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On the Origins of the Federal Reserve System and Its Structure*

“If the currency conditions of this country are not changed materially, I predict ... a panic in this country as to make all previous panics look like child’s play.”

Jacob Schiff, Wall Street banker
January 4, 1906

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July 23, 2023

ABSTRACT: The creation of the Federal Reserve System ultimately stemmed from fundamental changes in the banking industry that heightened the risks associated with shifts in the public’s liquidity preferences and that created an atmosphere of distrust between the small, traditional, country banks and the large, transforming, Wall Street banks. The severity of the Panic of 1907 became the proximate factor in the Federal Reserve’s formation. The panic, which the New York Clearing House’s slow, discriminative, and insufficient response characterized, gave credence to concerns of growing financial risks and invigorated calls for reform. The Federal Reserve’s unique structure reflects compromises reached in attempts to dampen the risks in the banking industry while easing the distrust and fears of dominance among its various stakeholders.

Keywords: Inelastic/Elastic Currency, New York Clearing House, Reserve pyramiding, Panic of 1907, Aldrich Plan, Federal Reserve Act, Reserve Bank Organization Committee

JEL Classification Codes: E58, N20.

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Introduction

On the south-facing side of the Federal Reserve Bank of Cleveland sits a large bronze statue, *Energy in Repose*, a fitting symbol for the Federal Reserve System as its framers originally envisioned it. The Federal Reserve's power, while generally in repose, was to offer an ongoing sense of security to the banking community and to the economy at large; its energy, if called upon, would provide the nation a means with which to smooth disruptive seasonal shifts in the public's liquidity preferences and to confront destructive and all-too-common financial crises. Like its predecessors, the first Bank of the United States (1791-1811) and the second Bank of the United States (1816 -1836), the Federal Reserve System ultimately derives its "power" from the US Constitution, which gives Congress the authority "to coin Money, [and] regulate the Value thereof" and to create a central bank as "necessary and proper" for "carrying into Execution" its monetary powers.¹ Alexander Hamilton first affirmed this authority in 1791 when he defended his proposal for the first Bank of the United States.

Neither of the Federal Reserve's central bank predecessors survived more than 20 years. Congress chartered each of those banks, which it patterned on the Bank of England, as a for-profit, private bank in which the federal government maintained a 20 percent equity share.² Both central banks could make loans, hold deposits, issue their own bank notes, and establish branches. In doing so, they competed with the other banks of the day, all of which held state charters. The Banks of the United States also provided banking services to the federal government. Each remained the government's sole depository; each provided collection and disbursement facilities, and each extended temporary loans to the government. As the federal depositories, these central banks acquired myriad state-bank notes that the federal government received in payment for taxes and other dues. The Banks of the United States redeemed these notes for specie, ideally to prevent their over-issue and to maintain a stable currency, but in doing so, they drew reserves out of state banks and reduced the latter's ability to extend credit, issue notes, and earn profits. The increasingly influential state banks charged that they faced unfair competition from these special-privilege, monopolistic, and unnecessary central banks, often seasoning their complaints with irrelevant claims of unconstitutionality and foreign

¹ United States Constitution, Article 1, Section 8.

² The United States sold its shares in the first Bank of the United States in 1802 for a substantial profit.

ownership. Amid such pressure, Congress terminated the charters of America's first two central banks.³

The experiences of the first and second Bank of United States left the term "central bank" redolent of monopoly and special privilege; it became a word and a concept to be avoided. Between 1836 and 1913, the United States had no central bank. Even during the Civil War, when a central bank might have eased the Union's financial woes, rarely did anyone broach the idea. Periodic and sometimes severe banking problems did occur during subsequent years, but, all in all, a laissez-faire spirit prevailed until the turn of the century when risky structural developments within the banking industry and growing regional distrust produced calls for reform.

Beginning around the 1890s, America witnessed a wave of corporate consolidation that investment bankers such as J. P. Morgan facilitated to their great gain. These mergers looked to stabilize corporate earnings by reducing competition, which, according to the industrialists and their bankers led to chronic overproduction, forced prices down, and reduced profits below remunerative levels.⁴ Many of these firms had moved their headquarters to New York City, the nation's commercial and financial hub.⁵ As these events unfolded, several of the nation's largest national banks—particularly those in New York City—began blurring the traditional line between commercial and investment banking through mergers, acquisitions, and the formation of holding companies. Doing so allowed them to acquire less-regulated, rapidly expanding state-chartered banks and trust companies—formidable competitors on their own—and, thereby, to enter lines of business that their national charters ostensibly precluded.⁶ The banks "developed a corporate clientele that [they] helped to finance by creating and selling securities."⁷ The arrangements created a risky relationship between the stock market and the portfolios of these large New York banks.⁸ Many of these same banks also held a substantial portion of the nation's

³ George Clinton, the vice president, cast the deciding vote to terminate the first Bank of the United States. Congress approved the renewal of the second Bank of United States' charter, but could not overcome President Jackson's veto.

⁴ Livingston (1986, 51-67).

⁵ Standard Oil, for example, moved its headquarters from Cleveland to New York in 1885.

⁶ See Redlich (2012, 388-96). In 1863 and 1864, the federal government attempted to force all banks into national charters. After some initial success, the attempt failed, and by 1906, the country had 9,604 state banks and 6,053 national banks. Data from Grossman (2008).

⁷ McCulley (1992, 90).

⁸ McCulley (1992, 101).

banking reserves, leaving many of the country's banks vulnerable to the balance-sheet decisions of the large Wall Street banks and to the crisis response of their all-important clearing house. The nation, otherwise, lacked a credible mechanism to accommodate rapid shifts in the public's liquidity preferences, which characterized financial crises. As these structural changes progressed, an atmosphere of distrust enveloped the banking sector, pitting the small, mostly western, commercial banks against their large eastern contemporaries.

The Panic of 1907 confirmed the worst fears of many bankers, both those in the interior and those in New York City, and invigorated a mounting movement for a remedy. The operational aspects of reform were largely uncontroversial; it required pooling of the nation's reserves in a bankers' bank capable of lending them at a penalty rate when necessary against the safe short-term commercial paper that banks typically held. The organizational problem, however, became paramount in subsequent debates; the interior banks feared that the powerful and freewheeling Wall Street banks might dominate any reformed structure, and the growing Progressive movement demanded government regulation instead of the bankers' control. This paper describes how these structural changes, the Panic of 1907, the ensuing debates, and the compromises they necessitated created the Federal Reserve System and its, then unique, structure. To put the reform movement in clear perspective, this paper begins with an explanation of the currency problem that the System's founders sought to solve and the banking environment they hoped to modify.

An Elastic Currency

When passing the Federal Reserve Act in 1913, Congress primarily intended "to furnish an elastic currency," one that could accommodate the public's desire to shift funds rapidly between bank deposits and currency without adversely affecting the nation's money stock.⁹ Although shifts in either direction—deposits to cash or cash to deposits—could create monetary unpleasantries, during the national bank era (1863-1913), problems mainly manifested themselves, often with serious economic consequences, when the public elected to hold cash instead of deposits. Banks could accommodate the public's liquidity preferences by paying out

⁹ The original Federal Reserve Act, which appears in Board of Governors (1915, 25-44), also intended "to afford means of rediscounting commercial paper, to establish a more effective supervision of banking, and for other purposes." See Broz (1997) for an alternative perspective on the Federal Reserve's origins. On the definition of an elastic currency, see Friedman and Schwartz (1963, 169-70).

reserves—funds that they held specifically for that very purpose—but banks operate with reserves equal to only a fraction of their deposits, and often their charters or state law mandated that they maintain that fraction.¹⁰ Paying out reserves under a fractional-reserve system could force a multiple reduction in deposits and a corresponding cutback in loans or the rapid sale of other assets unless banks held more reserves than legally required. Banks, particularly by the turn of the century, generally avoided keeping a surfeit. A bank with no excess reserves and a 20 percent reserve requirement would have to reduce deposits by as much as five dollars for every dollar of reserves that it paid out to its customers. As the ratio of deposits to currency fell, the total stock of money declined, interest rates rose, intermediation faltered, prices weakened, and the business climate soured.

The banking sector as a whole could accommodate a rise in the public's liquidity preferences, while maintaining bank credit and avoiding any adverse economic consequences, if it could expand its reserve base, but little scope for that existed prior to the Federal Reserve System. The assets that fulfilled both banks' legal reserve requirements and the public's liquidity needs consisted of gold coins, silver dollars, fractional silver coins, legal tender notes, US gold and silver certificates, and national bank notes, but none of these was particularly "elastic" of its own accord.¹¹ The United States was on the gold standard, which theoretically made that metal the nation's key source of reserves.¹² When interest rates rose and prices fell in the United States relative to those in other gold-standard countries, arbitrage opportunities encouraged an inflow of gold from abroad, but such an ex post response could not accommodate inchoate shifts in the public's liquidity preferences. (Banks that held gold deposits or had a line of credit in gold with foreign correspondents could ship the metal home within about a week.) Silver was abundant, but Congress repealed the Sherman Silver Purchase Act in 1893 thus limiting silver-based

¹⁰ Unless the term is modified, I use "bank" to refer to any institution that accepted deposits and engaged in financial intermediation.

¹¹ The first five elements are "lawful money" that national banks could count as vault cash. State banks generally counted lawful money as vault cash and, often, national bank notes. (Friedman and Schwartz 1963, 781). National banks could also count "bills of other banks." National bank notes were not legal tender, but all national banks had to accept them; so national banks undoubtedly paid them out to customers. Trade dollars and US certificates of deposits could also count as vault cash, but they were not legal tender, and few customers were likely to accept them (Friedman and Schwartz 1963, 145).

¹² On the classical gold standard (1880-1914), see Bordo (1981).

currencies.¹³ Similarly, Congress had fixed the circulation of legal tender United States notes (greenbacks) in 1878. National bank notes required the backing of US bonds deposited as collateral with the Treasury.¹⁴ Since the late 1870s, the market value of the eligible bonds had often traded sufficiently above their par value to make it more profitable for banks to recall their notes, return them to the Treasury for their bonds, and sell the bonds than to keep their notes in circulation. Consequently, national bank notes accounted for only 12 percent of the increase in total circulation since 1879, and most of that had occurred only since 1900. About the only way banks with dwindling reserves could accommodate their customers' demands for currency was to borrow from banks with a surplus of funds.¹⁵

The nation's elasticity problem, specifically its inability to accommodate shifts from deposits to currency, created seasonal stringencies in money markets and intensified the nation's discomfortingly frequent banking panics. The severity and consequences of the problem seemed to worsen as the banking sector evolved under the National Bank Act of 1864, but one consistent and critical factor during the era, the "pyramiding" of reserves in New York City, clearly exacerbated the problem.

As early as the 1820s, banks in the nation's interior began maintaining accounts—bankers' balances—with their larger counterparts in eastern commercial centers, particularly in New York City, then rapidly emerging as the nation's center for commercial and financial activity.¹⁶ Regional trade patterns—agricultural and raw materials from the west for finished goods from the east—left banks in both regions accumulating notes from the other. Ensuing correspondent relationships, in which interior, often rural, banks held accounts with the larger eastern banks, enabled the interior banks to convert their notes into local currencies or redeem

¹³ The Gold Act of 1900 mandated the replacement of any currently circulating Treasury (or coin) notes, which the Sherman Silver Act had authorized, with silver dollars (*Statutes at Large*, 51st Congress, 1st Session. 14 March 1900. Chap. 41, 45).

¹⁴ National banks could issue notes equal to 90 percent of the market or par value, whichever was less, of the US bonds that the Treasury required as collateral against their notes. Banks had to deposit these bonds at the Treasury. The amount, however, could not exceed any bank's paid-in capital.

¹⁵ The US Treasury could increase reserves in the banking system to a limited degree by allowing receipts to accumulate in its bank deposits, by purchasing callable bonds, or by paying cash for—instead of rolling over—maturing securities.

¹⁶ Weber (2006, Table 1, 35) counts more than 1500 commercial banks and branches operating in the United States by 1860. Each held a state charter, and nearly all issued unique bank notes redeemable at par for specie at the issuing bank's home office. These notes typically traded at a discount from their face value the farther they traveled from the bank of issue. The discount reflected both the costs of redemption and judgements about the likelihood that the issuer would default.

them for specie at, or closer to, their par values than otherwise would have been possible. The connections gave the smaller interior banks better access to profitable and safe investments, such as the commercial paper of well-established east coast merchants, and often enabled these banks, when squeezed for liquidity, to borrow from their correspondents. These associations frequently allowed small banks to reduce their own vault-cash reserves, which earned no interest, because local merchants who bought eastern goods frequently preferred claims on their New York bankers' balances to bulky specie.¹⁷ So lucrative were bankers' balances to the interior banks that they typically transferred any excess reserves they accumulated to their correspondents in New York. In acknowledgement of the liquid, reserve-like quality of these bankers' balances, some states permitted their banks to count them in partial fulfillment of their legal reserve requirements. In 1851, for example, Ohio allowed its state-chartered banks to count their bankers' balances against half of their reserve requirements.¹⁸

The National Bank Act of 1864, which sought to bring the nation's state-chartered banks under federal charters and regulation, encouraged the accumulation of reserves in New York City.¹⁹ The initial act of 1863 had elicited faint interest among the banks. Almost all of those that took up national charters were new banks; few existing banks converted from their state charters. The preponderance consisted of small institutions located in the western states and seemed inconsequential to the administration's long-term plans. Treasury Secretary Salmon P. Chase and Comptroller of the Currency Hugh McCulloch feared that the program would fail without the participation of the large New York banks. To entice them into federal charters, the National Bank Act of 1864 contained provisions that essentially required the accumulation of bankers' balances in that city. The law allowed banks in the small, mostly rural, cities and towns—eventually designated country banks—to keep 60 percent of their required reserves as bankers' balances with national banks in a select set of larger cities, eventually known as reserve city banks. Cleveland and Cincinnati were among the favored locations.²⁰ That meant that country

¹⁷ "Specie" refers to gold or silver coin. By the late 1830s, the United States was on a de facto gold standard, so then the term implied gold coin.

¹⁸ Myers (1931, 107).

¹⁹ Both of the National Bank Acts also attempted to get state-chartered banks to issue a uniform set of national-bank notes, instead of the existing array of various state-bank notes. A subsequent 10 percent tax succeeded in driving state-bank notes out of existence.

²⁰ The National Bank Act of 1863 did not include Cleveland among the list of reserve cities, which may suggest the relative importance of the banking and financial markets in Cleveland and Cincinnati during the Civil War.

banks only had to keep on hand reserves of ready cash equal to 6 percent of their deposits. Similarly, reserve city banks could hold half of their required reserves as bankers' balances in national banks located in New York, eventually called central reserve city banks. In 1887, Chicago and St. Louis earned the designation central reserve cities, but New York continued to maintain the lion's share of bankers' balances. In 1910, for example, the New York banks held nearly 70 percent of all bankers' balances placed in central reserve city banks.²¹ In addition to congregating in New York, bankers' balances were concentrated in just a few of the large banks in that city.

These correspondent relationships also proved profitable to the New York banks. They usually lent any amount in excess of their reserve requirements on these deposits in the call-loan market, which generally consisted of stock and bond brokers who put up securities that they had previously purchased as collateral for the loans.²² These loans matured at the end of the business day, but as the name implies, the banks could "call" these loans back—require repayment—at any time. Call loans remained relatively safe in normal times and highly profitable, so much so, that several large New York banks offered interest on their bankers' balances in a bid to attract the lucrative funds. Many bankers maintained that doing so was unnecessary and potentially dangerous, and that it did not lure more reserves into the city, but only allocated the reserves among the banks.²³ While the practice of paying interest became highly controversial, attempts to preclude it repeatedly failed.

The accumulation of bankers' balances in New York City left a large portion of the nation's bank reserves subject to the management decisions of relatively few bank officials, and those decisions could affect nearly all banks' ability to respond to difficult situations. The dependency grew progressively more critical as the configuration of banks' balance sheets changed over the years. The ratio of bank deposits to currency in the nation rose from two to one in 1879 to six to one in 1907. Over the same period, both the country and reserve city national banks began reducing their excess reserves. They mainly did this by cutting the amounts of cash in their vaults, which earned no interest, to the minimum while keeping most of their remaining excess reserves as bankers' balances with New York correspondents. After 1900, even the New

²¹ Based on data from Myers (1931, 241).

²² Trust companies made call loans *without* requiring collateral. As Moen and Tallman (2015b) explain, brokers could then use these trust-financed securities as collateral for call loans from banks.

²³ Myers (1931, 249).

York banks, which traditionally maintained relatively few excess reserves, began trimming theirs even closer to the minimum. As a consequence, the ratio of bank deposits to vault cash rose from a little more than four to one in 1879 to nearly nine to one in 1907. These developments left the banking system increasingly vulnerable to shifts in the public's liquidity preferences and effectively shortened the reflex time between the interior banks and their correspondents when seasonal factors or deteriorating financial situations induced shifts in the public's liquidity preferences.²⁴

Roughly from August through November each year, as farmers harvested crops and local merchants shipped them east, they required extra cash to meet the associated expenses and drew on their community bank deposits. Similarly, but to a much lesser extent, farmers sought additional currency during the spring planting season.²⁵ In response, the country banks drew down their bankers' balances in the reserve city and central reserve city banks, particularly those in New York City. Western farmers and businessmen relied heavily on cash, instead of checks, for making payments especially during harvest time.²⁶ Money then became tight in financial centers and interest rates rose. Banks anticipated and adapted to the seasonal demand for currency and accommodated the associated monetary stringencies with moderate—but annoying—inconvenience by reducing their loans, notably their call loans. Often the Treasury, which also anticipated these seasonal stringencies, helped out by allowing tax revenue to accumulate in national banks, pre-paying interest on government bonds, or buying publicly held US bonds. At other times during the year, as deposits flowed back, money became abundant, often significantly more so than required for normal business needs. The funds poured into the call-loan market, which, many believed, encouraged speculation and drove up prices in general.²⁷

In addition to these seasonal stringencies, the post-bellum economy experienced frequent banking panics, a situation in which depositors attempted en masse to withdraw funds from

²⁴ The data in this paragraph are from Myers (1931, 236) and Friedman and Schwartz (1963, 164-65).

²⁵ On the seasonal pattern, see Myers (1931, 261). She reports (262) that by the early twentieth century, the spring demand for currency had shrunk to a matter of a few weeks each April.

²⁶ Goodhart (1969) offers a balance-of-trade explanation for the seasonal pattern. During harvest time, the west had a trade surplus accommodated with an inflow of funds. During the rest of the year, the west maintains a trade deficit and an outflow of funds.

²⁷ See Timberlake (1984, 35-6).

banks, forcing the latter to suspend their payments of currency for deposits.²⁸ These crises generally occurred during the contraction phase of the business cycle, particularly ones on the heels of credit booms during which banks had liberally extended loans. Not surprisingly, most panics happened during the crop-moving season when money had already become tight.²⁹ Panics reflected an asymmetric information problem: depositors frequently had incomplete information about the condition of their banks' balance sheets; they could not always assess the banks' ability to meet their deposit liabilities. This information deficiency became particularly critical when a whiff of financial problems was in the air and publicly available information about individual banks disappeared (see below). Then, depositors relied on observable business information. As they watched the strains on local non-bank businesses mount, depositors grew wary about the soundness of the banks that had lent to them and, consequently, about the safety of their funds. When this uncertainty reached a critical peak—perhaps as triggered by budding business failures, sliding stock prices, or an initial closing of a financial institution—it sparked a banking panic. Western banks, fearful for the substantial portion of their own reserves that they held as bankers' balances, consistently constituted the leading source of the deposit runs on the large New York banks. In these attempts to acquire cash, depositors often failed to distinguish between clearly weak and fundamentally strong banks; a “contagion of fear” could motivate them.³⁰ Consequently, all banks faced some risk. If banks lacked or could not quickly obtain sufficient reserves to meet the public's demands for liquidity, they had to suspend the conversions of their customers' deposits into cash. Suspensions typically were partial; customers could generally get some cash from their banks. Suspension could also have legal ramifications, including closing or the termination of charters. Banking regulators, however, typically showed leniency during general banking crises.³¹ In such situations, banks that became insolvent closed and left the fate of their depositors to the sale of the banks' assets. Although banking crises generally developed during the contraction phase of the business cycle, their consequent disruption of the

²⁸ This paragraph draws primarily on Gorton (1985, 1988), Grossman (2008, 54-56), Gorton and Tallman (2018, 26-36).

²⁹ Hanes and Rhode (2013) find that poor cotton harvests led to most of the financial crises between 1879 and 1913. They find, however, that the Panic of 1907 was not one of them.

³⁰ Friedman and Schwartz (1963, 308).

³¹ Legal reserve ratios present an irony. They forced banks to hold reserves to meet customers' demands for cash, but in panic situations, the banks that drew their reserves below the required ratio for more than a short period of time could face legal problems and possibly lose their charters. Some reformers argued for flexibility.

intermediation process made any business contraction substantially worse. Consequently, banks naturally saw working together as in their mutual interests; this they attempted to do through their clearing houses.

Clearing Houses

In 1853, the New York banks established a clearing house, the first such institution in the United States, to economize on the clearing of checks and other short-term claims that one bank held against the others.³² By then, the use of checks had become a major means of payment, but unlike bank notes, checks rarely circulated. Prior to the clearing house, banks had to settle such claims on a bilateral basis, which was time consuming and expensive.³³ Clearing houses collected their members' claims on a daily basis, netted them out, and facilitated final settlements between those banks in a net debtor position and those with creditor status. Usually, they did so with clearing house certificates, which were surrogates of specie and any other types of "lawful money" deposited with the clearing house. Banks in other cities also began establishing clearing houses, but the New York Clearing House remained the first among equals because of the huge volume of funds kept in that city. The largest banks in the country were members of the New York Clearing House. After the Bank Act of 1864, the most prominent clearing house members held national charters, but state-chartered banks could also become clearing house members. The New York Clearing House, however, precluded trust companies from membership. Both state-chartered banks and trust companies operated in less rigorous regulatory environments than national banks and generally held fewer reserves, especially the trusts, which were growing rapidly and competing fiercely with the national banks. By 1903, the New York City trusts had assets on par with the New York City national banks.³⁴ Trusts took deposits, acted much like banks, and profitably served as intermediaries for a segment of the investment market, in which national banks could not participate. National banks, however, were often affiliated with trust companies. Prior to 1903, trust companies in New York, like non-member state-chartered banks, could clear through clearing house members. In that year, the New York Clearing House

³² This section draws on Timberlake (1984), Gorton (1985), Gorton and Mullineaux (1987), and Gorton and Tallman (2018, 12-25) for information about clearing houses.

³³ Hammond (1957, 705) reports that New York City had 60 banks in 1853. This suggests that clearing could involve as many as 1,770 bilateral transactions. A clearing house could reduce this to 60, one for each bank. On other problems that bilateral clearing posed, see Myers (1931, 94-95).

³⁴ Tallman and Moen (1995, 2).

required trusts to maintain reserves with the clearing house if they continued to clear through a member bank. Most trusts subsequently dropped their arrangements with their clearing house members because the volume of the trusts' clearings was small and not worth the cost of idling reserves.³⁵ Other clearing houses across the nation, notably Chicago's, did not duplicate New York's treatment of their trust companies.³⁶ They seemed to appreciate fully the dangerous dependency that existed among all deposit-holding financial firms.

Banks seeking clearing house membership had to pass an examination of their books and receive the approval of the existing members. Clearing houses routinely monitored their members, often requiring the public posting of critical balance-sheet information. In addition, the clearing house regulated various bank operations and examined member banks whenever it felt that doing so was necessary. In this and other respects, clearing houses acted like central banks. Membership in the clearing house imposed the imprimatur of financial probity on its membership; consequently, the threat of expulsion proved sufficient to maintain conformity to clearing house rules.

With information on member banks and regulatory powers over them, clearing houses could quickly respond, much like central banks, in crisis situations. During a banking panic or if one seemed imminent, the clearing houses immediately suppressed the publicized balance-sheet information of its individual members and, instead, issued the same information for the clearing house as a whole, the aggregate of its members. Subject to its membership's approval and accompanied with a public announcement, the clearing house then issued a fixed amount of clearing house loan certificates, which member banks could use, if necessary, in the clearing process to settle amounts due to other members. All member banks agreed to accept the loan certificates in lieu of cash. Settling in loan certificates allowed members to conserve reserves in the clearing process and devote them to meeting their customers' cash demands, hopefully, without having to cut their lending.³⁷

To acquire the loan certificates, members had to put up collateral with the clearing house, typically commercial paper or other safe, liquid short-term instruments. After applying a substantial haircut—around 25 percent—the clearing house issued loan certificates to the

³⁵ Moen and Tallman (2000, 148-49).

³⁶ See Tallman and Moen (1995) and Moen and Tallman (1999, 2000).

³⁷ Moen and Tallman (2015a, 124) suggest that "a frequent criticism of" clearing house loan certificate "issues as a solution to panics ... is that the aggregate issues were insufficient."

applicant equal to the discounted value of the collateral. If necessary to avoid loss, the clearing houses subsequently could require the borrower to post additional collateral. The loan certificates had a relatively high interest charge associated with them, around 6 or 7 percent, to avoid abuse of the privilege and to insure their quick repayment. The member banks that acquired loan certificates during the clearing process received the interest. The loan certificates became the obligation of the clearing house; should a borrower default on its obligation, the clearing house then apportioned the loss among its members in proportion to their capital and expelled the defaulting bank. Generally, when the clearing house approved the issuance of loan certificates, it also authorized its member banks to suspend the conversion of their deposits into cash. The clearing house, however, did not organize suspensions, nor officially announce and endorse them; that decision rested with the individual member banks. The clearing houses retired their loan certificates when suspensions ended.

Clearing houses had additional tools for dealing with banking panics. During the banking panics of 1860, 1861, and 1873, the New York Clearing House exercised its authority to assess the reserves of individual member banks and redistribute them from those holding an obvious surplus to those facing a critical shortage. This so-called “pooling” of the clearing house’s reserves was controversial. The assessed banks saw it as a penalty for their conservatism, which increased their individual risks without providing them compensation.³⁸ After the 1873 panic, the New York Clearing House no longer “pooled” its members’ reserves; instead, it endorsed the use of “emergency money” during the more difficult banking panics of 1893 and 1907. In these panics, clearing houses across the country issued loan certificates directly to the public or allowed their member banks to issue “certified checks” to their customers, both devices in small denominations meant to circulate as cash. The certified checks, which did not represent funds on deposit at any bank, could not be cashed at a bank and, therefore, could not reduce any bank’s reserves. The issuing bank stamped them “Payable through the Clearing House” (or something similar), and the checks became obligations of the clearing houses, which made these purely fiat issues, more acceptable to a gold-standard public. Banks could also use the checks in the settlement process at the clearing house, like loan certificates. Many actually resembled currency notes.³⁹ A secondary market developed, allowing the public to exchange the circulating loan

³⁸ See Timberlake (1984, 4-5) and Moen and Tallman (2015a, 108).

³⁹ See Timberlake (1984, 6).

certificates and certified checks for currency. The latter typically sold at a premium during the crisis, which effectively measured the public's perception of the solvency of the clearing house. The legal status of the loan certificates and certified checks circulating as money, however, remained uncertain, but the authorities never challenged their issuance.⁴⁰

The Panic of 1907

Through their use of loan certificates and their authorization of certified checks, clearing houses could effectively stretch the nation's inelastic currency to accommodate somewhat the public's liquidity preferences. The elasticity that the clearing house provided, however, never fully prevented the money markets' seasonal stringencies nor abated the nation's recurring banking panics. This became abundantly clear in 1907.⁴¹ The autumn of that year "witnessed what was probably the most extensive and prolonged breakdown of the country's credit mechanism which has occurred since the establishment of the national banking system." Never have "so many cities resorted to clearing house loan certificates," in such large amounts for so long, and "never have these certificates been so extensively issued in small denominations to meet ordinary bank obligations in lieu of cash."⁴²

In the fall of 1906, the Bank of England raised its discount rate to 6 percent, hoping to stem gold outflows associated with the San Francisco earthquake.⁴³ The bank threatened to raise the rate further if English banks continued to negotiate financial paper with American correspondents because such transactions contributed to the gold outflows.⁴⁴ Germany's central bank also raised its discount rate to 7 percent for the same reason. That December, the Bank of England, in conjunction with the central banks of Germany and France, applied additional pressure to their banks by refusing to accept American finance bills as collateral at their discount windows. These actions soon slowed the earthquake-related flow of gold into the United States and, by early 1907, had reversed its direction. Gold flowed out of the United States.⁴⁵ The

⁴⁰ Andrew (1908 a, b); Gorton (1985, 282).

⁴¹ This section draws on Tallman and Moen (1990, 1995), Moen and Tallman (1999), and Wicker (2000).

⁴² Andrew (1908b, 497).

⁴³ See Odell and Weidenmier (2004).

⁴⁴ These were short-term credit instruments denominated in British pounds. American banks might draw them on their British correspondent banks, or British importers might issue them to US exporters. They could be held to maturity or sold at discount to another party. Since they were denominated in British pounds, they could be exchanged for gold at a fixed price. See Odell and Weidenmier (2004, 1020, fn. 49), LaRoche (1993), and Friedman and Schwartz (1963, 156).

⁴⁵ Odell and Weidenmier (2004, Figure 1, 1011).

reversal created a scramble for liquidity in America and a selloff of railroad stocks, which often formed the collateral behind the recently censored US financial paper. Sensing the potential for serious problems, the US Treasury responded by expanding government deposits in national banks.⁴⁶ In March 1907, the ensuing drop in stock prices created the short-lived disturbance on Wall Street; soon after, in May, economic activity began to contract. In conjunction with these developments, country banks began to draw down their bankers' balances to bolster their cash reserves, and the monetary stock fell by nearly 2½ percent between May and September 1907. At this point, a serious shift in the public's liquidity preferences had not begun.⁴⁷ These developments—with the associated uncertainty and growing illiquidity—soon began to exacerbate the normal seasonal stringencies associated with the crop-moving season.

This vulnerable situation only needed a shock to goad the public's incipient concerns into a full-blown panic. That process began on October 16, 1907 when a plan to corner the stock of a copper mining company went awry, and the two brokerage houses directly involved in the scheme failed. Runs ensued on those New York banks having close relationships with the key figures involved in the attempted corner. Most of these banks belonged to the New York Clearing House, which viewed the event as bank-specific. So, instead of issuing loan certificates, the clearing house examined the banks, found them solvent, and arranged direct loans for these illiquid, but viable, banks. The clearing house's actions seemed to have quelled the immediate bank problem, but the contagion had now spread to trust companies associated with those involved with the corner. On October 21, 1907, the National Bank of Commerce announced that it had stopped clearing for the Knickerbocker Trust Company; the bank had recently had been covering deficiencies in the trust's clearing balances. When the Bank of Commerce approached the New York Clearing House and requested assistance on Knickerbocker's behalf, the clearing house refused aid to the nonmember, leaving all trusts vulnerable despite the risks that the "contagion of fear" could spread elsewhere. Knickerbocker now faced runs that forced it to suspend on October 22.⁴⁸ Knickerbocker's suspension sparked the Panic of 1907. Runs on trusts intensified, and clearing house banks that held bankers' balances for the trusts found themselves paying out cash to these depositors. At this point, J. P. Morgan and a consortium of respected

⁴⁶ On the Treasury's response, see Friedman and Schwartz (1963, 156).

⁴⁷ Friedman and Schwartz (1963, 157-158).

⁴⁸ Tallman and Moen (1990, 7; 2015b).

bankers, who initially refused to lend to trusts, agreed to examine the trusts' books and to extend emergency funding to any facing illiquidity but appearing solvent.⁴⁹ The Morgan consortium set up a \$25 million pool of money to help the trust companies and, under similar conditions, a \$10 million money pool to assist savings banks that operated outside of the New York Clearing House. The New York Clearing House, now fearful of the contagion effects, also made loans to the trusts.⁵⁰ In late October, the US Treasury began depositing \$38 million of its limited resources in national banks around the country. Most of the Treasury's funds went into three large New York banks expected to provide the bulk of this cash to the many trusts that held deposits with them. The Treasury also took other ad hoc steps that enabled national banks to expand their note issuance.⁵¹ These actions seemed to quell local fears somewhat, but the interior banks had already been removing their sizable bankers' balances from their New York correspondents for fear that if the panic continued to spread their reserves might become locked up in the New York banks.⁵² On October 26, the New York Clearing House finally announced that it would issue loan certificates and authorize bank suspensions. The New York banks then restricted their customers' ability to convert deposits into currency, a partial suspension. Interior banks, likewise, began partial suspensions, and some states, realizing the intensity of the problem, instituted bank holidays. These actions failed to stop the public's runs on the trust companies, and Morgan continued with his efforts. Amazingly, the trusts never suspended convertibility of their customers' deposits into cash.

As the contagion spread to the banks, they restricted their call loans to stock and bond brokers, which forced rates on these loans to 100 percent at one point.⁵³ On November 1, 1907, the brokerage firm of Moore and Schley faced multiple loan repayments to banks in New York, Chicago, Philadelphia, and Boston that the firm could not meet. The loans were collateralized with shares of the Tennessee Coal and Iron Company, which traded in a thin market, making that collateral illiquid. Further complicating matters, the brokerage used the same stock as collateral

⁴⁹ Morgan did not provide a loan to Knickerbocker Trust; he forced it to close before it was thoroughly examined. Knickerbocker reopened in 1908, indicating that it likely remained solvent, but illiquid, throughout the crisis. It required recapitalization of about \$2.4 million (Wicker 2002, 92).

⁵⁰ Moen and Tallman (2000, 151).

⁵¹ On the other Treasury actions, see Wicker (2000, 99-100).

⁵² During the panic of 1893, country banks experienced difficulties obtaining deposits from their correspondents. The New York banks severely restricted, but did not halt, shipments of currency to the interior banks. See Wicker (2000, 52-82). This sparked the interior banks' interest in reform.

⁵³ Moen and Tallman (2000, 8).

for a loan to one of its partners.⁵⁴ Morgan feared that if the firm failed, it would have serious effects on Wall Street as well as on the already stressed banks.⁵⁵ Morgan arranged for the US Steel Corporation to buy the Tennessee Coal and Iron Company with highly rated US Steel bonds.⁵⁶ The firm of Moore and Schley was able to settle its debts to banks with funds from the sale of these bonds. At the same time, Morgan arranged for a syndicate of banks to provide \$25 million to the stock exchange. He continued to arrange assistance for trust companies that remained in trouble, and the crisis situation began to ease. All told, Morgan, through various impromptu money pools, raised \$100 million to contain the crisis. This included \$30 million to the stock exchange, \$30 million to a financially strapped New York City, and “a large indeterminant amount to rescue twelve financial institutions, most of which were trust companies.”⁵⁷ The US Treasury also continued to provide its aid.

As in the crisis of 1893, the New York Clearing House and its member banks attempted to accommodate the public’s liquidity preferences while conserving their reserves and to maintain credit to companies by issuing various types of cash substitutes. People who held these items but wanted cash could exchange them at a premium for cash. On a few days, the premium reached a maximum of 4 percent.⁵⁸ The premium on cash reinforced the effects of higher US interest rates and a recession-induced improvement in the nation’s trade balance to attract an inflow of gold.⁵⁹ In late 1907 and early 1908, \$96 million worth of gold flowed across the US borders and into bank reserves.⁶⁰ By the end of February 1908, the crisis was over.⁶¹

The Federal Reserve Act

The Panic of 1907 breathed a sense of urgency into a banking reform movement that had inched along in fits and starts for decades. Republicans realized that they needed to respond to the nation’s financial problems before the upcoming presidential elections, but they also knew that wholesale reform would take more time than they currently had. Most of the comprehensive

⁵⁴ Tallman and Moen (1990, 10).

⁵⁵ Wicker (2000, 96).

⁵⁶ Because the two firms competed, Morgan sought and got assurances from President Theodore Roosevelt that the controversial acquisition would not trigger antitrust actions.

⁵⁷ Wicker (2000, 98).

⁵⁸ Andrew (1908a).

⁵⁹ Friedman and Schwarz (1963, 161-162).

⁶⁰ Wicker (2000, 100); Odell and Weidenmier (2004, figure 1, 1011).

⁶¹ Friedman and Schwartz (1963, 163).

proposals for bank reform looked to create a more elastic currency while conforming to the strictures of the gold standard by pooling bank reserves and allowing banks to borrow from that reservoir during emergency situations. While such schemes raised important issues, such as eligibility, collateral, maturity, and interest rates, the operational aspects remained relatively uncontroversial. J. P. Morgan had pooled reserves to a limited degree in the recent panic, and the New York Clearing House had pooled members' reserves in 1860, 1861, and 1873, but thereafter abandoned the practice.⁶² The sticking point to bank reform centered on its organizational features, primarily the degree of centralization and the amount of government control. On these issues, opinions remained divided. In the interim, Congress passed the Aldrich-Vreeland Act, a temporary compromise measure, which President Theodore Roosevelt signed into law on May 30, 1908.⁶³

The Aldrich-Vreeland Act allowed national banks to form regional national currency associations under the "direction and control" of the Secretary of the Treasury solely for the issuance of emergency currency. The law required that the Treasury hold as collateral against such issuances "any security held by national banks," including US government bonds and, notably, two-name commercial paper representing "actual commercial transactions," and also state and municipal bonds. The law applied an aggregate limit of \$500 million to the emergency currency and included a state-by-state distribution plan relying on the proportion of national bank capital in each state to the national total. To avoid abuse, any emergency circulation faced a tax of 5 percent in its first month, which thereafter increased by 1 percent in monthly increments to a maximum of 10 percent.

The Aldrich-Vreeland Act also established an 18-member National Monetary Commission consisting equally of senators and congressmen to recommend fundamental changes in US monetary and banking laws toward the goal of creating a more elastic currency.⁶⁴ Rhode Island Senator Nelson W. Aldrich served as the Monetary Commission's chairman. Aldrich, a conservative Republican associated with eastern industrial and Wall Street interests, had incurred the wrath of both Democrats and progressive Republicans when he pushed the

⁶² Friedman and Schwartz (1963, 160) and Wicker (2000, 117-120) believed that if the New York Clearing House had pooled reserves in 1907, banks could have avoided their suspension.

⁶³ *US Statutes at Large*. 30 May 1908. 60th Congress 1st Session. Chap. 229. 546.

⁶⁴ The commission's work had little direct influence on the establishment of the Federal Reserve; instead it primarily contributed to monetary history.

Payne-Aldrich Tariff Act through Congress in 1909.⁶⁵ In early 1911, as his monetary commission ambled along, Aldrich surreptitiously convened a meeting of a small select group consisting mostly of prominent, reform-minded New York bankers at Jekyll Island, Georgia.⁶⁶ By this time, Aldrich, worn down by political fights, had announced that he would not seek reelection. He had become “toxic politically.”⁶⁷ The Jekyll Island group outlined a plan for a “centralized banking system,” which remained independent of government and completely under the control of bankers.⁶⁸ Such was the reform that the New York bankers favored—one that they likely could dominate.

In January 1912, with the endorsement of the Monetary Commission, but with little of their input, Senator Aldrich introduced such a bill. He proposed a National Reserve Association to oversee 15 branches, designated as District Reserve Associations, and requiring participating banks to form local associations within each district.⁶⁹ Essentially, he proposed a clearing house writ large. Aldrich avoided the term central bank, because the concept remained anathema to Democrats, who had taken control of the House in 1911 and had narrowed the Republican majority in the Senate, as well as to the laissez-faire-leaning large western banks, and many on Wall Street. Because western banks—particularly those in major cities—remained wary of any scheme to “centralize banking” for fear that the large eastern banks would dominate the organization, Aldrich gave his system a regional configuration. His bill, however, made the District Reserve Associations branches of the National Reserve Association instead of autonomous regional entities. Only banks—neither the public nor the government—would hold stock in the National Reserve Association. Although the plan arranged voting rights to ensure that the smaller banks maintained a significant voice at the district and local levels, the large banks could still dominate the organization.⁷⁰ Through their stock ownership, member banks could name nearly all of the association’s directors. The president could appoint the governor of

⁶⁵ McCulley (1992, 226).

⁶⁶ Besides Aldrich, the Jekyll Island group consisted of Henry P. Davison, a Morgan partner; Arthur Shelton, Aldrich’s private secretary; A. Piatt Andrew, an assistant secretary of the Treasury; Paul Warburg, investment banker with Kuhn, Loeb and Co.; and Frank A. Vanderlip, vice president of the National City Bank. Benjamin Strong, vice president with Bankers Trust Co. and future first Governor of the Federal Reserve Bank of New York may also have attended, but it remains uncertain. See Wicker (2005, 53-67).

⁶⁷ Lowenstein (2015, 132).

⁶⁸ McCulley (1992, 232-33).

⁶⁹ My discussion of the Aldrich Plan draws on West (1974), McCulley (1992), and Wicker (2000).

⁷⁰ West (1974,73).

the National Reserve Association from a list of names that the bankers submitted, and the Secretaries of the Treasury, Commerce, and Agriculture Departments, along with the Comptroller of the Currency, would sit as *ex officio* directors, but the department heads had no policymaking authority. Only the comptroller would serve on the association's policymaking executive committee.

Membership in the National Reserve Association was voluntary and open to national banks, state-chartered banks, and trust companies, but the latter two groups had to meet capital and reserve requirements similar to those facing the national banks. This ensured that state banks and trust companies did not maintain a competitive advantage over the national banks. Each member bank had to subscribe to stock in the National Reserve Association that paid a fixed 5 percent dividend. The association remitted any other profits to the US Treasury, so that this banker-run, quasi-public association did not seem to be a profitmaking venture.⁷¹

Participants had to maintain minimum deposits with the District Reserve Associations, which earned no interest. These served as clearing balances but also counted toward their required reserves. Banks, of course, could hold additional reserves with the District Reserve Associations, but the plan also allowed the national banks to continue their existing correspondent relationship, where they often received interest.⁷² Consequently, the degree to which Aldrich's plan might pool reserves was unclear; pyramiding remained possible and likely. The District Reserve Associations would operate regional discount windows for members and rediscount any short-term agricultural, commercial, and industrial paper that the local association had approved. (Under some circumstances, the district associations could discount a member bank's direct obligation.) Although the District Reserve Associations operated the discount windows, the National Reserve Association would set a uniform nationwide discount rate. In addition, the National Reserve Association would establish reserve requirements, maintain responsibility for open market operations, issue emergency currency when necessary, and replace the bond-secured national bank notes with legal tender notes. The National Reserve Association would also act as the Treasury's fiscal agent; the Treasury would no longer deal with individual banks.⁷³

⁷¹ West (1974, 75-76).

⁷² West (1974, 83-84).

⁷³ McCulley (1992, 239).

The Aldrich bill's chances died after Woodrow Wilson won the 1912 presidential election, and the Democrats took both congressional chambers. The Democratic platform, which William Jennings Bryan, the mainstay of progressive ideology, likely drafted, had proclaimed: "We oppose the so-called Aldrich plan or the establishment of a central bank."⁷⁴ Despite the act's defeat, the Federal Reserve Act incorporated much of the Aldrich Plan, often verbatim.⁷⁵

Woodrow Wilson appealed to small bankers and businessmen; he had a progressive streak, which included a suspicion of the financial concentration in New York.⁷⁶ The president, like the progressives, supported government regulation of big business and banks. Carter Glass, a Democratic Congressman from Virginia and the prospective chairman of the House Banking Committee, began the task of writing a banking reform bill before Wilson's victory.⁷⁷ Glass, like most eastern Democrats, leaned toward *laissez faire*; he remained suspicious of dominance by either the federal government or Wall Street. He favored a more decentralized plan than Aldrich as a way to prevent any such concentration of power.⁷⁸ His initial plan, which he discussed with the president-elect, recommended 15 to 20 autonomous District Reserve Banks that commercial banks in each district would control under the limited supervision and coordination of the Comptroller of the Currency.⁷⁹ Each District Reserve Bank would hold its own capital, a minimum of \$5 million, and member banks would subscribe at least 20 percent of their capital to the venture. The members would hold their reserves in the District Reserve Banks, which they nominally owned.⁸⁰ Wilson, however, recognized the need for a more substantial central oversight authority, "a capstone" on the structure.⁸¹ "He wanted the banking system to mirror the federalist design of the U.S. government itself."⁸² Wilson surmised that Congressman Glass had little chance of getting his bill through Congress without the support of Bryan, who would soon be Wilson's Secretary of State, and Senator Robert Owen, who, like Bryan, favored government control instead of bankers' control of the proposed system. With Wilson's intermediation, a

⁷⁴ Lowenstein (2015, 164).

⁷⁵ Wicker (2005, 84-94).

⁷⁶ Lowenstein (2015, 166-68).

⁷⁷ Glass worked closely with an advisor, Henry Parker Willis.

⁷⁸ McCulley (1992, 263).

⁷⁹ McCulley (1992, 292).

⁸⁰ Lowenstein (2015, 182).

⁸¹ McCulley (1992, 292).

⁸² Lowenstein (2015, 183).

compromise Glass-Owen bill created a Board of Governors in Washington as the nexus of government control over semi-autonomous Federal Reserve Banks.

The Board would consist of the Secretary of the Treasury and the Comptroller of the Currency, who would serve as *ex officio* members, and five other members, whom the president would appoint.⁸³ Among its oversight powers, the Board would examine the books of the Federal Reserve Banks, and it could “require Federal reserve banks to rediscount the discounted paper of other Federal reserve banks at rates of interest to be fixed by the Federal Reserve Board.”⁸⁴ By this last authority, Wilson, Glass, and Owen intended to ensure that the District Banks—unlike the regional clearing houses—would cooperate when necessary. The Glass-Owen bill also gave the Board the power to set member bank reserve requirements. After an initial three-year period, the plan required member banks to hold their reserves either as vault cash or as deposits with their Federal Reserve Banks, thereby skirting the large Wall Street banks.⁸⁵

Glass’s decentralized system—like Aldrich’s branch system—would give the Federal Reserve Banks and their Branches a better understanding of local business and banking conditions. With that they could better judge the quality of commercial paper coming to their discount windows and—unlike Aldrich’s system—set a regional discount rate, subject to the Board’s approval.⁸⁶ In addition, Glass’s proposal ideally stood a better chance of preventing either large financial firms or politicians from dominating the Federal Reserve System.

All national banks had to become members of the Federal Reserve System, but state banks and trusts could choose to join.⁸⁷ Member banks held stock in the Federal Reserve Banks equal to 6 percent of their paid-in capital and surplus, and received a small (6 percent) dividend; hence, they nominally owned the District Banks. The member banks could influence the management of the Federal Reserve Banks, because they appointed six of the bank’s nine directors, three of whom were not to be bankers. The Board in Washington appointed the remaining three directors.

⁸³ The five would be subject to Senate confirmation.

⁸⁴ Federal Reserve Act 1914, Section 11, paragraph b.

⁸⁵ During the initial three years, member banks could hold a portion of their reserves in bankers’ balances.

⁸⁶ West (1974, 103-04, 107).

⁸⁷ Under the act, national banks could serve as executors and administrators of trusts, allowing them to compete more closely with trust companies. See Broz (2009, 51-53).

The act, unlike the Aldrich plan, also authorized the Federal Reserve Banks to issue notes, to hold government deposits, and to undertake open market operations.⁸⁸ Initially, the banks used open market operations as a means of generating profits from the interest earnings that they received from discount loans. The Reserve Banks needed an income to cover expenses and to pay dividends to its stockholders. Open market operations could also make intended discount window operations “effective,” when the demand for rediscounts proved slack.⁸⁹ The founders of the Federal Reserve System expected discount window operations, not open market operations, to be the System’s principal instrument.⁹⁰

Federal Reserve Districts

Among its various provisions, the Federal Reserve Act required the establishment of no fewer than 8 and no more than 12 Federal Reserve Districts that “shall be apportioned with due regard to the convenience and customary course of business and shall not necessarily be coterminous with any State or States.”⁹¹ Every District was to have a headquarter city, designated a Federal Reserve city, and each “Federal reserve bank shall establish branch banks within the Federal reserve district in which it is located...”⁹² To determine the number and boundaries of the Districts and to designate within each a Federal Reserve city, the act created the Reserve Bank Organization Committee, consisting of the Secretary of the Treasury, William McAdoo; the Secretary of Agriculture, David F. Houston; and the Comptroller of the Currency, John Skelton Williams. With all of its members being Democrats and Wilson appointees, the committee’s insistence on 12 Districts surprised no one. Their decisions were “not to be subject to review except by the Federal Reserve Board.”⁹³ The Board could, if it chose, “readjust” the Districts and create new Districts provided that their number never exceeded 12.⁹⁴

⁸⁸ Initially, open market operations involved the purchase or sale of self-liquidating short-term loans, so-called “real bills.” Following the proliferation of government securities during the First World War, open market operations focused on government securities in the secondary (or “open”) market. Open market operations affect the level of reserves in the banking system.

⁸⁹ See Meltzer (2003, 71).

⁹⁰ Wheelock (1997, 10).

⁹¹ This section draws on Hammes (2001a), McAvoy (2006), Binder and Spindel (2013), and Fee (2014).

⁹² Quotations in this paragraph are from the Federal Reserve Act, sections 2 and 3, respectively. The act can be found in Board of Governors (1915, 25).

⁹³ McAvoy (2006, 514) suggests that section 2 precludes Congress from reviewing the committee’s choices, but Congress certainly could amend the act.

⁹⁴ This and the previous quotation are from section 2 of the Federal Reserve Act.

The organization committee visited 18 cities across the country soliciting opinions about the configuration of prospective Districts and the choice of headquarter cities from interested parties.⁹⁵ In addition, the Treasury polled bankers on behalf of the committee, asking each to rank its top three preferences for headquarter cities. The committee also hired H. Parker Willis, an economist and financial writer who had helped to prepare the Glass-Owen Act, as chairman of the Preliminary Committee, which the organization committee tasked with analyzing the information it had acquired and writing a report suggesting options for District boundaries and Federal Reserve cities. Willis' group ultimately drew five national maps from among which the organization committee might choose, one each for 8 through 12 Districts.⁹⁶

Creating the Districts presented the committee with a daunting task, one obviously involving trade-offs. The District boundaries needed to incorporate sufficient resources, talent, and economic prospects to support the establishment and maintenance of a strong Federal Reserve Bank. At a minimum, doing so required that each prospective District contain an adequate number of banks, which, on the basis of subscribing 6 percent of their own capital, could raise the minimum \$4 million needed to capitalize a Federal Reserve Bank. Equivalently, this principle necessitated that each District have at least \$66.7 million of capital among its prospective member banks, and implied that in the west, where banks remained few and comparatively small, the Districts would be substantially larger than in the east, where banks were numerous and relatively large. Moreover, the Districts had to be roughly equal in terms of banking resources, such as reserves, capital, and deposits. Disparities in financial strengths among Federal Reserve Districts could render some headquarter banks weak and others strong, such that the latter could dominate the former within the System. For that reason, the Reserve Bank Organization Committee apparently sought to dilute the financial importance of the New York District by keeping it geographically small.⁹⁷ Willis, for example, proposed that the committee establish a separate District with Boston as its Federal Reserve city, even though many Boston banks and businesses maintained close relationships within New York City. Similar considerations came into play with Chicago, resulting in the establishment of the Minneapolis District.⁹⁸ The Districts also needed to be “self-contained.” Each should be

⁹⁵ Binder and Spindel (2013, 4).

⁹⁶ See Hammes (2001b).

⁹⁷ Binder and Spindel (2013, 11).

⁹⁸ See Hammes (2001a,b,c).

sufficiently diverse in terms of financial resources so that regional savings might satisfy regional borrowing needs independently, as far as possible, of the other Districts. Ideally, for example, each District should be able to meet seasonal shifts in its citizens' liquidity preferences.⁹⁹ This would further reduce the chances of one Federal Reserve Bank routinely being dependent on others.

Severely complicating the difficulty of drawing District boundary lines was the simultaneous problem of choosing Federal Reserve cities. The selections were interdependent. Vested interests abounded; 37 cities submitted formal applications to become Federal Reserve cities for at most 12 Districts.¹⁰⁰ City officials often believed that having a headquarters bank would improve their growth prospects.¹⁰¹ The headquarter cities were to be financial and commercial centers within the District, and the District needed to contain a sufficient network of railway facilities, mail services, and communication capabilities to maintain member-bank access to the Federal Reserve Bank, particularly for the prompt transmission of discount applications and funds. Ideally, no banks should be more than an overnight train ride from the Federal Reserve city.¹⁰² For some cities, such as New York, Chicago, and St. Louis—all central reserve cities—their choice as Federal Reserve cities seemed a foregone conclusion.

When the Reserve Bank Organization Committee made its announcements on April 2, 1914, critics charged that politics informed the committee's selection in many cases. Even Willis eventually contended that politics had played a role.¹⁰³ The list of suspect city varies, but usually includes Atlanta, Cleveland, Dallas, Kansas City, and Richmond. Those (still) charging political influence support their claims by citing some affiliation between one or more notable politicians and the specific city in question. Some, for example, explained the choice of Richmond by noting that President Wilson came from Virginia, a "reliably Democratic state," that Congressman Glass represented the state, and that organization committee member and comptroller John Williams had been a prominent Richmond banker.¹⁰⁴ Similarly, others claimed

⁹⁹ See Willis (1923, 563).

¹⁰⁰ Binder and Spindel (2013, 4).

¹⁰¹ McAvoy (2006, 508).

¹⁰² Lowenstein (2015, 201).

¹⁰³ Willis singled out the choices of Atlanta, Cleveland, and Richmond as examples of political influence. On his inconstant views, see Hammes 2001a, who compares Willis's 1914 report to the committee with pertinent sections of his 1923 book.

¹⁰⁴ McAvoy (2006, 522).

that Missouri received two headquarter cities because committee member and Secretary of Agriculture David Houston had been president of Washington University, because House Speaker Champ Clark represented Missouri, and because all of the state's congressional delegation were Democrats.¹⁰⁵ The rivalry between Cleveland and Pittsburgh became particularly heated, with the *Pittsburgh Gazette-Times* charging: "We must look for some other reason than a desire to promote the efficiency of the new banking system as the animus for the selection of Cleveland rather than Pittsburgh as the home of the regional bank. It is a fair assumption that political considerations played a principal part in the action."¹⁰⁶ The paper could clearly see a political connection between the president and Newton D. Baker, who was Cleveland's Democratic mayor in 1912, who campaigned for Wilson, and whose affiliation with the president was such that he became Secretary of War in 1916.

Most analysis, however, finds little evidence that politics dominated the choices of Federal Reserve cities.¹⁰⁷ The problem with such claims is that of correlation versus causation. The suspect cities may have had powerful politicians affiliated with them, but they also had other attributes that the Reserve Bank Organization Committee weighed heavily in making their decision. One detailed study, for example, predicted the choice of all of the Federal Reserve cities simply on the basis of city population, population growth, bank capital growth, and bankers' preferences.¹⁰⁸ In some cases, such as Atlanta and Dallas, the cities' economic prospects seemed to be the deciding factors. The committee chose Atlanta and Dallas because broad and diverse commercial and financial networks had developed around them. Their growth prospects looked very good, whereas the established, southern, coastal cities mainly served as transshipment points for traditional staples; they were remnants of the Old South.¹⁰⁹ Apparently, the bankers' preferences, as the Treasury's poll revealed, were prescient about the cities' financial and commercial prospects; all of the chosen cities ranked high in recommendations, except one.

¹⁰⁵ Binder and Spindel (2013, 12).

¹⁰⁶ Quote found in Fee (2014).

¹⁰⁷ See Hammes (2001a) and McAvoy (2003). In contrast, Binder and Spindel (2013) claim evidence of political influence, but their key variables are not robust to changes in the specification of their tests.

¹⁰⁸ McAvoy (2006).

¹⁰⁹ Odell and Weiman (1998, 104).

Cleveland was the only city that bankers did not prefer over its District rivals. It received far fewer bankers' votes than either Pittsburgh or Cincinnati.¹¹⁰ In a 1914 report, Willis offered a somewhat backhanded explanation for preferring Cleveland over Pittsburgh: "From the standpoint of ... location and present predominance in business, Pittsburgh undoubtedly has the advantage of the other places. Under ordinary conditions it would seem to be ... the proper site for the reserve bank of the district. In this instance it is, however, believed that the ordinary considerations should not govern, and that Pittsburgh should not be selected. ..."¹¹¹ Pittsburgh had not shown itself to be a very satisfactory banking headquarters. "In the years leading up to 1914, there had been several national bank failures in Pittsburgh ... Cleveland was 'unique among these three cities in having reported not one single failure of a national bank.'"¹¹² Moreover, a small group of men, dominated by Mellon interests, controlled Pittsburgh's banking environment. Cleveland's was less concentrated and highly competitive.¹¹³ The fact that a Federal Reserve Bank had presumably been located in Philadelphia was a marginal consideration against Pittsburgh. Cleveland also had a greater diversity of manufacturing than Pittsburgh, which suggested that Cleveland banks held a wide assortment of loans and investments, implying smaller risks for bankers and greater safety for depositors.¹¹⁴ Contemporaneous data, including population, value of manufacturing, clearing house exchanges, and bank deposits, showed substantially greater growth in Cleveland than in Pittsburgh, with implications for the city's prospects. Moreover, Cleveland was the last stop on the organization committee's tour; consequently, the Cleveland's representatives were well prepared and had anticipated many of the questions the organization committee asked.¹¹⁵

"Of the two remaining cities [Cleveland and Cincinnati], it is believed that Cleveland is decidedly preferable, while inasmuch as Cleveland is the distributing point for the principal commerce of the Great Lakes..."¹¹⁶ Although recommending Cleveland in his 12-District plan, Willis recommended Cincinnati as a Reserve Bank city over Detroit and Columbus in his 11-

¹¹⁰ McAvoy (2006, 507).

¹¹¹ Quotation found in Hammes (2001c).

¹¹² Fee (2014), who quotes Frederick Bradford's 1929 dissertation: "Recent Banking Developments in the City of Cleveland."

¹¹³ Most of the information on Cleveland comes from Fee (2014) or Hammes (2001c).

¹¹⁴ Fee (2014).

¹¹⁵ Fee (2014).

¹¹⁶ Quotation found in Hammes (2001c).

District plan. This plan also included a Cleveland headquarters for a separate District. The Cincinnati District would have extended through all of lower Michigan, half of Indiana, western Ohio, northeast Kentucky, and the western third of West Virginia.¹¹⁷

After the Reserve Bank Organization Committee presented its plan for 12 Federal Reserve cities and the associated District boundaries to the Board of Governors, a subcommittee of Board members, exercising their authority to review the committee's decisions, attempted to reduce the number of Districts to nine by combining some of them. Their object conformed to the desires of the large eastern banks. At the request of Secretary Houston, one of the organization committee members, the attorney general—reflecting the administration's preferences—ruled that the Board lacked the authority to abolish any District or Federal Reserve city, or to change the location of any Federal Reserve city within a District, and that the Board could not alter the committee's decisions substantially. The Board had authority only to make small changes to the Districts' boundaries.¹¹⁸ His ruling went uncontested.

Epilogue

The National Bank Acts of 1863 and 1864 left the country with a currency that proved unresponsive to shifts in the public's liquidity preferences, thereby creating conditions that led to seasonal stringencies in money markets and, on several occasions, that grew into financial panics. The bank acts also encouraged the existing concentration of the bank reserves in a few large New York banks, which created a nationwide network of vulnerability and a general dependence upon the responses of the New York Clearing House when the aforementioned problems arose. By the turn of the nineteenth century, structural developments within the banking industry, including a rapidly growing competition from the less stringently regulated state banks and trust companies and the blurring of lines between commercial banking and investment banking among the Wall Street banks, created a sense of heightened financial risk and a growing distrust between the small, traditional, mostly western banks and the large, eagerly innovating, eastern banks. The Panic of 1907 substantiated these fears by demonstrating the inadequacies of the New York Clearing House's response in the evolving banking environment. It invigorated a reform movement that gained the support of many New York

¹¹⁷ Hammes (2001b).

¹¹⁸ Hammes (2001a, fn.13); McAvoy (2006, 523-4).

bankers and eventually resulted in the Federal Reserve System. The System would provide an elastic currency through regionally responsive discount windows within a decentralized structure designed to prevent the dominance of any banking or political faction. Unfortunately, fate intervened even before the District Banks opened their doors.

When the First World War began in Europe in August 1914, the US stock market closed and a panic ensued on Wall Street. In response, the Treasury invoked the Aldrich-Vreeland Act and issued emergency money to notable success. Crucially for the Federal Reserve's subsequent development, the gold standard became an early casualty of the war. The gold standard provided the fundamental framework for monetary policy across most of the globe. It determined long-term movements in the US money stock; it anchored the nation's price level and, consequently, the purchasing power of its money. The Federal Reserve Act of 1913 was intended only to accommodate shifts in people's liquidity preferences by pooling bank reserves and lending them through its discount window if necessary.¹¹⁹ The modern concept of monetary policy was abhorrent to most of the Federal Reserve's founders, but try as nations might after the war, they never resumed the gold standard, and subsequent events in 1934 and 1971 dispatched all vestiges of the metallic standard. As this departure from gold went on, the Federal Reserve became responsible for setting the monetary policy of the United States.

Difficulties soon erupted between the Federal Reserve and the Treasury. The Federal Reserve Act never envisioned a complete separation between these two agencies, but neither did it intend that the Treasury should dominate the System. Nevertheless, that happened when the United States entered the conflict in 1917. The Federal Reserve's discount window operations shifted from providing an elastic currency to helping finance the war largely through preferential discount window loans. As the war began to wind down, conflicts between the Fed and Treasury intensified whenever the former's monetary policy plans conflicted with the latter's debt-management operations. Not until the mid-1970s, when the Treasury began auctioning its longer-term securities instead of selling them at a fixed price did the System completely abandon its direct assistance to the Treasury's debt-management operations.¹²⁰ Strains between monetary and fiscal policies are inevitable in the relationship between the two agencies. Money creation

¹¹⁹ Friedman and Schwartz (1963, 191-2).

¹²⁰ On monetary and debt policies, see Consolvo, Humpage and Mukherjee (2020). On similar conflicts related to foreign-exchange operations, see Bordo, Humpage and Schwartz (2015).

offers a means of financing fiscal operations, but at the cost of the System's commitment to maintaining price stability.¹²¹

After the Federal Reserve Banks began operations, conflicts between the banks and the Board also erupted. The Federal Reserve Act often failed to delineate clearly the authority structure within the System. The Federal Reserve Act, for example, gave primary responsibility for the operation of the discount window to the District Banks. Paragraph (d) of the act's section 14 allowed every Federal Reserve Bank to "establish" a discount rate subject to the Board's "review and determination." The use of "establish" and "determination" in this authorization leaves the distribution of authority unclear, since these words are synonyms. The Reserve Banks interpreted "review and determination" as pro forma, while the Board claimed that it could "determine" each rate.¹²² The Reserve Banks feared that if the Board could dominate their decisions, politics would influence interest rates. The Board feared that if the Reserve Banks set rates, the System's ability to exercise a concerted discount policy might prove impossible, making the Board seem redundant.¹²³

During the 1920s, discount policies became less important and open market operations emerged as the dominant tool for monetary policy. Originally, each District Bank had the right to undertake its own open market operations in its own District. Each could decide what securities to buy or sell and what price to bid or offer. The Board might reject the Reserve Banks' decisions, but it could not order the Banks to buy or sell.¹²⁴ During the 1920s and early 1930s, the Reserve Banks established a series of arrangements to coordinate their open market operations. While the Banks generally participated in these cooperative arrangements, their participation remained voluntary. Conflicts with the Board, as happened with discount window operations, erupted. When the cooperative spirit among the District Banks broke down as the economy collapsed in the early 1930s, the Banking Act of 1933 created the Federal Open Market Committee (FOMC), consisting of the 12 District Bank governors, whose collective decisions were binding on all of the District Banks. The subsequent Banking Act of 1935 went much further. It fundamentally altered the authority structure within the Federal Reserve System, concentrating it in the Board of Governors and simultaneously weakening the Treasury's

¹²¹ Sargent and Wallace (1981).

¹²² Meltzer (2003, 77).

¹²³ Meltzer (2003, 75).

¹²⁴ Meltzer (2003, 740).

influence on policy. The act altered the structure of the Federal Open Market Committee to consist of the seven members of the Board of Governors and five of the Federal Reserve Bank presidents.¹²⁵ The remaining presidents could otherwise fully participate in meetings. With a permanent voting majority, the Board controlled the Committee's decisions and, therefore, the disposition of monetary policy throughout the United States.¹²⁶ With the Banking Act of 1935, the "Federal Reserve became a central bank" as the "twelve regional reserve banks lost their semiautonomous status and much of their original independence."¹²⁷ The act also extended the terms of Board members from 10 to 14 years and removed the Secretary of the Treasury and the Comptroller of the Currency from the Board of Governors; henceforth, any Treasury influence on the central bank's decisions would come indirectly via political pressure. The act also gave the Board clearer authority over the setting of discount rates, the appointment of Federal Reserve Bank presidents, the establishment of their budgets, and the supervision of their general operations.¹²⁸ To emphasize this shift in the power structure, the Banking Act of 1935 re-titled the governor of the Board as chairman and the other Board members as governors—the standard designation of key decision makers at central banks—and demoted the District Bank governors to presidents. (Previously, the Secretary of the Treasury served as the Chairman of the Board, while the Governor of the Federal Reserve Board served as the executive officer.)¹²⁹

Since the passage of the Banking Act of 1935 and the complete integration of the US financial market, some have asked if 12 regional Reserve Banks remain necessary for the implementation of a national monetary policy. Despite the diminution of their outward status, the Reserve Banks maintain an important policymaking role through their participation in the Federal Open Market Committee and their operation of discount windows, but now their contributions to policy come through their influence on decisions rather than through any independent actions or even votes. In that sense, all 12 District Banks can exert an equal influence on policy decisions at every meeting of the FOMC.¹³⁰

¹²⁵ New York did not become a permanent member until 1942, when the Bank presidents became members on the current rotating basis. Meltzer (2003, 484).

¹²⁶ See Richardson, Komai, and Gou (2013).

¹²⁷ Meltzer (2003, 5).

¹²⁸ Wheelock (1997, 6).

¹²⁹ See Richardson, Komai, and Gou (2013).

¹³⁰ See Wheelock (1997), Goodfriend (2000), Bordo and Prescott (2019, 2022).

This influence stems from each District Bank's ability to collect and analyze information on regional economic conditions and, at least since the mid-1950s, from the competition among economic ideas that has emerged among the District Banks' staffs.¹³¹ Through their many local contacts, the regional Banks gather unique, often anecdotal, information that can foreshadow national economic developments. Standard aggregate economic data can only reveal such information with a significant lag, which forestalls any needed policy response. The 12 District Banks also maintain separate research functions that promotes a diversification of research interests within the System and that foster debate about policy among the Banks and the Board. These debates can challenge viewpoints and force innovative thinking, which might not otherwise develop as freely and quickly in a monolithic organization. This debate enhances decision making at the Federal Open Market Committee.

The Federal Reserve's decentralized structure also enhances monetary policy by supporting the central bank's independence. Bringing outside political pressures to bear on 12 independent policymakers who remain dispersed across a large country is substantially harder than putting pressure on policymakers who are appointed through a political process and reside in the nation's capital. Should this independence ebb, the security and integrity of monetary policy will become correspondingly weaker.¹³²

As the Federal Reserve Bank of Cleveland marks the 100th anniversary of its building, the Bank no longer serves in the manner the founders initially envisioned. It now serves continuously as a vital, independent participant in the setting of US monetary policy. As such, the large bronze statue on the Bank's south-facing side seems a less fitting symbol, since the Bank's energy is now never in repose. Instead, the two stone statues on the building's west-facing entrance, *Security* and *Integrity*, seem more appropriate metaphors.

¹³¹ Bordo and Prescott (2019).

¹³² Humpage (2014).

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