDAs and MMFs on M1 during the 1983-84 Christmas period comes from a comparison of the buildup and subsequent contraction in unadjusted M1 in 1983-84 to previous years. Table VI shows that in the five years before 1983-84 the growth rate of

unadjusted M1, net of trend, in the four months preceding Christmas averaged 12.5 percent. However, in 1983 the growth rate, net of trend, was only 10.9 percent. It is impossible to prove that this weakness in the pre-Christmas buildup of M1 was neces-

Table VI

CHRISTMAS M1 CYCLE

(annualized unadjusted growth rates)

	(1) August to February	(2) August to December	(3) December to February	(4) August to December Detrended (col. 2 - col. 1)	(5) December to February Detrended (col. 3 - col. 1)
1973-74	4.2	16.8	- 20.0	12.6	- 24.2
1974-75	1.6	15.5	- 24.8	13.9	- 26.4
1975-76	2.0	13.3	- 19.9	11.3	- 21.9
1976-77	5.2	17.5	- 18.3	12.3	- 23.5
1977-78	4.9	18.5	- 21.1	13.6	- 26.0
1978-79	2.6	17.6	- 25.9	15.0	- 28.5
1979-80	2.3	13.4	- 19.0	11.1	- 21.3
1980-81	3.1	15.3	- 20.2	12.2	- 23.3
1981-82	3.4	14.8	- 18.6	11.4	- 22.0
1982-83	11.6	24.2	- 12.7	12.6	- 24.3
Average 1973-78				12.7	- 24.4
Average 1978-83				12.5	- 23.9
1983-84	3.3	14.2	- 17.7	10.9	- 21.0

sarily due to MMDAs and MMFs. However, in conjunction with the redemption and revolving credit data this interpretation is certainly plausible.¹⁹

IV.

INAPPROPRIATE INFLUENCE ON SEASONAL FACTORS OF MOVEMENT IN MONEY NOT DUE TO SEASONAL EVENTS: THE CASE OF 1981-82

As noted in Section II, the current seasonal adjustment procedure can not effectively distinguish between movement in the money stock related to seasonal events and movement of an apparent seasonal nature resulting from other forces. An apparent seasonal pattern in money not related to seasonal events might occur for a number of reasons. One possibility would be that, for whatever reason, the Federal Reserve moved its policy instrument in a manner that caused the Federal funds rate and other short-term rates to move in a similar pattern over more than one year. This would tend to impart a seasonal influence on money (via the demand for money) which would influence the calculation of the seasonal factors. It appears likely that this phenomenon occurred over the 1981-82 period.

Chart 1 graphs the intra-yearly pattern of the Federal funds rate in 1981 and 1982. In both years the funds rate was at or close to its yearly high at around midyear and then fell sharply to its yearly low at year-end. In 1981 the funds rate fell from 19.04 percent in July to 12.37 percent in December, while in 1982 the funds rate fell from 14.15 percent in June to 8.95 percent in December.

In order to get a measure of the effect of movement in the funds rate on the intra-yearly pattern of the

¹⁹ A second factor that may have affected the pattern of M1 around Christmas is the increased share of other checkable deposits (OCDs) in M1. The argument would be that OCDs have a greater "savings" component than the rest of M1 (see [7]) and that therefore their inclusion in M1 should decrease the amplitude of the cycle in unadjusted M1 around Christmas. The seasonal behavior of OCDs is hard to assess because they have only been sizable since 1980-i.e., over four Christmas periods. Of these, the seasonal pattern of OCDs around Christmas was distorted by the introduction of nationwide NOW accounts in January 1981 and super-NOW accounts in January 1983. Furthermore, throughout the period there is a strong upward trend in OCDs. In the 1983-84 cycle the seasonal increase in OCDs does appear to have been weaker than the seasonal increase in the rest of M1. However, as shown in Table VI, the seasonal increase in M1 prior to Christmas in the three years before 1983-84 averaged 12.1 percentage points, which was considerably above the 1983-84 buildup. This suggests that another factor was at work in 1983-84.

demand for money, it is necessary to use the interest rate coefficients of a money demand equation. Chart 2 shows the intra-yearly pattern in money demand in 1981 and 1982 predicted by the movement in the funds rate in those years and the interest rate coefficients of the San Francisco Federal Reserve Bank's money demand equation [6].²⁰ The values in the chart are shown as deviations in billions of dollars from the average predicted level for each year and are solely dependent on interest rate movements (the procedure used to get these values is described in a note to the chart). A high value in a given month means that the current and lagged funds rate was causing the demand for money to be high in that month relative to the average level for the year. The latter five months of 1982 are extremely high relative to the rest of 1982. This pattern is also evident, but to a lesser degree, in 1981.

The relative strength of the series shown in Chart 2 in the latter months of 1981 and 1982 suggests that Federal Reserve policy may have introduced seasonality into the money stock in the 1981-82 period. Of course, this "policy-related" seasonality would

²⁰ Actually, the interest rate used in the San Francisco money demand equation is the six-month commercial paper rate, not the Federal funds rate. However, the two rates are very closely correlated over the 1981-82 period, as evidenced by a simple correlation coefficient of .94. Consequently, applying the San Francisco interest rate coefficients to the Federal funds rate gives a close approximation of the interest rate effect on the demand for money predicted by that equation.

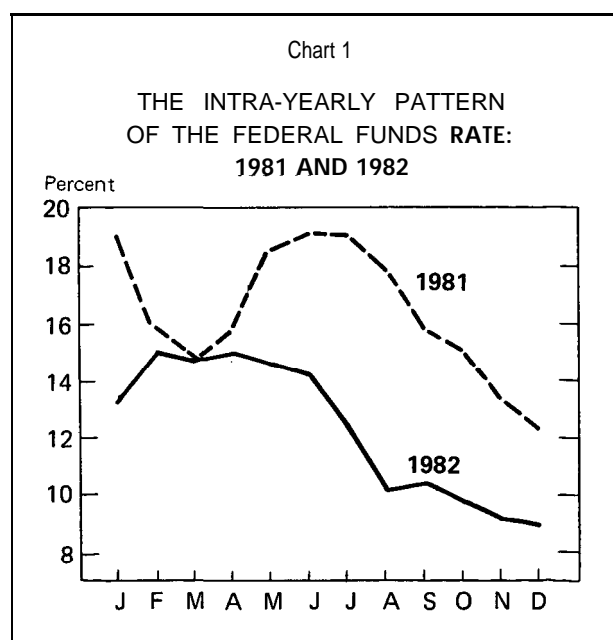
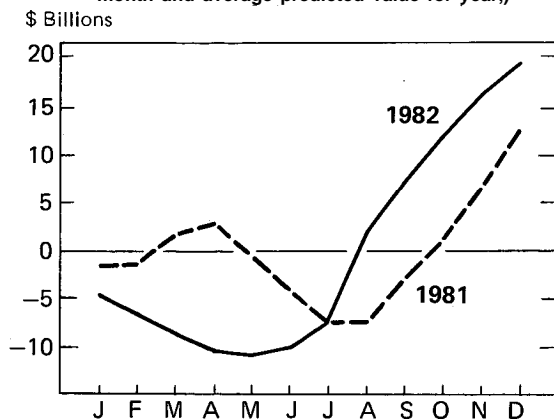


Chart 2

**ESTIMATE OF THE EFFECT OF
MOVEMENT IN THE FUNDS RATE
ON THE SEASONAL PATTERN
OF M1 IN 1981 AND 1982**

(Differences between predicted value for
month and average predicted value for year.)



Note: The estimates in this chart were calculated as follows:

1. Values for the interest rate effect (IE) on money demand were calculated for each month using the interest rate coefficients of the San Francisco Federal Reserve Bank's money demand equation (estimated with data from August 1976 through December 1981):

$$IE = -.059 \ln(RFF) - .041 \ln(RFF-1) \\ - .027 \ln(RFF-2) - .015 \ln(RFF-3) \\ - .007 \ln(RFF-4) - .002 \ln(RFF-5)$$

2. The predicted level of M1 each month was calculated by the equation

$$\ln(M1) = b + IE$$

where b is a constant set at a value (6.495) so that the average predicted level of M1 in the 1981-82 period would equal its actual average level. The effect of this simplification is to abstract from the impact on money demand of the other variables—personal income and changes in bank loans—in the San Francisco equation.

be a problem in interpreting the seasonally adjusted 1983 M1 data only if it influenced the calculation of the 1983 seasonal factors. However, given the nature of the X-11 seasonal adjustment procedure, it is reasonable to expect that the 1983 seasonal factors would, in fact, be affected by the increase in money demand resulting from the sharp decline in the funds rate in the latter months of 1981 and 1982.

A way to get a crude estimate of the possible effect of policy-related seasonality in 1981 and 1982 on the original seasonally adjusted growth rates of the money stock in 1983 is to compare these growth

rates to growth rates calculated using seasonal factors from the period before 1981 and 1982. This was done using the original seasonal factors for 1980. Over the five months ending in December 1983, M1 computed with the 1980 seasonal factors grew at an annual rate of 4.8 percent; this is 2.2 percentage points greater than the growth rate of M1 calculated with the original 1983 seasonal factors.²¹

This estimate of the effect of policy-related seasonality in 1981 and 1982 on the original seasonally adjusted M1 growth rate over the last five months of 1983 rests on the assumption that nothing else in 1981 and 1982 was changing the seasonal pattern of M1 in a way that would increase growth over that period relative to the first seven months of the year. Ultimately, perhaps the best test of whether policy-related seasonality in 1981 and 1982 distorted the original seasonally adjusted M1 data in 1983 is whether the seasonal factors eventually revert to their pre-1981 levels. The 1984 seasonal factor revisions, which provide some evidence on this point, are discussed below.

V.

THE 1984 SEASONAL FACTOR REVISIONS

Table VII summarizes the effect of the 1984 revisions in the seasonal factors on the 1983 M1 growth rates for the periods discussed in this article. The revisions lowered the April growth rate by 4.6 percentage points and raised the May growth rate by a comparable amount. The revisions raised the growth rate of M1 in the four months preceding Christmas by 1.7 percentage points and lowered the growth rate by 2.5 percentage points in the two months following Christmas. The revisions raised the growth rate of M1 by 2.0 percentage points over the last five months of the year. Also, as shown earlier in Table I, all but one of the revisions in the seasonally

²¹ An interesting question is whether the experimental model-based seasonal factors (see footnote 12) are less likely to be affected by policy-related seasonality than the X-11-ARIMA seasonal factors. The model-based seasonal factors have been published only since 1982. However, based on the 1982-83 experience, there is some evidence that they are superior in this regard. The early 1983 X-11-ARIMA seasonal factor revisions lowered the 1982 M1 growth rate from July to December by 1.9 percentage points, and then the early 1984 revisions raised the 1983 M1 growth rate over those months by 2.0 percentage points. In contrast, the early 1983 experimental model-based seasonal factors lowered the 1982 M1 growth rate from July through December by only 1.1 percentage points, and then the early 1984 revisions left the 1983 M1 growth rate over those months virtually unchanged.

Table VII

**REVISIONS IN 1983 SEASONALLY ADJUSTED
M1 GROWTH RATES DUE TO SEASONAL
FACTOR REVISIONS**

(annualized rates)

	Original Growth Rate	Revised Growth Rate (excluding benchmark)	Revision (percentage points)
April	- 2.7	1.9	+ 4.6
May	26.3	20.5	- 5.8
August to December	2.6	4.3	+ 1.7
December to February 1984	10.9	8.4	- 2.5
July to December	2.6	4.6	+ 2.0

source: Federal Reserve Statistical Release H.6 (February 10, 1984).

adjusted monthly growth rates were in the opposite direction of the early 1983 revisions of the 1982 growth rates.

Because of the very nature of the X-11-ARIMA seasonal adjustment procedure, it is impossible to positively identify what underlying development or developments caused the seasonal factors to change. However, the revisions are consistent with the hypotheses that (1) the introduction of MMDAs caused a change in the pattern of the demand for M1 around seasonal events and (2) the original 1983 seasonal factors were inappropriately influenced by policy-related seasonality in money demand in 1981 and 1982. (Although both developments relate in part to the last four or five months of the year and the upward revision in the, seasonally adjusted growth rate over this period may reflect one but not both of them.) The latter argument is also consistent with the fact that the revisions largely reversed the impact on the growth of M1 in the latter five months of the year caused by the early 1983 revisions.

VI.

CONCLUSIONS

The goal of focusing on seasonally adjusted money stock data for policy purposes is to reduce seasonal fluctuations in interest rates resulting from the impact of seasonal events on the demand for money. Given

the nature of the current seasonal adjustment procedure, there are at least two major types of circumstances that could hinder this objective. First, there can be abrupt changes in the impact of seasonal events on the demand for money that are not fully captured initially by the seasonal adjustment procedure. Second, the seasonal adjustment factors may be affected inappropriately by movement in money not due to seasonal events.

It appears likely that the original 1983 seasonally adjusted money stock data were influenced by both these circumstances. The introduction of MMDAs probably decreased the use of M1 balances at times of major seasonal transactions needs, such as the April tax date and Christmas. And the policy-related seasonality in the money stock in 1981-82 probably affected the original 1983 seasonal factors. While the nature of the X-11 seasonal adjustment procedure makes it impossible to say for sure what underlying developments caused the large revisions in the 1983 M1 seasonal factors, the revisions were consistent with the view that these two problems did affect the original seasonally adjusted M1 data.

The discussion in this article points out a potential hazard of resetting the money supply target at mid-year, as was done in 1983. The seasonal factors are calculated on a 12-month basis and seasonal factor problems frequently only become apparent as the year progresses. If annual targets are set, these problems simply wash out over the year. However, if the target is reset at midyear from a new base, the seasonal adjustment errors in the first half of the year are in effect built into the base of the new target.

As a final comment, there are two reasons to be optimistic that the problems in focusing on seasonally adjusted money stock data in coming years will not be as great as in 1983. First, it can be argued that difficulties in seasonally adjusting the money stock are most often associated with changes in government regulations and policies. The period from 1978 through 1983 included an extraordinary number of such changes, including some discussed in this paper (such as MMDAs) and others not discussed (the introduction of money market certificates in 1978, the October 1979 change in monetary policy operating strategy, the early 1981 introduction of nationwide NOW accounts, the 1980 credit controls). Many, if not most, of these developments were related to the deregulation of interest rates at depository institutions, which is a process that has largely been completed. Hence, this source of disruption to the seasonal pattern of M1 should be greatly diminished.

Second, the problems discussed in this paper relate

specifically to the current seasonal adjustment procedure (i.e., X-11-ARIMA). In accordance with the recommendations of the Committee of Experts on Seasonal Adjustment Techniques [9], a continuing research program on seasonal adjustment methods has been established at the Board of Governors [3]. There is reason to hope that the work being done by

the Board's staff will lead to a seasonal adjustment procedure that is better able to isolate the effect of seasonal events on the demand for money. In particular, model-based procedures that, at least in part, relate the construction of the seasonal factors directly to specific seasonal events may be fruitful in accomplishing this end.

References

1. Bach, George L., and others. *Improving the Monetary Aggregates*. Report of the Advisory Committee on Monetary Statistics. Washington : Board of Governors of the Federal Reserve System, June 1976.
2. Broadus, Alfred, and Timothy Q. Cook. "Some Factors Affecting Short-Run Growth Rates of the Money Supply." *Economic Review*, Federal Reserve Bank of Richmond (November/December 1977), pp. 2-18.
3. Cleveland, William P., and David A. Pierce. "Seasonal Adjustment Methods for the Monetary Aggregates." *Federal Reserve Bulletin* (December 1981), pp. 875-87.
4. Friedman, Milton, and Anna Jacobson Schwartz. *A Monetary History of the United States: 1867-1960*. Princeton : Princeton University Press, 1963.
5. Hein, Scott E., and Mack Ott. "Seasonally Adjusting Money: Procedures, Problems, Proposals." *Review*, Federal Reserve Bank of St. Louis (November 1983), pp. 15-26.
6. Judd, John P. "The Recent Decline in Velocity: Instability in Money Demand or Inflation?" *Economic Review*, Federal Reserve Bank of San Francisco (Spring 1983), pp. 12-18.
7. Krieger, Sandra C. "NOW Accounts and the Seasonal Adjustment of M1." *Quarterly Review*, Federal Reserve Bank of New York (Winter 1983-84), pp. 66-67.
8. Lawler, Thomas A. "Seasonal Adjustment of the Money Stock : Problems and Policy Implications." *Economic Review*, Federal Reserve Bank of Richmond (November/December 1977), pp. 19-27.
9. Moore, Geoffrey, and others. *Seasonal Adjustment of the Monetary Aggregates*. Report of the Committee of Experts on Seasonal Adjustment Techniques. Washington: Board of Governors of the Federal Reserve System, 1981.
10. Pierce, David A.; Michael R. Grupe; and William P. Cleveland. *Seasonal Adjustment of the Weekly Monetary Aggregates: A Model-based Approach*. Staff Studies 125. Washington, D. C.: Board of Governors of the Federal Reserve System, August 1983.
11. Shiskin, Julius; Allan H. Young; and John C. Musgrave. *The X-11 Variant of the Census Method II Seasonal Adjustment Program*. U. S. Department of Commerce, Bureau of the Census, Technical Paper No. 15. Washington, D. C.: Government Printing Office, 1967.
12. Simpson, Thomas D. "The Redefined Monetary Aggregates." *Federal Reserve Bulletin* (February 1980), pp. 97-114.
13. Wallich, Henry C. "Recent Techniques of Monetary Policy." Processed. Speech delivered at the Midwest Finance Association, April 5, 1984.