

Highways OF Commerce

An aerial photograph of a complex highway interchange with multiple overpasses and ramps. A large, semi-transparent dollar sign (\$) is superimposed over the center of the interchange, with the highway lanes running through its vertical stroke. The overall color palette is a muted, sepia-toned green.

CENTRAL BANKING *and* THE U.S. PAYMENTS SYSTEM

By: *Bill Medley*



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Foreword

As Congress undertook the task of designing a central bank for the United States in 1913, it was clear that lawmakers intended for the new institution to play a key role in improving the performance of the nation's payments system. At the time, payments were largely dependent on the movement of checks between disconnected—and often distant—financial institutions. The process of clearing and settling was risky, slow, costly and insufficient to meet the demands of a large, growing country.

The day before the Federal Reserve Act was signed into law, Rep. Carter Glass of Virginia compared the flow of payments in the economy to “highways of commerce.” Glass used this metaphor to illustrate how the Federal Reserve, through a number of regional Reserve Banks located across the country, would provide currency to fuel the economy and serve as the hub of a national clearing network for checks.

Technology has progressed dramatically since then, sparking innovations with the potential to offer consumers and businesses better ways to pay. Over the past century of this evolution, Congress has repeatedly turned to the Federal Reserve to ensure these payments improvements are universally available and that the system remains safe and secure. No other institution—public or private—has that responsibility. It is a dynamic that tends to surface prominently during crisis events. It is appropriate that the central bank exercise its leadership as a retail payments regulator and network operator to ensure it is meeting this public expectation.

The following pages tell the history of the Federal Reserve's involvement in the U.S. payments system, beginning with a largely free-market system in New England during the 19th century, to the decades-long battle over interchange fees assessed on card transactions, to the present discussions over the Federal Reserve's vision and roadmap for a faster and more secure system. This history is not all-inclusive, but it is intended to provide context to the key events and issues that inform the Federal Reserve's future role in this critical mission area.



Esther L. George
President and Chief Executive Officer
Federal Reserve Bank of Kansas City

July 2014



This cartoon from the early 1800s includes a caricature of Philadelphia banker Stephen Girard. A gold coin is floating in front of the banker, who states he must collect specie to pay his debts "or the game would be up at once." The satirical drawing reflects the suspicion many had of banks during the post-Revolutionary era.

A Calculus of Chaos

COMMERCE IN EARLY AMERICA

In early 19th century America, paper money was easy to come by, but not so easy to use.

The currency of the time was issued by private banks, and each banknote represented a promise by the issuing bank to exchange the note for an equal amount of gold or silver, known as specie, to anyone who redeemed the note in person at the bank's counter. But using this currency also forced merchants, consumers, workers and bankers to perform a chaotic daily calculus.

Bank charters issued by state legislatures came with a license to print money, and banks exercised this right fully. In the wake of the War of 1812, nearly 200 banks across the United States were printing their own currency, and by 1825, the number of banks issuing notes grew to more than 700. Soon, railroads, canal builders, insurance companies and other private businesses, with the blessings of state politicians, added their own notes to the growing pool of currency circulating throughout the country.¹

Using cash was not as simple as handing over a piece of paper in return for a good or service. For consumers and merchants who might come across notes from dozens of different institutions in the course of their daily business, paying with currency required everyone involved to consider a series of questions: What bank issued this note? Where was the bank located? What kind of financial shape was it in? Was this a real banknote, or a counterfeit? Could the issuing bank honor its pledge to redeem the note for gold or silver? Bankers and merchants in major commercial centers, such as Boston, Philadelphia and New York dealt with this uncertain, risky and inefficient system on a daily basis, and their experiences were typical of the structural challenges faced by others across the new nation.

Coins made from silver and gold ore, like that seen here, backed the currency issued by private banks during the early 19th century.

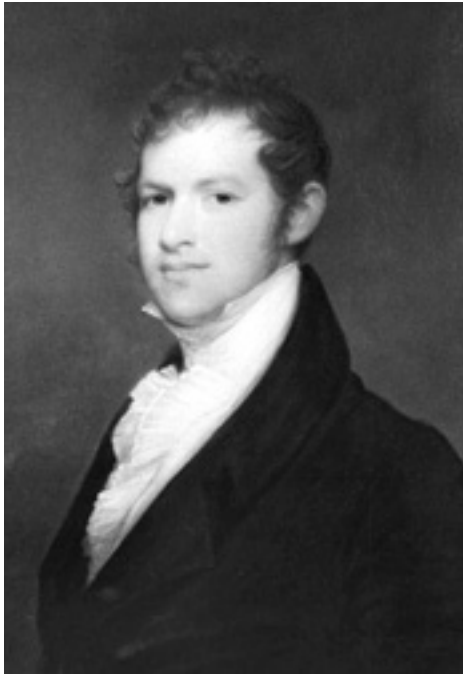


The state of commerce in the early 1800s

The lifeblood of trade and finance in early America was the exchange of paper currency and coins made of precious metals known as “specie.”

While the U.S. Constitution provided that only the federal government could mint coins, private banks determined individual paper notes’ design, denominations and quantity. For consumers and merchants who exchanged banknotes from numerous institutions as they received wages, paid creditors or shopped for goods, the value of an individual note depended on the issuing bank’s distance, its reputation and its perceived financial condition.²

In most major cities, there were essentially two kinds of banknotes: those issued by banks located in the same city, which circulated at face value, and those issued by rural, or “country” banks. While the city banknotes were worth their full face value in transactions,



Andrew Dexter Jr. used worthless currency printed by his Rhode Island bank to pay off his debts in Boston. The scheme unraveled and he fled to Canada.

the notes issued by country banks were generally worth just 95 to 99 cents on the dollar, a discount that reflected the risk associated with accepting notes issued by unfamiliar and far-away rural banks.³ In fact, the nation’s first bank failure, in 1809, involved a distant rural bank, and its story was well known throughout Boston and the rest of New England.

After recognizing the problems and risks involved in the nation’s currency system, Andrew Dexter Jr., the nephew of a U.S. senator from Massachusetts, gained control of a small bank in a remote village in Rhode Island. With creditors closing in and facing personal financial ruin from a failing speculative real estate project in Boston, Dexter ordered his Rhode Island bank to print notes solely so he could pay his mounting

debts with the bank's currency. Dexter counted on his bank's isolated location and distance from Boston to prevent creditors and others from traveling out of state to redeem the notes for specie. However, the scheme eventually unraveled, and after Dexter fled to Canada, authorities discovered he had directed his bank's cashier to print and issue a total of \$600,000 in banknotes, backed by just \$86.48 in specie in the bank's vault.⁴

"Country banks have frequently, if not generally, been established with very little real capital," wrote prominent Boston merchant Nathan Appleton, one of the first to catch on to Dexter's scheme. "The motive and object in their establishment," he added, was not "the investment and employment of capital, but the profit to be derived from the circulation of bank notes."⁵

'Speculators and bloodsuckers'

Appleton's concerns and views about rural banks and their motives were common throughout Boston. Rural banks regularly issued their banknotes throughout the city by making loans to individuals and businesses. The rural institutions would then order their agents in the city to re-purchase the notes at a discount and continue the cycle by making new loans.⁶ This largely unregulated practice—along with the fact that city dwellers were unlikely to travel to small, remote locations to redeem rural banknotes for specie—led many Boston merchants and bankers to accuse rural banks of issuing too many banknotes and engaging in unsafe practices.

"Many banks were established in remote places, mainly for the purpose of making a profit on circulation," wrote D.R. Whitney, a Boston banker. "The more distant they were from the business centres the more expensive it was to send their [notes] home for redemption, and the more difficult it was for the general public to know their true financial condition."⁷

For Appleton and other city merchants, the system of multiple currencies of questionable values also slowed the gears of commerce. To complete a sale, merchants often had to accept whatever banknotes their customers offered. When a merchant counted his money at the end of the day, he had to separate the city banknotes from the country banknotes and then refer to newspapers and other publications find out the going rate for the country notes and whether the notes might be counterfeit.⁸ The Boston banknotes, which were redeemable at their full face value, could be deposited into the merchant's bank account without discount or redeemed for specie at the issuing banks, if the merchant had time to travel to each individual institution.

But traveling outside the city to redeem the country banknotes for specie wasn't a practical option. Usually, the country banknotes were passed on as wages to workers, used



Boston merchant Nathan Appleton voiced concerns about New England's currency system, especially the banknotes issued by rural banks.

to settle debts or sold to brokers, who offered to buy the out-of-town notes at a discount. These brokers, who also charged a commission for their services, would then trade them with other brokers or attempt to redeem the notes in person by traveling to the country banks themselves.⁹ Meanwhile, people held on to their city banknotes because they were more valuable, and they didn't circulate as frequently as a result.

Merchants felt the burden of this system "most severely," Appleton wrote.¹⁰ The brokers, whose commissions were seen as unfair, were despised by merchants, who considered them "speculators and bloodsuckers, whose extirpation would be a public benefit."¹¹

But despite the merchants' perceptions, the brokers provided a service by agreeing to assume the risk of the country banknotes for a fee. Banking historian Bray Hammond noted the brokers, by using their "expert knowledge" of country banknotes, "provided a useful market for such notes and stabilized the dealings in them."¹²

The brokers' job wasn't easy, either. When they arrived at rural banks to redeem banknotes for specie, the banks, which had often printed more notes than the gold in their vaults could back, made the brokers' task as hard as possible. For example, cashiers made it a practice to deal with other customers first, counted and recounted the notes presented to them, exchanged the notes for the smallest possible coins available, and then recounted the

coins again.¹³

“The state of the currency became the subject of general complaint,” Appleton wrote. “(T)he brokers were denounced as the authors of the mischief and the cause of scarcity of money, and the country banks made no scruple of throwing every obstacle in the way of their operations.”¹⁴

The merchants and bankers of Boston decided they had had enough of the risks and costs inherent in this system. Seeing an opportunity to cut out the money brokers, and to lower their own costs, they came up with a plan.



Commerce in Boston during the early 1800s involved banknotes issued by a number of competing institutions. Notes from city banks were considered sound and usually carried their full face value, while those from “country” banks were viewed with suspicion and circulated at a discount.

“Order Out of Confusion”

THE SUFFOLK BANK

As notes from rural banks across New England flooded Boston in 1819, the directors of the city’s large Suffolk Bank felt they could make a profit for themselves, and oil the gears of commerce, by opening what amounted to a regional currency clearing system.¹ The Bank of New England had operated a similar system for a few years in which it accepted country banknotes from other banks at a discount of 1 percent. The Bank of New England then assumed the risk of the country banknotes and would attempt to redeem the notes on its own.

Once it started its own clearing business, the Suffolk Bank “at once entered into a lively competition” with the Bank of New England. The discount on country notes was cut in half to 0.5 percent, but by 1822, the Suffolk Bank ended the new venture because the profits were too small.²

The brief experiment also had the effect of angering rural banks, which did not welcome couriers from the Suffolk Bank showing up at their counters to redeem notes for specie. The small banks’ “animosity...was naturally very much aroused...and much ill-feeling was engendered,” Boston banker D.R. Whitney noted in the Suffolk Bank’s official history, printed years later.³

At the same time, a bank operating with a congressional charter, the Second Bank of the United States, was engaged in a similar practice, but on a national level. Among their goals for the Second Bank, the supporters of the national institution, which opened in 1816, sought to establish a national currency and better manage the credit of the growing nation.⁴ The Second Bank, which had the benefit of being allowed to open branches across the country, issued its currency by making loans to individuals and businesses and received state bank notes in the form of deposits from its customers. It could choose to redeem those notes for specie at the issuing banks to restrain their banknote issuance and provide a check on credit. This method of affecting the ability of state banks to issue loans and banknotes eventually proved to be “comprehensive and effectual,” even as it too, became the target of complaints from other banks.⁵

In Boston, the Suffolk Bank’s absence from the note-clearing business proved to be brief as pressure from Boston merchants and the Suffolk’s own directors, who “had become deeply impressed with the evils attending this undue issue of country money,” led it to

reconsider its earlier decision to stop clearing banknotes.⁶

The directors also had a specific goal in mind: eliminate the country banknotes that had flooded the city. One estimate pegged total rural banknote circulation at \$7.5 million, while the total capital of all Boston banks was just \$300,000.⁷ As the rural banks' agents lent notes much more freely, and people tended to hoard the city banknotes rather than spend them, the Boston bankers felt they were losing out on "much valuable business."⁸



Residents of Boston gather at Boston Common in the mid-19th century.

The Suffolk Bank proposed that it would accept banknotes at their full face value—known as “par” value—from banks that agreed to join its system. To join, the Boston banks had to deposit \$5,000 each in specie at the Suffolk Bank. Rural banks could join the system by depositing \$2,000 or more depending on their capital, plus an additional variable deposit designed to cover any unexpected note redemptions. The member banks would receive no interest on these deposits, but the Suffolk Bank would accept all their banknotes at face value, handle sorting duties and make the necessary credits and debits to each institution's account under a net settlement system.⁹ For merchants, this system proposed to eliminate inefficiencies; for the Suffolk, the plan had the potential to increase its influence and power across the region.

But for the rural banks, the proposed system was “like paying for heating a poker to be thrust through their own bodies.”¹⁰

Beyond requiring a significant deposit of much-needed specie, the Suffolk Bank's plan to redeem all notes at face value would cut the rural banks' profits. If all currency circulated at par value, the new system threatened to eliminate the rural banks' practice of lending and then re-purchasing their own banknotes at a discount.¹¹

But the Suffolk Bank was committed to convincing rural banks to join its system, and it was prepared to see its plan through. The Suffolk purchased rural banknotes at a discount in Boston and waited until it had collected enough to dispatch a courier to the issuing bank who would attempt to redeem all of the accumulated notes for specie. For those banks that had issued more banknotes than their actual specie reserves, this was a threat with potentially significant consequences that could lead to a loss of bank charter, public embarrassment and personal financial ruin for the bank's directors.

The rural banks protested immediately. An agent working for a country bank in Springfield, Mass.—angry that a Suffolk Bank messenger had traveled to the bank to redeem \$22,600 in notes for specie—went to the Suffolk Bank's president and “applied some very abusive remarks,” according to Whitney. The Springfield bank's agent later apologized “in so far as (the remarks) were abusive,” but “he would make no other apology satisfactory to the board, or change his opinion of the action of the bank in its transaction with the country bank.”¹²



Paper money was often the target of satirical drawings in the 1800s. This depiction includes references to President Andrew Jackson, who strongly opposed banks.

Other country banks “naturally were very much excited,” Whitney recalled. “In derision,” they called the Boston banks “the ‘Holy Alliance’” and other names.¹³

But the Suffolk Bank ignored the complaints, and it continued to target resisting rural institutions by dispatching messengers with demands to redeem banknotes for specie until

the small banks gave in and agreed to join the system.¹⁴

The country banks, Whitney wrote, “soon became convinced that a promise to pay, printed on the face of a bank-note, meant a promise to pay specie on demand; that such a demand was likely to be made upon them at any time; and that the associated banks (in Boston), with the Suffolk as the agent, were not to be frightened or turned out of their course by sarcastic words.”¹⁵

One by one, the rural banks throughout Massachusetts accepted the Suffolk’s terms and joined the system. The Suffolk Bank then moved into other New England states, where they encountered resistance again. In Maine, bankers complained to their state lawmakers that after the legislature granted a charter to a new bank, the bank could not open until it sent a representative to Boston, “and laying down the bags of tribute money at the feet of the President of the Suffolk Bank, received from him permission and the terms upon which it may operate.”¹⁶

Despite the protests, the number of banks that joined the Suffolk system continued to grow steadily, and by 1838, about 300 banks in New England, nearly all the banks in the region, had accepted the Suffolk Bank’s terms.¹⁷ “Many of these banks were started with little or no real capital,” Whitney wrote, adding “the bills of these banks, loaned in violation of the usury laws at high rates of interest, were used in the wildest speculations.”¹⁸ The Suffolk Bank wasn’t successful in driving out the rural banknotes from Boston, but the new system was a clear improvement.

Appleton, the Boston merchant, noted that having currency that circulated at face value throughout the region eliminated much of the risk of the previous system, and he proclaimed the country banks “have been obliged to submit in silence.”¹⁹

The silence, however, was to be short-lived.

Suffolk’s regulatory role

In addition to removing much of the risk and guesswork for Appleton and other merchants, there were a number of other benefits stemming from the Suffolk system. Through its ever-present threat to send banknotes back to issuing institutions for specie, the Suffolk Bank provided a check on a largely unregulated financial system.

While country banks might have profited temporarily by overextending credit or by issuing too much currency due to “their ignorance of the principles of sound banking,” the Suffolk Bank stood ready to show them the error of their ways, Whitney wrote.²⁰

By allowing banks to run overdrafts on their accounts at the Suffolk Bank, and by threatening to demand payment on those debts or else return notes to the rural banks for immediate specie redemption, the large Boston institution, in the words of one 19th century historian, “had a stranglehold on the country banks.”²¹



Banks that issued currency in the 19th century used intricate engravings to distinguish their notes. This example is from around 1840.

Additionally, the Suffolk could always remove a bank from its system, a move that “discredited their bills.”²² Such action would be disastrous for a bank, a financial journalist wrote at the time, because “being current in Boston inspires confidence in the soundness of the bank,” and confidence kept a bank’s notes in circulation.²³

The Suffolk Bank used these threats to regulate its members, and it didn’t hesitate to warn banks that were treading into dangerous territory by making risky loans with currency that might not have been backed up by gold or silver. As banking historian Bray Hammond later wrote, the Suffolk “had a puritan conviction of the moral importance of its policy and pursued it with zeal. It scolded its country correspondents like bad boys and admonished them as if their souls and not merely its own earnings were at stake.”²⁴

This zeal is evident throughout the bank’s communications to other institutions. In an 1842 letter to the president of the Woodstock Bank in Maine, the Suffolk Bank criticized the smaller institution because “too large a portion of your loan ... cannot be relied upon at maturity to meet your liabilities.” The letter went on to question the Maine bank’s plans to pay off its overdraft at the Suffolk by expanding the circulation of its banknotes. The Suffolk Bank concluded with a veiled warning: “Since you are now placed at the head of

the institution, we hope you will take measures to change the character of your loan, and render it more available in case of need.”²⁵

To the Eastern Bank of Bangor, which had taken numerous overdrafts from the Suffolk Bank, the Suffolk’s representative wrote: “I can only say if all the banks in New England were moving on at the same rate you are, it would require more than all the capital of the banks in this city to supply their want.”²⁶ To the president of another rural bank who had apparently blamed problems in the lumber industry for its delay in paying its overdraft charges, the Suffolk wrote, “If the water ran in the Penobscot (River) as freely as the specie has run from our vaults since the first instant, you would have no difficulty in getting your lumber to market.”²⁷

The Suffolk was in a unique position. No official body had appointed it to be a regulator of New England’s banking system. But its attempts at unofficial regulation, as crude as they were, developed from its role as the clearinghouse for the entire region. It was a role similar to that of a regional central bank, although its authority was based on market forces. It filled a void, and as one contemporary journalist explained, “the safety to the public is greatly increased, and the trouble of looking into the condition of the banks by the people themselves, (is) almost entirely avoided by the adoption of the Suffolk Bank System.”²⁸



The Panic of 1837 led many banks to suspend specie payments. This cartoon depicts the harsh financial conditions caused by the panic.

The Suffolk's regulatory actions powers were also helpful during an era when financial panics struck every few years. During the Panic of 1837, when banks across the country suspended specie redemption, the Suffolk system remained operational, and New England currency continued to circulate at face value and actually increased in value in some places.²⁹ Several economists have also found the Suffolk's operations helped prevent even greater financial damage throughout the region by acting as a lender of last resort for some banks through its overdraft practices.³⁰

Following the Panic of 1857, the Maine Banking Commission praised the Suffolk Bank, saying its presence "has proved to be a great safeguard to the public." Noting that only three banks in the state had run into trouble during the panic, it added, "Whatever objections may exist to the system in theory, its practical operation is to keep the (currency) circulation of our banks within the bounds of safety."³¹

Simmering hostility

In the Suffolk Bank's official history, Whitney wrote that its "underlying principle" was that any bank issuing currency should "keep itself at all times in a condition to be able to redeem it."³² In carrying out this duty, Whitney said, the Suffolk used "strict justice and impartiality" in deciding when to take action against rural banks.³³

Those lofty principles, however, wouldn't be enough to overcome the simmering hostility rural banks felt toward Suffolk's tactics and power over the years. While Whitney portrayed the Suffolk as being primarily concerned with promoting financial stability for the region, the owners of the bank also reaped their own rewards: Suffolk paid

DIVIDENDS	
OF	
THE SUFFOLK BANK,	
FROM APRIL 1, 1818, TO DECEMBER 31, 1844.	
1818.	October, 1½ per cent. = 1½ per cent.
1819. April, 3¼ per cent.	October, 3¼ per cent. = 7 per cent.
1820. April, 3¼ per cent.	October, 3½ per cent. = 7 per cent.
1821. April, 2½ per cent.	October, 3 per cent. = 5½ per cent.
1822. April, 2½ per cent.	October, 2½ per cent. = 5 per cent.
1823. April, 2½ per cent.	October, 2½ per cent. = 5 per cent.
1824. April, 2½ per cent.	October, 2½ per cent. = 5½ per cent.
1825. April, 3 per cent.	October, 2½ per cent. = 5½ per cent.
1826. April, 2½ per cent.	October, 3 per cent. = 5½ per cent.
1827. April, 3 per cent.	October, 3 per cent. = 6 per cent.
1828. April, 3 per cent.	October, 3 per cent. = 6 per cent.
1829. April, 3 per cent.	October, 3 per cent. = 6 per cent.
1830. April, 3 per cent.	October, 3 per cent. = 6 per cent.
1831. April, 3 per cent.	October, 3 per cent. = 6 per cent.
1832. April, 3 per cent.	October, 3 per cent. = 6 per cent.
1833. April, 3 per cent.	October, 3½ per cent. = 6½ per cent.
1834. April, 4 per cent.	October, 4 per cent. = 8 per cent.
1835. April, 4 per cent.	October, 4 per cent. = 8 per cent.
1836. April, 4 per cent.	October, 5 per cent. = 9 per cent.
1837. April, 5 per cent.	October, 4 per cent. = 9 per cent.
1838. April, 4 per cent.	October, 5 per cent. = 9 per cent.
1839. April, 5 per cent.	October, 5 per cent. = 8 per cent.
1839. September, extra dividend, 33½ per cent.	
1840. April, 4 per cent.	October, 4 per cent. = 8 per cent.

Suffolk Bank shareholders received large dividends, leading to conflicts with many rural banks throughout New England.

its shareholders sizeable dividends, its stock price was usually among the highest of all companies in Boston,³⁴ and even Whitney remarked the banknote-clearing business was “very remunerative.”³⁵

These profits were a sticking point for some rural banks, which felt the Suffolk was benefiting at their expense, and their anger continued to simmer. In the early 1830s, similar feelings on a national level led to political battle over the Second Bank of the United States that was driven by a belief that the Bank had too much power. After winning the 1832 presidential election, Andrew Jackson vetoed a bill to renew the Bank’s charter and moved the government’s deposits from the Second Bank to state banks. In 1836, the Bank’s charter expired and the nation’s second attempt at a central bank ended.³⁶

In 1852, the same kind of distrust and concerns over the power of a large bank exploded into the public view in New England. The details are unclear, but the South Royalston Bank in Vermont asked the Suffolk Bank “to make an arrangement...differing from that usually made with other banks.” The Suffolk declined the request and then sent its own courier to redeem \$10,000 of the Vermont bank’s notes for specie. “Instead of paying, by some process of Vermont law the bills were attached and the messenger put under arrest,” Whitney wrote. “A novel way of paying one’s promises!”³⁷ The matter was eventually worked out, but the rural banks’ resentment grew.

Three years later, a number of rural bankers finally convinced the Massachusetts legislature to grant a charter for another institution to compete with the Suffolk Bank in the note-clearing business. Whitney dismissed this development as the result of a “growing impression” that the Suffolk was too profitable and “the old feeling of ill-will among the weak banks, which had been compelled to keep their circulation within bounds.”³⁸

It took a few years for the new institution, the Bank of Mutual Redemption, to open its doors, but when it began operations in 1858, a number of banks withdrew their deposits from the Suffolk and joined the new bank’s clearing system. In response, the Suffolk refused to recognize the new coalition and the banknotes of its former members, setting off a series of final conflicts with the rural banks.³⁹

Detailed accounts of the Suffolk’s redemption visits to rural banks—and those banks’ efforts to resist note redemption—began appearing in local newspapers. Headlines shouted “Suffolk Boar Enraged” and “Suffolk Tyranny Rebuked.”⁴⁰ In New Hampshire, a cashier of a bank that had left the Suffolk system wrote that the Suffolk’s messenger “kindly proposed to drive (the bank) into insolvency,” and in Lowell, Mass., a local newspaper sponsored a

petition to ask the legislature to revoke the Suffolk Bank's charter.⁴¹ Even in friendly Boston, newspapers warned the Suffolk to end its “rule or ruin’ policy.”⁴²

Despite the criticism in the press, the Suffolk Bank continued to send large amounts of banknotes to rural institutions for specie. In another visit to the same New Hampshire bank as before, the Suffolk messenger was stymied and forced to wait as the town's residents suddenly materialized to make deposits and conduct other business at the bank. The Lowell newspaper suggested that other rural banks and residents work to delay the Suffolk's agents so that “the extreme chilliness of the atmosphere might render rapid movements by the clerks difficult in the presence of Suffolk messengers.”⁴³

That fall, three “eminent” lawyers working on behalf of the Bank of Mutual Redemption issued a statement accusing the Suffolk Bank of unlawfully interfering in the business of its new competitor. The lawyers further alleged the Suffolk's practice of accumulating banknotes in massive quantities and then attempting to redeem them at rural banks was the kind of activity that might support a charge of criminal conspiracy against the Suffolk's officers.⁴⁴

If that wasn't enough, the Massachusetts Bank Commission paid a visit to Suffolk and warned that it was concerned about the impact the Suffolk's actions had on other banks and the monetary system as a whole, and it ordered the Suffolk Bank to recognize the Bank of Mutual Redemption and its members' banknotes. Soon after, instead of following the commission's orders, the Suffolk Bank simply announced it would stop receiving banknotes at face value.⁴⁵

Even in the end, the Suffolk Bank remained defiant and confident of its position. It published a notice stating that its opponents had worked to “place the bank in a false attitude before the public” and that it did “not wish to stand in the way of the attempted experiment of a foreign money system to be conducted on less stringent principles.”⁴⁶

The Suffolk's legacy

Even after the Suffolk ended its clearing system in late 1858, “the bank had not labored in vain,” Whitney later wrote. “It found the currency of New England in a chaotic state; but...it had brought order out of confusion.”⁴⁷

As he reflected on the Suffolk's successes, Whitney highlighted three “useful lessons” from the bank's role as a regional clearinghouse and de facto regulator.



This engraving, representing the agriculture industry, adorned a banknote from the mid 1800s.

First, Whitney argued, a currency “must be redeemable at some central point” for it to remain “sound and healthy.” Secondly, when the public is confident of paper currency’s value, “the more widely it will circulate, thus benefitting both the banks and the public.” Finally, “banks should complain of no reasonable expense that will accomplish so desirable an object.” Furthermore, for Whitney, the Suffolk Bank’s experience proved that such goals “might be effected by private enterprise at less expense, and yet with as much safety to the public.”⁴⁸

In a history of U.S. banking in the 19th century, John Jay Knox, an early advocate for a national banking system and a longtime comptroller of the currency in the late 1800s, praised the Suffolk’s efficiency, writing that “the fact is established that private enterprise could be entrusted with the work of redeeming the circulating notes of the banks, and it could thus be done as safely and much more economically than the same services can be performed by the Government.”⁴⁹

For its supporters, the Suffolk Bank proved the private sector could play a significant role in assuring the payments system’s safety and efficiency, and in some ways, it played a role similar to that of a regional Federal Reserve Bank in the payments system and bank

regulation nearly a century before the Federal Reserve came into existence.⁵⁰ The Suffolk also operated along with the Second Bank of the United States in seeking to restrain private banks' printing presses and lending, and while both institutions met their ends amid questions over power, the Suffolk Bank operated more than two decades longer than the country's official central bank and without the resources and authority provided by federal law.

But the complaints that plagued the Suffolk system and the Bank of the United States—primarily that a large institution profited at the expense of smaller ones, that financial power should not be concentrated into a single entity, and that some regulation could be heavy-handed and unreasonable—would echo for years to come.



THE NEW YORK CLEARING HOUSE ASSOCIATION BUILDING.
CEDAR STREET BETWEEN BROADWAY AND NASSAU STREET.

The New York Clearing House Association was established to serve as a central location for banks throughout the city to clear checks. The association held its first meeting in a basement in 1853 at 14 Wall Street and moved in 1896 to the building pictured here. One banker described the white marble structure as “an adornment to the city and ... one of the architectural gems of the world.”

“A New Era”

THE CLEARINGHOUSE

On a typical New York morning in the 1890s, two clerks from each of the city’s 50 or so largest banks would gather at “a beautiful and commodious” room inside a domed marble building in the heart of the financial district.¹ The clerks, carrying envelopes filled with checks drawn on accounts at other banks, settled into their assigned places to await the start of the day’s business at the New York Clearing House.

At 9:59 a.m., the clearinghouse manager struck a bell as a warning that business was about to commence. A “delivery clerk” from each bank lined up on the outside of the room, while their colleagues—the “settling clerks”—took their positions at a line of desks on the inside.² Any clerk not in place when the bell sounded was fined \$2.³

“Ready,” the manager said, and at 10 a.m., he struck the bell a second time to mark the beginning of that day’s settlement.⁴ With “all the precision of a military drill,”⁵ each delivery clerk exchanged an envelope of checks for a receipt from each settlement clerk. Within 10 minutes, millions of dollars in checks had exchanged hands, and all accounts were settled early that afternoon.⁶

This scene at New York’s clearinghouse—the oldest and largest such organization in the country—is repeated daily in other major U.S. cities to support the growth of the country’s newest payment method—the check.



Making the Exchange in the Minutes, at the Clearing House.

Clerks from banks in New York City met daily at the clearinghouse to exchange checks with military-like precision.

“Unavoidable blunders”

By the mid-19th century, the check began to replace currency and coin as the preferred method of payment by businesses and wealthy individuals. At the same time, the banking industry in large commercial centers such as New York City was expanding at a rapid pace.

In New York, the number of banks more than doubled from 24 in 1849 to nearly 60 by 1853.⁷ Messengers from each of these banks traveled across the city daily to deliver checks and drafts drawn on accounts at other banks. These messengers “crossed and re-crossed each others’ footsteps constantly; they often met in companies of five or six at the same counter,” and their deliveries could take hours to complete.⁸

Each bank made daily notes in their ledgers for the checks they received, but settlement for the week took place on one day. According to custom, the messengers gathered each Friday outside one of the banks on Wall Street to settle accounts with specie, but the entire process “was one of confusion, disputes, and unavoidable blunders,” according to one observer, who described a typical Friday meeting:

Thomas had left a bag of specie at John’s bank to settle a balance, which was due from William’s bank to Robert’s; but Robert’s bank owed twice as much to John’s. What had become of that! Then Alexander owed Robert also, and William was indebted to Alexander. Peter then said, that he had paid Robert by a draft from James, which he, James, had received from Alfred on Alexander’s account. That, however, had settled only half the debt. A quarter of the remainder was cancelled by a bag of coin, which Samuel had handed over to Joseph, and he had transferred to David.



This illustration depicts the chaos of “The Old Fashion of Settlement on Friday” in New York City before the clearinghouse was established.

“It is entirely safe to say, that the Presidents and Cashiers of the banks themselves could not have untangled this medley,” the observer concluded.⁹

New York was stuck with this inefficient settlement system even as the popularity of checks as a payment method grew and threatened to choke the payments system. Some, including Albert Gallatin, who had served as Treasury secretary for 13 years under Thomas Jefferson and James Madison, criticized the haphazard weekly settlement method, writing that it “produces relaxations, favors improper expansions and is attended with serious inconveniences.”¹⁰

In 1851, George Lyman, a clerk at the Bank of North America, wrote a letter to the *New York Journal of Commerce* proposing that all banks gather daily at a single institution that would serve as a place of exchange for checks and bank drafts to be settled at a set time.¹¹ Lyman and others who backed his idea hoped the change from a weekly settlement to a daily settlement would reduce the inefficiency and risk involved in clearing and settling checks.

Eventually a committee of the city’s banks was organized to find a location for a new clearinghouse. In October 1853, the New York Clearing House Association opened in the basement of 14 Wall Street, with Lyman as its manager.¹² On its first day, the clearinghouse settled \$22.6 million in checks,¹³ and the concept gradually expanded to other cities, including Boston, Philadelphia, Chicago, Kansas City and beyond.

The establishment of the clearinghouse was viewed as an immediate improvement. “Its complete success soon banished all feelings but those of gratification and common interest,” wrote New York banker J.S. Gibbons.¹⁴ The clearinghouse, he added, “has brought about a new era in our city banking. . . . In a few months, it has done more real service to the interests of trade in New York, than the Chamber of Commerce in the century of its existence.”¹⁵

Growth of checks

As the New York Clearinghouse opened for business, check usage continued to become more popular. By 1855, the value of checking accounts in the United States was higher than the value of all currency in circulation,¹⁶ and new banking laws established in the 1860s helped promote the use of checks further. The National Banking Acts of 1863 and 1864 established federally chartered banks, and the nation soon developed a uniform currency printed by the government and backed by the U.S. Treasury. The laws also resulted in the formation of new correspondent banking relationships between rural banks and their urban counterparts.

Under the National Banking Acts, rural banks were allowed to count their own deposits held at other banks in designated “reserve cities” as part of their required reserve amounts.¹⁷ In addition, all banks were allowed to hold reserves with banks in New York City, making New York “a clearing house for the whole country, as well as for its own immediate traffic.”¹⁸

These correspondent relationships also allowed for easier settlements between banks. With bank reserves housed at correspondent banks in a few key commercial cities, rural banks could often settle a payment obligation with another institution by asking its city correspondent to transfer funds from its reserve account as needed.¹⁹ This reduced rural banks’ reliance on couriers to transport currency and coin to multiple banks, some of which were located in distant places.

With these developments, use of the check continued to grow, and the amount of currency in circulation continued to fall. In 1867, the value of deposits held at banks was nearly twice that of the value of currency in circulation; by 1890, the nation’s bank deposits were three times the value of all currency.²⁰

But despite the improvements in settlement and payment practices across the country, new problems arose.

From Rochester to Birmingham via Cincinnati and Baltimore

According to custom, a check that was presented in person at the counter of the bank on which it was drawn was paid at full face value. But, banks that received checks by mail were allowed to assess a charge, typically ranging from 0.1 percent to 0.25 percent of the face value, although this varied by bank.²¹

In many cases, competition forced city banks to absorb these charges on behalf of customers who brought in out-of-town checks.²² However, rural banks, which weren’t members of urban clearinghouses, received many checks by mail from city banks and assessed a charge on each one. These so-called “exchange fees” were a significant source of profit: According to some estimates, between 20 percent and 50 percent of a typical rural bank’s profit was a result of not remitting the full face value of the checks written by its account holders.²³

In an attempt to avoid these charges, banks would avoid mailing an out-of-town check directly to a “non-par” bank. Instead, banks sent the check to a correspondent bank in another city, which in turn sent the check to its own correspondent somewhere else. This

“circuitous routing” led to new inefficiencies and delays. A check could take weeks to reach its destination, one banker noted, moving “along from station to station, on its erratic course, until such time as by accident or otherwise, it finds its final lodgment.”²⁴

In 1910, James G. Cannon, vice president of the Fourth Bank of New York City and an expert on the operation of clearinghouses, described the journey of a check made out for \$43.56 by a business in Sag Harbor, N.Y., to another business in Hoboken, N.J. To avoid the exchange charge, the Second National Bank of Hoboken, which accepted the check from its customer, first sent it to Harvey Fisk & Sons in New York City. From there, it traveled through nine institutions across the region before finally reaching its final destination at a bank in Sag Harbor—all to avoid an exchange charge from the Sag Harbor bank.²⁵

Several years later, W.P.G. Harding, the second chairman of the Federal Reserve Board in Washington, recalled another notable check. A bank in Rochester, N.Y., sent a check drawn on a Birmingham, Ala., account to a correspondent bank in New York, which sent it along to a bank in Jacksonville, Fla. From there, it traveled to Philadelphia, Baltimore and Cincinnati before it finally reached the originating bank in Birmingham.²⁶

Bankers across the country tried to address these delays, but there wasn't enough support for a single solution. A national conference of clearinghouses convened in 1899 to attempt to coordinate collection charges across the country, but the effort was abandoned. Later, a committee organized by the American Bankers Association held annual meetings to study the problem, but there was no agreement on establishing standard check-clearing charges or developing larger, regional check-clearing systems. Rural bankers did not want to give



Early checks from the 1850s often carried ornate designs.

up their revenue from assessing fees on checks, urban banks feared they would lose the accounts of their rural bank correspondents if standard fees were established, and bankers in large cities such as New York wanted consumers and businesses to stop using checks altogether in favor of bank drafts, which cost less to settle.²⁷

In New York, members of the clearinghouse agreed to charge customers who deposited any out-of-town checks a minimum of 10 cents per check, with higher charges for larger-value checks. These fees discouraged the use of rural checks within the nation's largest financial center. Any clearinghouse member that didn't follow the fee schedule was fined \$5,000 for the first offense and would be kicked out of the clearinghouse for the second offense.²⁸

Supervision and other duties

By the turn of the century, clearinghouses across the country had expanded their operations beyond the clearing and settlement of checks, and the clearinghouse had evolved into "a medium for united action" for member banks to deal with "all questions affecting their mutual welfare" Cannon said.²⁹

Some clearinghouses required members to agree to pay a set interest rate on deposits, and, much like the Suffolk Bank had during its time, the clearinghouses acted as a bank supervisor, requiring members to submit to regular examinations, meet capital requirements and undergo regular audits from clearinghouse employees. Clearinghouses also examined member banks in response to rumors about their condition and made the results public as a way to assure confidence in an institution. Banks were kicked out of the clearinghouse for not agreeing to these conditions, and they applied for readmission routinely.³⁰

In Kansas City, Stanley Young, an accountant who held the title of Clearing House Examiner, said the new supervisory role of clearinghouse was "justifiable" and made it "possible for the confidence of the public to be restored during any unwarranted run on an individual bank by the announcement of clearing house support."³¹ Examiners such as Young were becoming more common at clearinghouses across the country, and these specialists were "ready to go to work at a moment's notice."³²

Young also described another emerging role at the Kansas City Clearinghouse: that of a credit bureau. Members of the Kansas City Clearinghouse exchanged information on borrowers, with the idea that any borrower who attempted to take out large loans from multiple institutions would be flagged as a credit risk. Young noted that "it is feasible to gather valuable credit data; all large borrowers are indexed and observed, and facts as to

their total local obligations are quickly available upon request for any interested member of the association.”³³

Despite the inefficiencies surrounding the circuitous routing of checks, clearinghouses and the correspondent banking system helped create a network connecting thousands of institutions and millions of check writers across the country by the beginning of the 20th century. However, many remained concerned about the banking system’s continuing tendency to fall into a crisis every few years and the long chain that ultimately linked each bank’s health to that of their correspondent institutions.



In 1906, Jacob Schiff, a senior partner in the investment bank Kuhn, Loeb and Co., and a rival of J.P. Morgan, warned in a speech to the New York Chamber of Commerce that unless the country acted to reform its financial system soon, “a panic would sooner or later result compared with which all previous panics would seem as child’s play.”³⁴ A year later, his prediction came true.

Banks settled accounts at the end of each day by bringing bags of specie to the clearinghouse. A specie clerk would then pay out any amounts due to banks by 2 p.m.



Police stand guard outside a failed bank in New York City in early 1908. A financial panic the previous fall led to a shortage of currency across the country, leading many to adopt unique forms of payment such as clearing house loan certificates, small-denomination checks and streetcar fare tickets.

“A Famine of Currency”

THE PANIC OF 1907

On Tuesday, Oct. 22, 1907, anxious depositors, bank couriers and onlookers gathered in front of the Knickerbocker Trust Co. before it opened for business that morning. For the past week, New York’s financial community had been rocked by a series of revelations about the Heinze brothers, who had failed in an attempt to corner the copper market. Questions about the brothers’ involvement with brokerages, banks and trust companies across the city fed a growing sense of doubt about the safety of the entire financial system.

During the previous week, the New York Clearing House Association attempted to ease the fears with pledges to stand by banks rumored to be close to failure. After a “prolonged meeting” lasting through the night on Saturday and into Sunday morning, the clearinghouse announced that after careful examination, its member banks were solvent and it stood ready to meet “all legitimate demands upon the banks.”¹ The pledge by the clearinghouse, which also ordered an associate of the Heinze brothers to leave the New York banking industry, resulted in a “wave of relief which swept through Wall Street.”²

However, the new burst of confidence faded quickly. On Monday, the National Bank of Commerce announced it would no longer clear payments for the Knickerbocker Trust Co., which was not a clearinghouse member and didn’t receive the same protection as member banks. The next day, lines began forming at the Knickerbocker’s headquarters on Fifth Avenue and at branches in the outlying boroughs.

While the line included depositors attempting to withdraw cash from their accounts, many others were couriers from banks seeking to cash checks drawn on accounts at the Knickerbocker. One courier complained “bitterly” about the line’s length to the *New York Times*’ correspondent that morning, saying “Every half hour is costing me five dollars. I have got to get cash for the Clearing House and I am fined for each half hour’s delay.”³

Throughout the morning, tellers methodically paid out cash to depositors and cashed the checks presented to them by other banks. “Many of the men carried satchels, showing they were prepared to carry off every dollar coming to them,” the *Times* wrote. “(A) young man, with hands trembling, stacked his trousers pockets full of one-hundred-dollar and twenty-dollar bills.”⁴

At the Knickerbocker’s Brooklyn branch, a courier from the Hanover National



The October 1907 failure of the Knickerbocker Trust Co. in New York City led to a severe financial panic that affected banks across the country.

Bank presented the teller with a check drawn on an account at the Knickerbocker for \$1.5 million. “The paying teller handed out the money, and immediately closed down his window,” the *Times* wrote.⁵ Shortly afterward, the trust company’s other offices stopped payments and closed their doors.

The withdrawals from New York set off a chain reaction across the country, and banks in other cities began withdrawing money from their New York correspondents.⁶

“Everywhere the banks suddenly found themselves confronted with demands for money by frightened depositors,” one contemporary economist remarked. “Everywhere also banks manifested a lack of confidence in each other. Country banks drew money from city banks and all the banks throughout the country demanded the return of funds deposited or on loan in New York.”⁷

In Chicago, banks halted all currency shipments to their smaller correspondent banks. In Minneapolis and St. Paul, banks stopped making payments on checks and certificates of deposit, and in New Orleans, banks limited outgoing payments to \$50 each.⁸ Many who could withdraw cash from banks stashed it away in safe deposit boxes or attempted to profit by selling it at a premium to money brokers.⁹

The nation’s latest banking panic was underway.

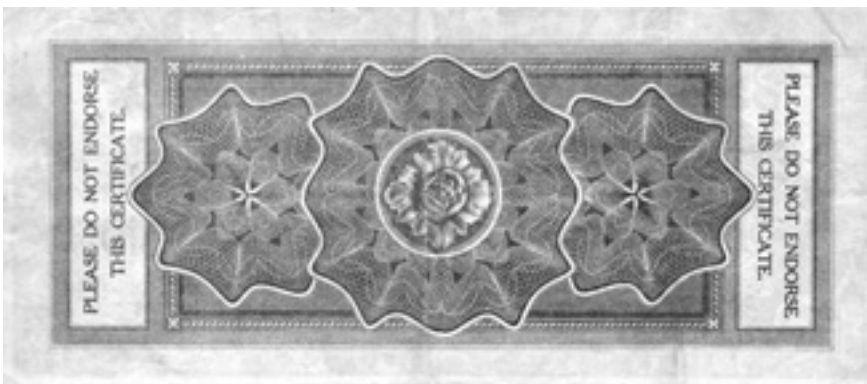
A cash shortage

As banks in New York and other cities faced a spreading cash shortage fueled by fear and hoarding, local clearinghouses turned to a tool that had a proven track record—clearinghouse loan certificates. These pieces of paper, issued by clearinghouses during past crises, served as a currency substitute for member banks to settle payments among themselves. By using the certificates—which some considered illegal under the national banking system—banks could free up their cash for payments to depositors.¹⁰ In the past, the certificates were only

used in transactions between banks at the clearinghouse. However, during the 1907 panic, the certificates found their way into the hands of the public, and they were used as cash in everyday transactions in many cities.¹¹

Banks also began limiting the amount of cash depositors could withdraw, which was also illegal under the banking laws of the time. However, state banking regulators in 1907 made it clear they would look the other way on such violations.

In Iowa, regulators recommended that bankers “take the depositors into the confidence of the bank; fully explain to them the situation and ask them to co-operate to the extent of accepting checks, drafts and other forms of credit. . . .It may be necessary for your bank to limit the amount of cash payments to depositors.” In Oklahoma, the state banking commissioner said that he could not officially endorse a proposal from the Oklahoma Bankers Association to limit cash withdrawals from banks, but he conceded that “no banks would be closed because they followed the plan.”¹²



The Kansas City Clearing House Association was one of dozens of groups that issued clearinghouse loan certificates in their local markets to deal with a nationwide currency shortage.

Along with clearinghouse loan certificates, other forms of alternative currency circulated in local markets. In Denver, Kansas City and Omaha, clearinghouse checks, cashier's checks and other items were used as forms of payment. Rural towns, such as Hastings, Neb., Sedalia, Mo., and Guthrie, Okla., also adopted similar payment forms, and clearinghouse loan certificates circulated in cities that did not have a clearinghouse before the panic. These certificates were issued and backed by local bankers who formed temporary committees that dubbed themselves "clearinghouses" in order to deal with the currency shortage in their communities.¹³

With little cash available, businesses, which traditionally paid workers only in currency, were forced to find other ways to meet their payrolls. U.S. Steel broke with custom and decided to pay its workers with a combination of cash and small-denomination checks.¹⁴ Businesses in New York, Birmingham, Ala., and Pittsburgh issued millions of dollars in pay checks in denominations of \$1 or \$2. "The offices of large corporations were also very busy places before pay-days, as all the checks had to be signed," one observer noted. "Some clerks could sign 400 to 500 checks in eight hours, and the amount of men required and the labor involved in issuing from 30,000 to 40,000 checks twice a month can be appreciated."¹⁵

Businesses elsewhere took unusual steps to ensure workers were paid. Employees of the streetcar system in Omaha were paid in the nickels received as fares, and streetcar workers in St. Louis received 5-cent fare tickets as wages.¹⁶ Some factories, however, were forced to shut down, lay off workers or reduce production because of "the sheer impossibility of securing any medium for the payment of wages."¹⁷

Remarkably, these alternative payment methods seemed to work in some cities. An observer noted the substitutes passed "almost as freely as greenbacks or bank-notes from hand to hand and from one locality to another," and clearinghouse certificates issued in San Francisco were used as far away as Philadelphia and Hawaii.¹⁸ Competition in St. Louis among merchants who advertised that they accepted wage checks resulted in one jeweler offering a 10 percent discount for customers who used the checks instead of other forms of payment.¹⁹

In its 1907 Annual Report, the Comptroller of the Currency noted "one of the peculiar features" of the crisis was "that there has actually been more of a panic among the banks themselves than there has been among the people. ...It has been remarkable how patiently and with what forbearance the people in the business community generally have borne with the situation and helped the banks to deal with the emergency."²⁰

A. Piatt Andrew, a Harvard economist who would become director of the U.S. Mint and, later, a congressman, noted that “most of this currency was illegal, but no one thought of prosecuting or interfering with its issuers. ... In plain language, it was an inconvertible paper money issued without the sanction of law, an anachronism in our time, yet necessitated by conditions for which our banking laws did not provide.”²¹

Eventually, confidence in the banking system returned and the cash shortage ended. In New York, the clearinghouse loan certificates circulated publicly for about five months, while in other cities, certificates, checks and other items circulated as currency from eight to 10 weeks.²²

Lessons learned

In the immediate wake of the 1907 panic, the clearinghouses received some of the credit for preventing the crisis from being even worse. “I believe that one of the most potent factors in stopping the force of the recent panic was the issue of these Clearing House loan certificates by the clearing houses throughout the country,” remarked James Cannon, vice president of the Fourth Bank of New York.²³

Another important factor in halting the crisis was the role played by financier J.P. Morgan, who had previously bailed out the government during a crisis in 1895. During the 1907 panic, Morgan pooled together the resources of bankers and others to provide liquidity to the markets, serving in a lender-of-last resort role.²⁴ However, many felt the crisis exposed the financial system to the whims of wealthy individuals and called for a more structured way to respond to financial crises.

Some felt the roles filled by a clearinghouse—specifically that of a backstop for member banks during a panic—should be expanded. Somewhat ironically, in the same edition in which it reported the failure of the Knickerbocker Trust Co., *The New York Times* printed a commentary from an Illinois banker calling for “the incorporation of Clearing Houses under a Federal law in every State of the Union.” These institutions, the banker wrote, “could by the immediate emission of legal and well secured issues prevent such a contraction of credits, which is such a strain upon the business interest of the country, making wreckage of many solvent firms.”²⁵

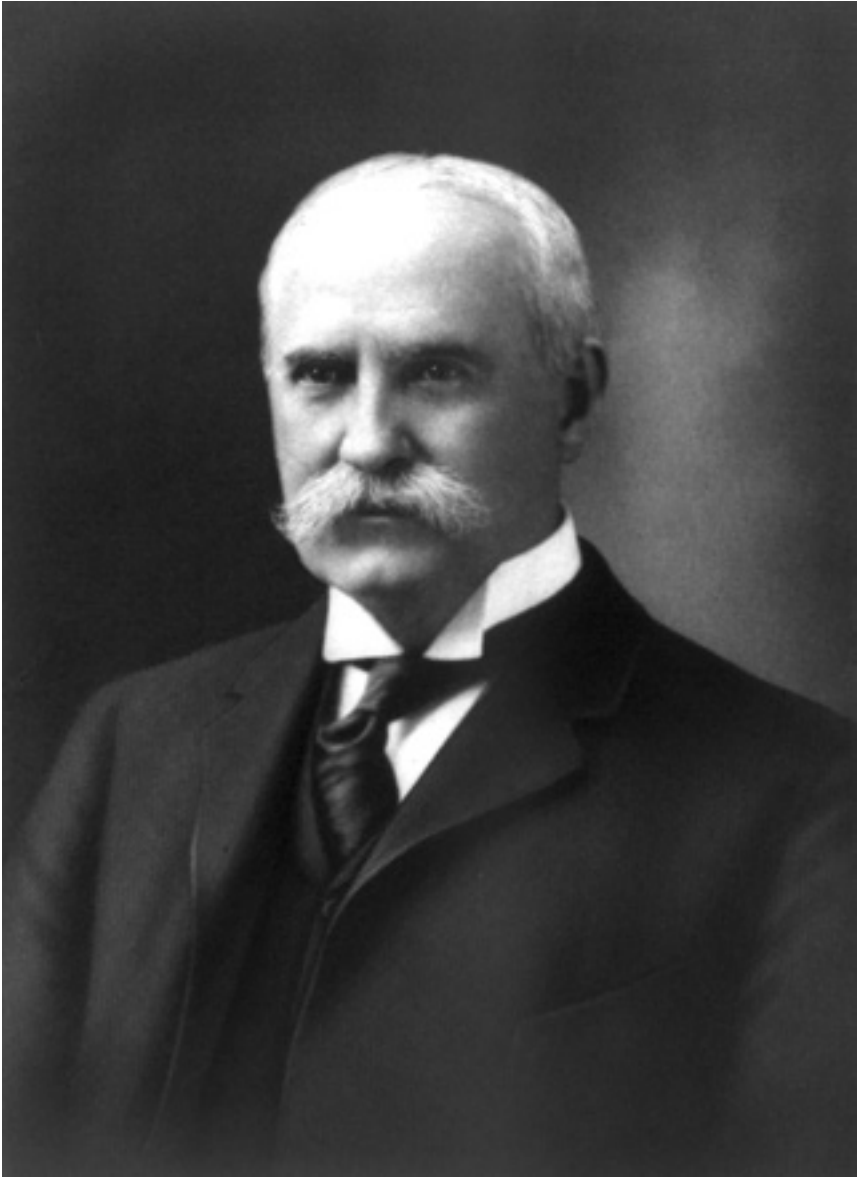
A few years later, economist O.M.W. Sprague also made note of the lingering banking and economic problems highlighted by the crisis. Sprague argued that “somewhere in the banking system of a country there should be a reserve of lending power, and it should be



The headquarters of the Kansas City Clearinghouse Association located in downtown Kansas City, Mo. Many commentators credited the actions of local clearinghouses for limiting the negative effects of the Panic of 1907.

found in its central money markets. Ability in New York to increase loans and to meet the demands of depositors for money would have allayed every panic since the establishment of the national banking system.”²⁶

William Ridgely, the comptroller of the currency during the panic, was even more forceful in his review of the crisis. Describing “a famine of currency” in 1907, he wrote that “banks have been fearful that the reserve system would break down, and in consequence it has broken down.” In addition, he argued, the example set by the clearinghouses “should carry us further and to the inevitable and logical conclusion and lesson to be drawn from it, which is that we should have a national central bank of issue and reserve.”²⁷



Republican Sen. Nelson Aldrich of Rhode Island proposed a National Monetary Commission to investigate the causes of the Panic of 1907. Aldrich's plan would also allow banks to form associations and issue emergency currency that could be used in financial panics. Later, Aldrich backed a central bank system that was criticized for being dominated by banking interests.

“The Highways of Commerce”

.....THE ROAD TO A CENTRAL BANK.....

As the immediate effects of the 1907 crisis faded and economic conditions returned to something resembling normal, a nagging question remained: What, if anything, could be done to prevent the nation’s banking and payments system from seizing up every few years?

Sensing an opportunity to capitalize on the issue during an election year in 1908, lawmakers brought their numerous ideas to Washington. “Scarcely a senator or representative presented himself in Washington without some measure of ‘currency reform’ framed to forestall the recurrence of such distress,” wrote one contemporary observer. These included bills to establish a central bank, proposals allowing the Treasury Department to issue special currency during panics and calls to simply legalize clearinghouse certificates—the temporary currency issued by private coalitions of banks during panics.¹

In laying out the challenge facing Congress that February, the powerful Republican Sen. Nelson Aldrich described the Panic of 1907 as “the most acute and disastrous” financial crisis in the country’s history up to that point. “The suspension or disarrangement of business operations threw thousands of men out of employment and reduced the wages of the employed,” he added. “If the business interests of the country are left defenseless through the inaction of Congress, the most serious consequences may follow.”²

Aldrich’s plan, which was combined with a similar measure in the House from fellow Republican Rep. Edward Vreeland, would allow 10 or more banks to form an association that could issue emergency currency backed by the banks’ commercial paper and other assets during a panic. The Treasury secretary would distribute the emergency notes, which would be heavily taxed until they were pulled out of circulation. As passed by Congress, the Aldrich-Vreeland Act also established a National Monetary Commission composed of lawmakers who would study the causes of the Panic of 1907, travel to observe other nations’ financial systems and then report back to make further recommendations.³

For critics, the Act was a hodgepodge of half-measures that had little chance of working during an actual panic. “It is evident from the start, that the haste with which it was pushed through Congress must have made careful legislation impossible,” wrote University of Chicago economist J.L. Laughlin a few months after the Act became law. “Certainly the law is a failure, if it was expected to quiet the urgent demand for banking reform; and the political

gains are far to seek.”⁴

Laughlin felt the process of forming a currency association among multiple banks would be too slow and ineffective amid a panic, and he predicted the financial system would simply turn once again to using clearinghouse certificates. The law, he said, was “a Pandora’s box full of unknown possibilities for evil. It is an amazing lesson on the folly of politics in banking.”⁵



Sen. Robert Owen of Oklahoma felt Aldrich’s plan for issuing emergency currency would not prevent another financial panic.

Democrat Sen. Robert Owen of Oklahoma also voiced objections. An attorney and banker, Owen had personal experience with previous panics, noting in a memoir that his bank in Muskogee, Okla., lost half its deposits during the Panic of 1893.⁶ Owen remarked that the Aldrich-Vreeland Act’s emergency currency might be helpful following a crisis, but the Act’s “cumbersome” requirements “defeated the object of preventing panic.”⁷

“It should always be kept in mind that it is not the welfare of the bank, nor the welfare of the depositor which is the main object to be attained,” Owen said, “but it is the prevention of panic, the protection of our commerce, the stability of business conditions, and the maintenance in active operation of the productive energies of the nation which is the question of vital importance.”⁸

National Monetary Commission

Despite the criticisms, the National Monetary Commission, led by Aldrich, began its work. After traveling across Europe for many months, hearing from experts and publishing dozens of volumes of reports, the 18-member group finally submitted its recommendations, along with another reform bill, in 1912.⁹

The commission's final report contained an extended list of the nation's banking problems, which included a lack of "cooperation of any kind among banks outside the clearing-house cities." In addition, the report argued the clearinghouses "have, in fact, never been able to prevent the suspension of cash payments by financial institutions in their own localities in cases of emergency." The report also stated there was "no effective agency covering the entire country" that would promote an efficient and unified national payments system.¹⁰

To remedy these and other problems, Aldrich's new bill called for the establishment of a National Reserve Association (NRA) with 15 branches. The association would have the power to transfer deposit balances between member banks, "by mail, telegraph, or otherwise."¹¹ In addition, local associations could establish clearinghouses in their cities with the approval of three-fourths of their members and the NRA.

The bill planted the seeds for a national clearing system, however, critics focused on the proposed association's board, which would be led by 46 directors dominated by the banking industry with little public oversight.

"The effect of the plan was to place absolutely in the hands of the banks the control of the reserve system," and the association's "stupendous power" would rest "in the hands of five men in New York City" serving as officers, Owen remarked later.¹² Owen also noted there was "very resolute opposition in Congress toward turning over the entire control of the credit system of the United States to private hands and practically uncontrolled by the national government."¹³

With Democrats now in power, Aldrich's plan went nowhere, and a separate effort by other lawmakers would lend additional support to the notion that New York's financial industry already had too much power.

The Pujo Committee

In May 1912, a congressional committee led by Rep. Arsene Pujo of Louisiana began its own investigation into the causes of the Panic of 1907 and the concentration of wealth and power on Wall Street. The committee sought to expose a "money trust" involving a network of New York bankers, the New York Stock Exchange and other financial interests.

While much of the focus was on individual bankers such as J.P. Morgan, Jacob Schiff and others, the committee's final report in early 1913 also examined the role of clearinghouses during the panic, specifically the New York Clearing House Association. The committee acknowledged the clearinghouse provided "a most useful and important



Rep. Arsene Pujo led a congressional investigation into the concentration of wealth and power on Wall Street in the wake of the Panic of 1907.

function” as long as it was “confined to its legitimate purpose.” However, in New York, the clearinghouse could act as both “a power for good or evil.”¹⁴

The committee found that “sacredly guarded” information on the condition of banks obtained by examiners from the Office of the Comptroller of the Currency was “freely exchanged” with staff of the New York Clearinghouse. As a result, the committee of bankers who oversaw the management of the clearinghouse gained “an intimate knowledge of the business and affairs of their competitors,” the committee alleged.¹⁵

In addition, membership in the clearinghouse was compared to a “private club” by some witnesses who testified before the committee.¹⁶ Small bankers claimed that when the New York Clearinghouse removed their ability to clear checks through a clearinghouse member, depositors and others viewed the decision as a vote of no confidence in the smaller banks, which “were compelled to close their doors within a day after the privileges of the association had been withdrawn from them.”¹⁷

The committee also criticized the clearinghouse’s practice of setting and enforcing check collection charges for members. The practice “suppresses competition in a very important commercial service and is a clear usurpation of power,” the committee said.¹⁸

Because they played such a “vital and delicate” role in the financial system, the clearing



The Pujo Committee found clearinghouses were “useful and important” but also called for the institutions to be placed under government control.

houses’ “supervision and regulation in the interest of the public are essential,” the committee argued. As such, the committee concluded the institutions should be placed under government control.

The Federal Reserve

A few weeks before the Pujo Committee released its report on the “money trust,” in 1913 Rep. Carter Glass of Virginia and Henry Parker Willis, a professor, newspaper correspondent and, now, a congressional aide, traveled to Trenton, N.J., to present a draft of their own reform bill to the newly elected president, Woodrow Wilson.

The three had met earlier to outline a bill that included a central bank, and the version Glass and Willis now presented to Wilson contained a new measure that would eliminate exchange charges, allowing checks everywhere to be collected at their full face value—or “par.” Glass contended that the widespread banking practice of assessing fees on checks received through the mail, which he blamed on “selfish country banks,” constituted “a very heavy burden upon business” that cost anywhere from \$75 million to \$125 million a year.¹⁹

Glass was also concerned with another “much more serious evil” caused by bankers attempting to avoid exchange charges—the circuitous routing of checks. Banks could deposit out-of-town checks with their correspondents in other cities who would immediately credit their institutional customers’ accounts with the full amount while the correspondent attempted to collect the checks themselves. This delay between the time when a check was credited to an account and its final settlement posed “a serious danger to banking liquidity or solvency due to the existence of an immense amount of what was called ‘float,’” Glass said.²⁰ The new reform bill would address this by consolidating bank reserves into a single entity that could also serve as a clearinghouse for its members, providing for faster settlement and less risk.



Rep. Carter Glass of Virginia felt the nation's new central bank should serve as a national clearinghouse to improve the payment system's efficiency and reduce risk.

Willis later noted that giving the Federal Reserve a role in clearing payments would allow the new central bank to “attain its full stature” and secure “a regular flow of business to and from its member banks.”²¹ If the central bank was not involved in check clearing, the reserves held by the system would be “merely dead sums of cash held simply because [it was] required by law.”²²

The idea of using the central bank to help institute par collection of checks was “heartily approved by Mr. Wilson,” Glass wrote later in his memoir, but it was “frantically opposed by a combination of small banks” that saw a threat to their revenues.²³

The par collection measures were also aimed at addressing some of the problems revealed by the Pujo Committee’s hearings. A national clearing system that eliminated exchange charges “would result in correcting the clearing house evils which were then under investigation of the Money Trust Committee,” Willis wrote. Furthermore, the proposal “could honestly be put forward as a means of correcting the faults that had been complained of in the existing structure of financial organization in such places as New York.”²⁴

Meanwhile, Owen’s own proposal in the Senate for a central bank gained momentum, and it was combined with Glass’ plan. To Owen, the “first and most important feature” of the bill was the fact that it “concentrates and mobilizes the banking reserve of the nation,” which previously had been scattered across thousands of individual banks.²⁵ Another important feature, Owen felt, was that par check collection—with regional Reserve Banks across the country serving as clearinghouses for the nation—would provide “a much higher velocity to the great credit system of the United States.”²⁶

However, Owen, like Glass, noted a number of small, rural banks had “raised a great cry against the clearing of individual checks at par by the federal reserve banks.”²⁷

One such banker, responding directly to Owen, argued the bill “puts the burden on the country bank and is all to the advantage of the banks in large cities.” Remarking that there is always a cost involved in clearing and settling checks, the banker said “the burden, if any, should be on the collector. If the holder of a check is unwilling to pay the expense of collection he should demand payment of his bill in funds current in his own place of business.”²⁸

Some of the most vocal opposition came from bankers in the South. A resolution passed by southern bankers during the debate over the bill contended that the charges assessed by small banks to clear checks through the mail were reasonable, and the idea of universal par clearance was “pernicious and will result disastrously to the earnings of country banks.”²⁹

Robert Maddox, vice president of the American National Bank in Atlanta, warned the Senate Banking and Currency Committee during a hearing that allowing regional Reserve Banks to serve as clearinghouses would result in “enormous labor, expense and risk” for the Federal Reserve, and by connection, the government. The nation’s clearing system did not need reform, he argued, because banks “are now satisfied with the existing arrangement, and their patrons are pleased.”³⁰

Fearing that momentum behind the bill was growing, some members of the American Bankers Association and others filed protests attacking par clearance and other parts of the Federal Reserve plan. In early October, a number of rural bankers gathered in Boston to issue a formal complaint to Congress.

In their complaint, the bankers argued their exchange charges were “proper” and necessary for providing “a fair service.” The bankers also warned that if par collection were instituted, “most country banks will show net operating losses, instead of the reasonable profits we now enjoy.” (The group of rural bankers was led by Atchison, Kan., banker Willis J. Bailey, a former Kansas governor and congressman, who, ironically, would become the head of the Federal Reserve Bank of Kansas City in 1922.)³¹

But opinion throughout the banking industry was far from unanimous, and some bankers supported the potential benefits that would stem from a central bank role in check clearing. Echoing Glass’ concerns, W.M. van Deusen of the National Newark Banking Co. in New Jersey told a New York audience the delays caused by circuitous check routing resulted in “fictitious balances,” or float, at banks and “much unnecessary work.” Establishing par collection with the Federal Reserve as a central clearinghouse, he said, “cannot help being of benefit to the banks as a whole and to the commerce of the country.”³²

Final passage

The bankers who opposed the par collection measures in the bill scored a temporary victory in the Senate, where that chamber’s version of the bill eliminated the language requiring the Federal Reserve to establish a par collection system. However, lawmakers in the House, led by Glass, successfully fought to reinsert the language in the final version hammered out in a conference committee.

In a speech on the House floor a day before the final bill was sent to President Wilson for his signature, Glass again criticized “the flagrant abuse involved in excessive charges by banks throughout the country for collections and exchanges.” While “thousands of banks”



A House/Senate conference committee negotiated the final version of the Federal Reserve Act, which included language to establish a par clearing system.

had argued against the measures, “those of us in the House who sought to tear down these tollgates upon the highways of commerce prevailed.”

Glass acknowledged that “some banks will have their profits diminished,” but, he argued, “it will be profits to which they are not fairly entitled and for the loss of which they will be more than compensated by the better and speedier facilities afforded for the transaction of business.”³³

With passage of the Federal Reserve Act on Dec. 23, 1913, the nation now had a national clearinghouse and a way to promote par check collection. It would still take nearly a year for the new central bank to open for business, and while its founders hoped the Federal Reserve would soon improve the nation’s payments system, implementing the plan would have its own challenges.



Bankers visiting Kansas City for the American Bankers Association's conference in 1916 were treated to a day at Longview Farm in eastern Jackson County, Mo. While there, the bankers and guests filled the estate's grandstand to watch horse races along a half-mile-long track.

A “Problem ...of Great Novelty”

..... BUILDING A NEW CLEARING SYSTEM

While visiting Kansas City for the American Bankers Association’s annual convention in late September 1916, thousands of bankers from across the country toured the city’s famous stockyards, attended a special screening of the motion picture “The Dollar and the Law,” and joined their colleagues for a round of golf at the exclusive Mission Hills Country Club. For one afternoon’s activities, convention organizers had arranged for a fleet of 1,000 cars to drive the bankers 20 miles east to lumber magnate R.A. Long’s 1,582-acre estate for an afternoon picnic, where they sipped coffee and smoked cigars while Long and his daughter entertained their guests by racing horses along a half-mile track.¹

Amid the distractions, there was also official convention business to deal with, and the Federal Reserve System’s first two years of operations dominated the bankers’ discussions and speeches in Convention Hall.

Opinion over the new central bank was split. On one side, many of the larger urban banks that dominated the ABA’s leadership felt the 12 regional Reserve Banks and the Board of Governors were already successful in a number of areas, including consolidating gold reserves and issuing a new currency in the form of Federal Reserve notes. However, the smaller, “country” banks located outside major cities still carried a large amount of resentment over the Federal Reserve Act’s check-clearing provisions, which threatened to cut into their profits by prohibiting them from charging a small fee on each check they paid.

While the Federal Reserve Act directed the central bank to organize and operate a check-clearing system, there was little guidance in the law for how it should accomplish this goal. “The problem,” the Board wrote in its first annual report in 1914, “is one of great novelty and calls for the application of a high degree of technical skill.” By taking a methodical approach and slowly phasing in aspects of a clearing function, the Board hoped to avoid any “undue disturbance and violent derangement of customary commercial and banking methods.”²

In the summer of 1915, the Board took its first step and announced banks could agree to use the Reserve Banks as clearinghouses and voluntarily stop charging exchange fees on depositors’ checks that were returned through the mail.³ To the Board and its supporters, the benefits of par clearance were obvious—merchants and businesses would receive full



The Federal Reserve Board of Governors recognized the challenge of establishing a national check clearing system required “a high degree of technical skill.”

credit for checks sent to and arriving from distant cities, banks would stop sending checks on meandering routes through correspondents to avoid paying an exchange charge, and the entire financial system would benefit from a more efficient settlement process.

However, the voluntary plan proved to be a complete failure as few banks agreed to join the Federal Reserve System and give up the revenue they received from exchange charges. The Board of Governors expressed “severe disappointment” that its voluntary plan was not more popular, and it blamed merchants and wholesalers—who often faced the direct costs of exchange charges—for failing to persuade their banks to join the system.⁴

Realizing it would have to rely on more than an appeal to bankers’ “foresight and enlightened self-interest”⁵ to convince them to start clearing checks at par, the Board decided to take a more aggressive approach. In May 1916, the Federal Reserve announced it would

start a compulsory program and require its member banks—which included all national banks and those state-chartered banks that chose to join the system—to clear checks sent through the Federal Reserve at their full value. In addition, the Board said it would start working to promote par clearance “as rapidly as possible” among nonmember banks, which included thousands of state-chartered institutions that opted out of joining the Federal Reserve system.⁶

Under the compulsory plan, the Board felt that “in the near future, checks upon practically all banks in the United States can be collected at par by the Federal Reserve Banks.” In addition, the Board predicted, banks would soon begin to close their accounts at correspondent institutions and shift those reserves to the central bank in order to take advantage of the new clearing system, which would “soon come to be appreciated not only as a convenience but as a necessity.”⁷

However, the Board’s lofty goals were viewed as a declaration of war on country bankers’ long-established way of doing business, and when they arrived in Kansas City for their industry’s annual convention, their anger drove them to action.

The bankers gather

Gathering in Kansas City before the ABA general conference began, the country bankers held their own meeting to discuss their concerns over the Federal Reserve’s new par clearance policy and to develop a formal strategy to get the Federal Reserve Act’s check-clearing provisions either changed or revoked.

It was “the country banker who furnishes the credit and the brains to finance the farmers of this country and the small merchants,” said Nathan Adams, a Texan who led the meeting. As such, the country banker was “entitled to some remuneration for the average charge and the risk he takes in transmitting the money.”⁸ Another banker at the gathering chimed in that if the Federal Re-



The American Bankers Association’s 1916 convention was held at Convention Hall in Kansas City, Mo.

serve was allowed to enforce par check clearance, then the government could also “compel farmers to sell butter and eggs below cost.”⁹

A plan soon emerged. First, the bankers would try to persuade Congress to change the Federal Reserve Act to allow them to continue to charge exchange fees. If that tactic failed, they would take the Federal Reserve to court.

While the plan had overwhelming support at the meeting, C.A. McCloud, president of First National Bank of York, Neb.,¹⁰ stepped forward to say he was “shocked” the other country bankers would consider suing the central bank, and he compared their complaints over par collection to “a family of children who are out in the woodshed trying to work out some rebellion over authority.”



Banker C.A. McCloud of York, Neb., warned his fellow rural bankers about taking court action against the Federal Reserve.

McCloud reminded his colleagues that many of them were stockholders in their regional Reserve Banks, others supported the Reserve Banks by serving as directors, and any lawsuit supported by shareholders or directors threatened to “strangle the Federal Reserve System in a maze of legal technicalities.” He urged the bankers to make their case before the Federal Reserve Board and Congress rather than in the courts.

“I am more interested in the future of our country, in the solidity and firmness of its banking institutions, than I am in the continuity of service between the country bank and its city correspondents,” he added.¹¹ However, if anyone else felt the same way, they remained silent as McCloud’s spirited defense of the Federal Reserve was mocked by other country bankers.

However, despite the country bankers’ desire to take some kind of formal action against the Federal Reserve’s check-clearing orders, the large, urban bankers assembled in Kansas City weren’t convinced there was a pressing need to address the issue.¹² The ABA’s president, San Francisco banker James K. Lynch, acknowledged that some parts of the Federal Reserve System could be improved, but he generally backed the central bank’s goals. In a speech to the full convention, Lynch, who would later serve as the governor of the San Francisco Fed, said that while he was sympathetic to the

concerns of country bankers, he supported the Federal Reserve's plan for check collection, and he looked forward to the expected efficiencies it would provide. In fact, he said, opposition to the Fed's plan "puts us in the position of workmen objecting to labor-saving devices."¹³

Federal Reserve Chairman William P. Harding also sought to calm the country bankers in a speech at the convention, saying the Federal Reserve's check-clearing authority "shrinks into insignificance" when compared to the System's overall goals. "No member of the Federal Reserve Board has any desire to antagonize the legitimate banking interests of this country," he added. "I see no reason why this whole problem should not be solved to the satisfaction of all concerned."¹⁴

Congress takes action

Even as they devised their plan, the country bankers had already convinced several in Congress to support their cause. Before the 1916 bankers' convention, U.S. Rep. Claude

Kitchin of North Carolina, the Democrat majority leader, had introduced a bill to repeal the Federal Reserve's check-clearing authority and allow member banks to continue assessing exchange charges. But Kitchin's motives for introducing the bill were considered questionable. Before his election to Congress, he had served as president of Planters and Commercial Bank in Scotland Neck, N.C., a small rural bank that, according to one account, earned at least half its revenue through "ex-



Rep. Claude Kitchin of North Carolina, a former rural banker, unsuccessfully attempted to repeal the Federal Reserve Act's check-clearing authority in 1916.



Federal Reserve Chairman William P.G. Harding, who served from 1916 to 1922, opposed limiting the Fed's ability to collect checks at their full face value.

change nipped off its own checks.”¹⁵

However, there were other lawmakers willing to take up the country bankers' cause, including Democrat Sen. Thomas Hardwick of Georgia. Following the country bankers' complaints at the ABA convention, Hardwick attached an amendment to a World War I funding bill that would allow banks to charge an exchange fee of 10 cents for every \$100 in checks they received. The bill, which also would have forced the Reserve Banks to start paying exchange fees to commercial banks, passed the Senate by “a scant margin,” and it moved to a conference committee to work out the differences with a House version.¹⁶

The measure, however, remained mired in the committee as lawmakers were flooded with letters from wholesalers and merchants urging repeal of the Hardwick amendment, while rural bankers pushed for passage. The Federal Reserve also weighed in with a significant lobbying effort that seemed to contradict Fed Chairman Harding's assurances a few months earlier about the “insignificance” of the central bank's check-clearing plans.

In a letter to Sen. Robert Owen of Oklahoma, the Democrat chair of the Senate Banking and Currency Committee and an author of the Federal Reserve Act, Harding wrote that the Board of Governors would consider passage of the Hardwick amendment “as most unfortunate,” because “it is the duty of every bank to pay without deduction or discount, at its own counter, checks drawn by its depositors against their balances.” Furthermore, Harding warned, the amendment's passage would “create a strong protest all over the country, which would be far stronger than the pressure that is now being brought to bear for its enactment.”¹⁷

A month later, Harding wrote to Democrat Rep. Carter Glass of Virginia, another author of the Federal Reserve Act, to express the Board's concerns over the full bill's structure, which included measures allowing the government to sell Liberty Bonds to fund the nation's entry into World War I.

According to Harding's letter, Benjamin Strong, the governor of the New York Fed,

estimated that if the bill were passed in its current state, the U.S. government would be required to pay \$1 million in exchange charges to banks in order to clear the checks citizens used to purchase the bonds.¹⁸ In addition to Harding's letter, one of the regional Reserve Banks attempted to sway opinion on the amendment by sending a telegram to its member banks asking them to "please wire your Senators and Representatives in Congress, urging reconsideration of vote on the Hardwick amendment for exchange charges."¹⁹

In a special report on the amendment in the ABA's monthly *Journal*, the association said Harding's correspondence with Congress was "keenly resented" by bankers, who felt their patriotism was being called into question by the suggestion they would profit from exchange charges on Liberty Bond purchases. "It is unfortunate that (a) letter of this character should emanate from those in high authority at a time when every possible effort should be made to unify the banking system and marshal the banking resources...to meet in an adequate way the additional burdens that will fall upon the banks because of America's entrance into war," the ABA's report stated.²⁰

But among the clashing views on the bill, perhaps no opinion carried more weight than that of President Woodrow Wilson, who entered the debate with his own letter to Owen that was read on the Senate floor.



President Woodrow Wilson was "a good deal disturbed" by congressional attempts to alter the Federal Reserve Act's check clearing provisions.

Wilson wrote he was “a good deal disturbed” by the Hardwick amendment. “I should regard such a provision as most unfortunate and as almost destructive of the function of the Federal Reserve banks as a clearing house for member banks,” Wilson wrote, adding that he hoped the amendment would be “adjusted.”²¹

After much debate, the bill finally emerged from the committee, but in a completely different form. Hardwick’s measure was altered to prevent the Reserve Banks from paying or being charged exchange fees. It also allowed the Board to regulate the amount of exchange charges member banks assessed, and it permitted nonmember banks to hold deposits at the Reserve Banks for clearing purposes.

Hardwick complained his amendment had been changed so much that the final version completely negated what he had intended. Because of Wilson’s letter, Hardwick said, the amendment had been turned into “the ghost of what it was, a mere remnant of what it was intended to be—something that appears and purports to mean something and yet means nothing.”²² In a further blow, Hardwick’s name was still attached to the amendment, and after lawmakers voted to approve it, many later claimed they did not fully understand the language of the amendment and were confused about what they were voting for.²³

Wilson signed the bill and requested an official opinion on the Hardwick amendment from the attorney general, who determined the law did, in fact, prohibit banks from assessing exchange fees on checks cleared through the Federal Reserve.²⁴

Armed with the blessing of both Congress and the administration’s legal opinion, the Board of Governors felt it had a clear mandate to continue its pursuit of universal par clearance.²⁵ But despite the Board’s confidence in its interpretation, there were still enough questions for the country bankers and their congressional allies to continue their fight.



Sen. Thomas Hardwick of Georgia said his proposal to limit the Fed's check-clearing authority was changed so much that the final version was "a mere remnant of what it was intended to be."



Main Street in Pierce, Neb., shown here in a photograph from around 1920, was the site of several confrontations between the town's bankers and agents from the Federal Reserve who sought to end the practice of non-par banking throughout the country. The Fed's tactics often angered rural bankers, who called the agents bank robbers and other names.

Bank Robbers and Bolsheviks

.....THE PAR CLEARING CONTROVERSY.....

During a below-freezing afternoon in November 1919, two men exited a car on Main Street in Pierce, Nebraska, and rushed into Cones State Bank, leaving their vehicle running. The visitors, later described as “hard boiled and armed,” drew attention in the small town for their mode of transportation—a “Cole 8” automobile, one of the few models in the country equipped with an eight-cylinder engine.

Along with a gun, the men were armed with nearly \$40,000 in checks written on accounts at the banks in Pierce. At Cones State Bank, they identified themselves as agents of the Federal Reserve Bank of Kansas City’s Omaha Branch, and they had come to redeem the checks for cash. According to custom, any checks presented to a bank in person had to be paid in full, immediately.

The cashier paid out several of the smaller checks until reaching the final one, written for \$30,100. The amount was more than what the bank had in its vault, and was about \$13,000 more than it was required to hold in on-site reserves at any given time. The cashier offered to pay the men with a bank draft—essentially a check written on the Cones State Bank’s own account at another institution in Omaha. The two agents refused to accept the draft and said they would wait in the lobby until they received cash.

If the bank could not pay the check, the agents could mark the document as “protested,” a move that might eventually lead to the bank losing its state charter and result in disgrace and financial ruin for the bankers. The situation for the bank’s employees was even more confusing, as the bank’s president, Woods Cones, was out of town to visit a doctor. After a quick discussion, one of the bank employees hurried off to another bank in town and, somehow, scraped together enough cash from the cross-town competitors to pay the Federal Reserve agents. The men took the money, got back in the car and headed south to Norfolk over muddy roads to catch the next train to Omaha, carrying the modern day equivalent of about \$540,000 in cash.¹

The incident, which played out during a single afternoon, would later be compared to a bank robbery, even though the actions of the Federal Reserve agents were completely legal and had been carried out elsewhere across the country without much complaint. But depending on the person retelling the story in the coming months, what happened in Pierce

was either an example of federal power run amok or another instance of selfish rural bankers refusing to cooperate with attempted improvements to the nation's payments system.

The incident also brought into focus the passionate feelings surrounding the seemingly mundane issue of the Federal Reserve's role in clearing checks.

The campaign

The Omaha Branch agents' trip to rural Nebraska was part of a wider Federal Reserve effort aimed at convincing state-chartered institutions, many of which were not Federal Reserve members, to begin remitting checks at their full face value, or par. Under a measure passed by Congress in 1917, the Federal Reserve was allowed to regulate the so-called "exchange charges" some banks charged on checks they received through the mail. Under this practice, the bank typically deducted a minimum of 10 cents from the face value of the check and kept it for itself.



This 1920 Federal Reserve map shows the number of "par points" located in each state. Each point represented a bank that had agreed to remit all checks at their full value, or at "par." The Board of Governors kept a running tally of par points in each district and issued monthly reports to the Reserve Banks.

While the Fed's authority to regulate this charge was limited to its member banks, it interpreted Congress' passage of the measure as a mandate to bring about universal par clearance among all banks, including those that had decided not to join the Federal Reserve System.

During a meeting of Federal Reserve officials in 1918, representatives from each regional Reserve Bank agreed to participate in a formal, national campaign to institute universal par clearance.² In addition, in an attempt to make membership in the Federal Reserve System more attractive, the Board of Governors eliminated the service charge Reserve Banks charged member banks to process and mail checks.³

Under the Fed's new campaign, the Reserve Banks sent sharply worded letters and made personal visits to thousands of non-member banks to explain the financial benefits of a par clearing system. If a bank continued to assess exchange charges, the Federal Reserve accumulated a number of checks drawn on that bank and then dispatched an agent to cash the checks for their full face value in person. In some cases, a Reserve Bank would publicly advertise that it was able, through its network of member banks, to collect checks at par on institutions that were known as "non-par" banks.

The Board of Governors insisted the pressure it applied to the holdout institutions—most of which were located in rural areas—was "not a local or selfish undertaking." Rather, it was a nationwide effort designed "for the convenience of the public and the promotion of commerce."⁴

The Fed's campaign had the solid backing of the nation's merchants, who felt they were ultimately paying the exchange charges. If a customer paid for a good or service with a check from a non-par bank, the merchant would often not receive the full amount. In the same way, wholesalers would require merchants to include an extra fee to cover any exchange charges the wholesaler might face when they or their bank sought payment for the merchant's check.

The exchange fees amounted to what St. Louis hardware company owner Wallace Simmons called an "unnecessary tribute" to banks. Speaking to the Annual Convention of the U.S. Chamber of Commerce in 1918, Simmons argued the Fed's push for universal par clearance would result in a more efficient and fairer way of settling payments. The Fed's campaign "will mean that any good check you receive will be worth one hundred cents on the dollar," he told the convention audience. "You cannot afford to put your name on any check that is worth less than its face value."

**AUTO BANDIT SLAIN
IN GUN DUEL AFTER
ROBBING TWO BANKS**

Frank G. Holt, Notorious Motor Car
Outlaw, Killed in Battle
with Police

**OFFICER PROBABLY WILL DIE
Over \$12,000 Missing, and it is Be-
lieved Assailant Secured
This Money.**

**WOMAN CONFERRATE SOUGHT
Holding Man Lacks One Money In-
stitution After Another.**

**ALSO STEALS AN AUTOMOBILE
Went Eastward from Jackson and
Went Home to Anthonite—
Threw Coffee in Gun's
Face.**

CINCINNATI, O., Dec. 11.—The life of
Frank G. Holt, notorious automobile
bandit, ended today following a
three-hour career of crime which in-
cluded the robbing of two Cincinnati
banks, the theft of an automobile and a
shoot-out with policemen that resulted
in probable fatal wounds to one officer
and the death of the bandit.

Thirteen thousand and one hundred dol-
lars are missing as the result of the bank
robberies and the police are confident
that Holt, in his wild automobile drive,
managed to pass this money along in
some confidence.

The beginning of Holt's and started
shortly after 11 a. m., when he entered
the West End branch of the President
Savings Bank and Trust company. First
two shots at Chester Edward Highton,
assaulted up \$2,000 in currency, heeled
through the door, jumped into a waiting
automobile which had been stolen and
disappeared. While the police were
searching for the bandit he returned the
Liberty Building and Savings company,
on Lincoln street, fired two shots at
Cashier George Winters, wounded what
proved to be \$2,000 in currency and in the
automobile and again disappeared. The
shots were so close to Winters that he
was jerked forward, but other than suf-
fering from the shock he was unhurt.

About two hours later Harry Lou-
more, whose number stands on south-
east corner on West Ninth street, in-
formed the police of the similarity of a
man who carried a man three years
with a description given of the bandit.
Three policemen called at the room, and
upon knocking the door was suddenly
thrown open, though the bandit opened
fire, at the same time breaking past the
officer, one of whom, Policeman Edward
Hornell, was probably fatally wounded.

The bandit again fled in his automobile,
which was standing nearby, but in round-
ing a corner the machine crashed into a
biograph pole and was wrecked. The
bandit jumped out and raised fire on the
two officers who had pursued him. In
the battle that followed Holt fell with
two bullet wounds in his body and died
shortly afterwards at the hospital.

Holt was well known to the police and
was a fugitive from justice. The police
claim that he shot up an Ansonia, Pa.
bank on March 8, was arrested and while
being conveyed to the Pittsburg jail
threw a cup of coffee in his guard's face
and again escaped. He was again cap-
tured, but subsequently escaped from the
Hollidaysburg, Pa., jail. The police also
claim that he was wanted in connection
with a diamond robbery in Kansas City,
Mo., a year ago, when he had assumed
the name of Green.

The police say that Holt usually had a
woman confederate, for whom a search is
being made.

“The business men of the United State have been overly good-natured, patient, and long suffering,” Simmons continued. “It is time that one and all should insist upon universal conformity to the methods established by the Federal Reserve Board.”⁵

More extreme measures

In the Tenth District, the Kansas City Fed had found some success in convincing non-member banks to remit at par. Assistant Cashier E.P. Tyner noted in the fall of 1919 there were “only a very few cases where we have had to take more extreme measures,” which usually consisted of “presenting a large volume of items totaling so large an amount that the bank would be unable to pay.”⁶

To avoid embarrassment—and to prevent a Federal Reserve agent from cleaning out their vaults—banks that found themselves in the Kansas City Fed’s crosshairs agreed to sign a par agreement about 80 percent of the time after receiving a request from the Reserve Bank, Tyner estimated.

The Kansas City Fed’s methods may have produced results, but some state-chartered banks that were not Federal Reserve members were incensed. The Republic State Bank in Republic, Kan., told Tyner in a letter that the Reserve Bank’s demand that it remit at par “smacks not a little of big-stick Bolshevik methods.” The Kansas City Fed’s method of accumulating a large amount of checks to cash at one time was “not so spectacular as the manner in which the yeggs hold us up, nevertheless, it is [quite] effective,” the bank wrote, using the era’s slang for bank robbers.⁷

The Kansas bank’s protest was mild compared to the complaints coming from Nebraska, where Federal Reserve agents were called names worse than Bolsheviks or bank robbers.

This news article describes a 1914 bank robbery and shootout, a common event that led many rural banks to carry small amounts of cash in their vaults.

A war of words

If the Federal Reserve agents who visited Cones State Bank in November 1919 thought their dramatic actions would convince the bankers in Pierce, Neb., to join a par clearing system, they misjudged the resolve of the local bankers, and that of their leader, Woods Cones, president of the Cones State Bank. Cones was a second-generation banker and former classmate of William Jennings Bryan at Illinois College. He founded the first bank in Pierce County, Neb., in the early 1880s and later served as Pierce's first mayor.

In late 1919, employees at the Kansas City Fed's Omaha Branch began hearing rumors that Cones "had a few monkey wrenches up his sleeve to block the Federal Reserve machine." One of the Omaha Branch employees, A.A. Davies, who frequently visited banks in and around Pierce, told another area banker to "advise Mr. Cones to oil up these wrenches as I was coming down there with a steam roller."⁸

Word of Davies' comments quickly spread throughout the tight-knit banking community in Pierce and nearby Osmond, and the bankers agreed to put aside their competitive differences to stop what Cones later called "a steam-roller on the way from Washington" sent "to crush me personally and ruin my bank."⁹

Davies made another visit to Pierce in December 1919 with the hope of convincing Cones to sign a par agreement with the Kansas City Fed. Davies was taken to a back room when a "very angry and excited" Cones "rushed in" and shouted at Davies.

"Don't lay your hands on a gun unless you mean to pull a trigger," Cones warned, adding that he had a gun of his own that was "a little larger."¹⁰ Davies left town that day without obtaining a par agreement from the bank, and he continued to run into resistance from other bankers.

In a later visit to a bank in Osmond, Neb., Davies asked a cashier if he could speak with the bank's president about signing a par agreement. The president, according to a signed affidavit by Davies, "looked me straight in the eye saying: 'I have no time for the sons-of-bitches.'"¹¹ At another Osmond bank, Davies and a colleague encountered a cashier who "flew into a rage" at the sight of the Federal Reserve representatives in the bank lobby. The cashier could not contain his anger and called the two men "a couple of bastards."¹²

That same day, Davies visited Pierce once again and spoke with Cones to try to smooth things over. However, Davies recalled, "I was given a good cussing," by Cones, who added that Davies "was too dam [sic] smooth for him."¹³



Nebraska bankers chose C.A. McCloud, left, and Woods Cones, right, to represent their views on the Fed's check collection efforts.

Taking action

Within a few weeks, bankers across the state of Nebraska had heard about the “steam-roller” on its way from Washington to Pierce. In January 1920, at Cones’ urging, the Nebraska Bankers Association called an emergency meeting in Omaha. The 185 bankers in attendance prepared a lengthy list of grievances alleging the Federal Reserve was acting with “the very evident purpose of intimidating and embarrassing” non-member state banks.¹⁴

The group argued the Fed’s methods were “unwarranted by law, a distinct departure from well established customs, and an unjustifiable invasion of the legal rights of state institutions by the Federal Reserve Board, which has no jurisdiction whatever over State banks.” The bankers requested help from their city correspondents, recommended that other banks revoke their par agreements with the Fed and asked Congress to investigate the issue.

The opposition would be led by a “Committee of Three,” consisting of Cones, C.F. Gund of Blue Hill, Neb., and York, Neb., banker C.A. McCloud—the same banker who had attempted a vigorous defense of the Federal Reserve System three years earlier at the American Bankers Association convention in Kansas City.

Not all state banks in Nebraska agreed with the Committee of Three. One such bank

was the Farmers Bank of Prairie Home, Neb., which wrote to their fellow Nebraska bankers that charging exchange “had proved itself such a nuisance to us that we were glad when the Federal Banks started the movement to do away with it. We at once agreed to co-operate with them and see no reason now for changing our attitude.”

Two days later, the *Omaha Bee* reported on “a little war cloud that has blown up between the Nebraska bankers and the Federal Reserve.” *The Bee’s* sympathies, however, laid with the rural bankers; its correspondent wrote the Federal Reserve “seems to possess the power for oppression as well as service.”¹⁵

Soon after the bankers’ meeting, Nebraska banking regulators, concerned the Federal Reserve was stepping into their turf, entered the conflict. In a letter to Kansas City Fed Governor Jo Zach Miller, Nebraska Secretary of Trade and Commerce J.E. Hart, who was responsible for regulating state-chartered banks, said he had received many complaints “of what country banks call ‘rough neck’ and ‘hold-up’ methods” by Federal Reserve employees. Hart explained he had instructed banks to carry as little cash as possible in their vaults due to a spate of bank robberies across the state, and the Federal Reserve was causing more problems.

“Now come your agents, driving over the State in high-powered automobiles, with big guns in their pockets and bulging packages of checks, demanding the cash over the counter [instantly] and threatening to put the banks out of business unless they produce,” Hart wrote.¹⁶ He warned that the matter would be referred to the Nebraska attorney general, and if he thought the Federal Reserve agents’ actions had damaged “any state bank in the eyes of the community,” the Nebraska officials would be “compelled to arrest your agents in defense of the State’s dignity.”

In a measured, matter-of-fact response, Miller wrote to Hart that the complaints of the Fed employees’ actions were “entirely unfounded,” adding that “the statements made by certain Nebraska bankers have been misleading,



Kansas City Fed Governor Jo Zach Miller was at the center of a par banking conflict in Nebraska.

to say the least.” Miller assured Hart the Federal Reserve was not attempting to coerce any state banks into joining the Federal Reserve System, and he pledged continued cooperation with the state regulator.¹⁷

While he was occupied with calming the concerns of the Nebraska authorities, Miller would soon find himself having to answer additional questions from Washington.

Trouble in the South

Meanwhile, bankers elsewhere were voicing their objections to similar methods being used by Reserve Banks in their regions. In December 1919, the Atlanta Fed warned the non-member banks in its district that unless they agreed to remit at par, the Atlanta Fed “would very much regret to be forced to adopt other methods of [check] collection that would prove embarrassing, annoying and expensive to you.”¹⁸

Angry bankers in the Atlanta Fed’s district gathered in New Orleans early in 1920 and formed the National and State Bankers’ Protective Association to combat the Federal Reserve’s actions. The association, which thousands of banks eventually joined, also called for a congressional investigation into the Federal Reserve’s activities involving non-member banks. For good measure, the association’s members urged Congress to look into the Federal Reserve System’s profits and the allegedly high salaries of its employees.¹⁹

The Federal Reserve’s push for par remittance was “un-American, unfair, unbusiness-like and almost cowardly,” said Charles Claiborne of New Orleans, the group’s chairman, in a speech to members of the American Bankers Association. The Federal Reserve Act, he added, “bears every ear mark of the present day socialistic tendencies of the government—something for nothing.”²⁰

Meanwhile, a smaller group of bankers in Georgia took the Atlanta Fed to court, asking a federal judge to prevent the Reserve Bank from sending agents to non-member banks to cash checks in person. At the same time, legislatures in Mississippi and other Southern states passed laws requiring all banks to assess exchange charges on any checks presented to them, including those presented by the Federal Reserve.²¹ The law was in direct conflict with the Fed’s interpretation of federal law, which prohibited it from paying exchange fees to any bank, and the Fed’s own policy, which prohibited member banks from assessing exchange fees.

Farther north, the Cleveland Fed was dealing with its own controversy. In April 1920, an agent from its Cincinnati Branch, H.A. Magee, who had been attempting to persuade

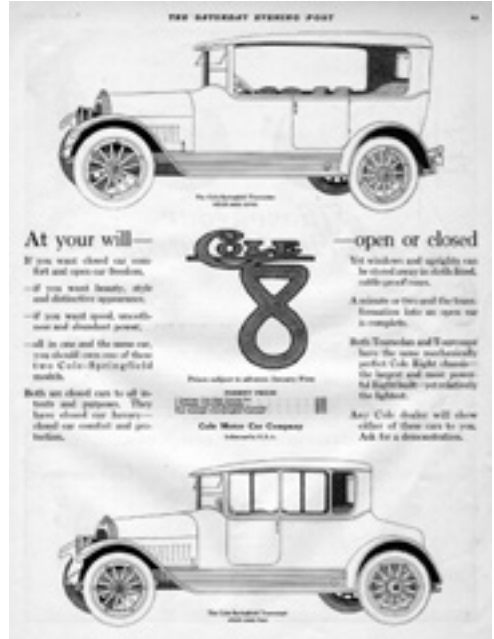
banks in Northern Kentucky to sign par agreements, was indicted by a local grand jury in Catlettsburg, Ky., for “making and circulating statements derogatory” to the Farmers and Merchants Bank. According to a federal lawsuit later filed against Magee and the Cleveland Fed, Magee was “domineering, dictatorial and boisterous” and engaged in “loud and quarrelsome conversations” with cashiers when he presented checks at the bank’s counter.²²

According to the lawsuit, Magee set up shop daily at a drug store, “the most prominent place in the city,” across the street from the Farmers and Merchants Bank, where he would lay out all the checks to be collected on a counter. He remained at the drug store for up to five hours at a time “walking up and down in the storeroom and looking across the street at the bank as though he were on the watch for what was being done there.”

Magee’s techniques mirrored those used in Nebraska, but he took them a step further. Along with making daily visits to the Farmers and Merchants Bank, he visited the bank’s customers, including the area’s largest merchant and an auto dealer, in an attempt to persuade them to pressure the bank to sign par agreements with the Fed. Magee told the customers—incorrectly—that the Farmers and Merchants Bank had refused payment on their checks.

Magee left Catlettsburg following his indictment and never returned, but the Cincinnati Branch promptly replaced him with Mary McCall, a local woman “who had the respect of the people of Catlettsburg.” However, even as she was held in high regard, her methods were also viewed as strong-armed: She openly carried a pistol to protect herself from being robbed and was usually accompanied by one or two guard dogs for added protection when she collected payments from banks.

A federal judge agreed with the Farmers and Merchants Bank’s contention that the Cleveland Fed’s methods amounted to “a kind of refined highwaymanship” and were similar to “a holdup.” He granted the bank’s request for an injunction ordering the Reserve Bank



The Cole 8 automobile was the preferred mode of transportation for Federal Reserve agents in the central bank’s early days.

to stop attempting to collect checks in person, giving the Federal Reserve's opponents a victory and providing momentum for their cause in other parts of the country.

Congressional concerns

While Kansas City Fed Governor Jo Zach Miller was trying to manage the situation in Pierce and Osmond, Neb., things in Washington began to heat up. On Jan. 19, 1920, the Senate, acting on complaints from non-member banks, passed a resolution requesting the Board of Governors provide information about “any method of coercion” to force state-chartered banks to join the Federal Reserve System.²³ In response, W.P.G. Harding of the Board of Governors said the regional Reserve Banks “have never been anything other than both patient and considerate” with non-member banks, although, he acknowledged, there may have been a few cases where individual employees showed “an excess of zeal” in their attempts to collect payment on checks.²⁴

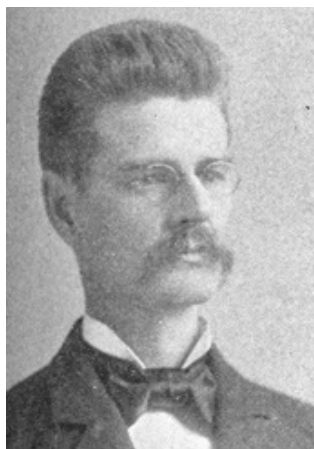


Fed Chairman William P.G. Harding said the Reserve Banks had been “both patient and considerate” with rural banks in their collection efforts.

In his response to the Senate, Harding also included a brief report from each Reserve Bank governor in which they addressed the charges. One by one, the Reserve Banks denied they had established formal policies to coerce non-member banks to join the System or that they had acted improperly when visiting non-member banks.

For Miller's part, he was sure the source of many of the complaints to the Senate had come from Nebraska. “The bankers of Pierce, by intimidation or otherwise, have prevented use of the facilities common to the public,” Miller wrote in his report. In addition, he contended, at the recent meeting of Nebraska bankers, the country bankers' leader, Cones, “made certain false and misleading statements.”²⁵

Only a few days after Harding submitted the responses of Miller and the other Reserve Bank governors to the Senate, members of Nebraska's congressional delegation brought up the issue in the House. Rep. Charles Frank Reavis alleged there was "almost a universal complaint among members of Congress" regarding the Reserve Banks' "policy of oppression toward State banks."²⁶ His fellow Nebraskan, Rep. William E. Andrews, introduced a resolution accusing the Federal Reserve "with unwarranted and injurious demands upon State banks in different parts of the country."²⁷ To make sure his point was clear, Andrews sent a personal letter to the Omaha Branch with a copy of his resolution attached. "There is something wrong some where and we desire to ascertain the facts," Andrews warned.²⁸



Nebraska Rep. William E. Andrews criticized the Fed's check collection efforts, which targeted state-chartered banks.

With Congress turning up the pressure, Miller called on a new member of the Board of Governors who knew a thing or two about rural bankers.

An assist from the Board

President Woodrow Wilson's nomination of Henry A. Moehlenpah to the Board of Governors in September 1919 caught many by surprise, especially on Wall Street, where, a reporter noted, "there are few bankers to be found here who ever heard of Mr. Moehlenpah before."

That was likely because he had spent his career as a banker in small-town Wisconsin, most recently serving as president of a small bank in Clinton, population 1,200. According to acquaintances contacted by *The Milwaukee Journal*, Moehlenpah was "a man of forceful character, a good speaker and active in championing the cause of the country banker." However, others described him as "a live wire with rather radical views," and "quite a politician."²⁹

In mid-February, 1920, the recently confirmed Gov. Moehlenpah stopped in Kansas City to visit Miller on his way to a bankers' convention in Texas. Moehlenpah offered to help Miller deal with the Nebraska bankers, and he canceled a speaking engagement in San Antonio so the two could travel to Omaha to meet Cones and his "Committee of Three."³⁰

Despite the presence of a member of the Board of Governors who could empathize

with the Nebraska bankers' point of view, the four-hour meeting with the Nebraskans "was stormy and at times sulphurous," Miller reported later. It was, he added, "the most strenuous [meeting] that I have experienced in 20 years. The accusations and calumnies came from the opposition thick, fast and furious, sparing no Government official, (or) member of the Federal Reserve Board, but concentrating their severest condemnation on the officers and agents of the Federal Reserve Bank of Kansas City."



Federal Reserve Governor Henry Moehlenpah, a former banker from rural Wisconsin, sought to ease the Nebraska bankers' concerns.

While aware of bankers' concerns, Moehlenpah was still surprised by the level of anger voiced by Cones, McCloud and Grund. "There was a bitter attack made upon Governor Miller by Mr. Cones," Moehlenpah recalled. "It was an uncalled for attack, to my mind, which could bring no good, but Governor Miller kept still."

Moehlenpah, who viewed his role in the meeting as akin to an umpire, heard the bankers out, and during the last half-hour, the meeting's tone surprisingly shifted to an "atmosphere ... of universal brotherly love," Miller recalled later. As the meeting drew to a close, Cones shocked the Federal Reserve officials by conceding that he was not opposed to the idea of universal par collection.

Rather, his problem was with the Fed's "coercive, strong-arm" methods to bring it about.

Before leaving, Moehlenpah and Miller convinced the bankers not to take any further action until the Southern bankers' lawsuit against the Atlanta Fed was settled.

But Moehlenpah and Miller weren't done yet. While the bankers had calmed down, their congressmen were still pushing the issue, and both Fed officials were called to testify at a hearing on the issue held by the Board in Washington later that month.

The format of the Board's hearing would be considered unconventional by today's standards. Along with being questioned by Harding, the Board's chairman, both Miller

and Moehlenpah would face direct questioning from lawmakers, including Rep. Reavis of Nebraska. However, the hearing resulted in little fanfare, and a second hearing, held in Nebraska to accommodate bankers who were unable to travel to Washington, resulted in even less publicity as no one showed up to lodge formal complaints against the Kansas City Fed.³¹

Eventually, the conflict ended when the Kansas City Fed agreed to withdraw its agents from Pierce and to stop collecting any checks drawn on the Cones State Bank. In return, the Nebraska bankers agreed not to take the Federal Reserve to court.³²



Nebraska Rep. Charles Frank Reavis, a critic of the Fed's check collection methods, questioned Fed officials at a hearing on the issue in 1920.

The conflict continues

The rural bankers in the South wouldn't be mollified so easily. It would take several more years and two rulings from the U.S. Supreme Court for the Georgia bankers' request for an injunction against the Atlanta Fed to be settled.

First, in an opinion written by Justice Louis Brandeis, the court ruled the Atlanta Fed had overstepped its authority in threatening to embarrass state banks. Brandeis' opinion held that the rights of any business—including a Federal Reserve Bank—were limited by the rights of other businesses. While Brandeis' ruling was encouraging for the banks, the case was sent back to the U.S. District Court in Atlanta, which ended up ruling in the Atlanta Fed's favor.³³

This decision was appealed, and in 1923, the Supreme Court combined the Atlanta case with another involving a suit against the Richmond Fed brought by North Carolina bankers. This time, the verdict was mixed. In one sense, the Supreme Court's new ruling favored the Reserve Banks by rejecting the argument that they were acting coercively. The court also ruled the Reserve Banks could continue to cash checks in person at any bank,

just as any commercial bank had a right to do.

“Country banks are not entitled to protection against legitimate competition,” Justice Brandeis wrote in this decision. “Their loss here shown is of the kind to which business concerns are commonly subjected when improved facilities are introduced by others, or a more efficient competitor enters the field.”³⁴

However, while bolstering the Federal Reserve’s authority in some aspects, the Supreme Court’s ruling also dealt two significant blows to the central bank’s self-imposed mission to institute universal par clearance. The Federal Reserve Act, the court ruled, merely permitted the Reserve Banks to act as clearinghouses for banks. In other words, there was no requirement that all banks participate in the Fed’s clearing system, and the central bank would have to find a way to compete with clearinghouses and correspondent banks when it came to clearing checks. In a further cut against the Federal Reserve, the court also upheld the numerous state laws allowing state-chartered banks to charge exchange fees if they desired.³⁵



Supreme Court Justice Louis Brandeis wrote two key decisions on the Federal Reserve’s check-clearing authority. As a result of his second decision, the Fed brought its par clearing campaign to an end.

As a result of the ruling, the Federal Reserve withdrew its agents across the country and ended its formal campaign for universal par clearance.³⁶ Under new regulations, the Board of Governors prohibited Reserve Banks from accepting checks from nonpar institutions. Fed officials, merchants, and even other bankers would continue to call for an end to nonpar banking during the coming years,³⁷ but for several more decades, the nation's banking system would continue to be divided between par banks and a small number of nonpar institutions.

During the middle part of the 20th century, several states began amending their banking laws to restrict nonpar banking, but the practice of charging exchange fees on checks was not completely eliminated. A few studies have found most of the remaining nonpar banks were located in rural areas that were not as competitive as other markets. As these largely rural banks began to experience more competition as a result of technological advances in communication and transportation, their ability to collect exchange fees on checks eventually faded away.³⁸

Decades after the Federal Reserve's designers had used heated rhetoric to call for the elimination of exchange fees on checks, a footnote found at the bottom of a chart deep within the Board of Governors Annual Report for 1980 matter-of-factly announced there were no longer any nonpar banking offices in the United States.³⁹

CHECKS HANDLED DAILY BY FEDERAL RESERVE BANKS



This exhibit shows the average volume of checks, 204,000, processed daily by staff at a single Federal Reserve Bank in 1924. The growing volume of checks flowing through the U.S. banking system over the coming decades required commercial banks, and the Fed, to dedicate more resources to handling paper. The advent of computerization in the 1950s offered a solution.

“A Plump Automatic Bookkeeper”

THE RISE OF BANKING AUTOMATION

On Sept. 22, 1955, the engineers and scientists of the Stanford Research Institute were ready to show off their latest top-secret project. The researchers had spent the past five years helping Bank of America—one of the nation’s largest banks—find a way to deal with the crushing volume of checks generated by its 4.6 million accounts. The problem showed no signs of letting up; Bank of America’s customers throughout California were opening about 23,000 new checking accounts every month. Each account produced a never-ending stream of checks that had to be sorted by hand at multiple locations.¹

A group of reporters from *The New York Times*, *Fortune*, *Life*, *Newsweek* and other publications were bused in for a special demonstration led by SRI’s lead engineer, Thomas Morrin. After getting the thumbs-up from a colleague that everything was working, Morrin began the demonstration of a massive computer that could sort checks at an astounding speed and electronically record information such as the account number and amount of the check. The 25-ton machine, composed of 17,000 radio tubes and 1 million feet of electrical wiring, took up 4,000 square feet and generated so much heat it required its own specially designed cooling system.²

A key source of the computer’s power came from a seemingly small change to the information printed on each check. By adding a tiny line of numbers printed in magnetic ink on every item sent through the machine, the computer could “read” the check and store the information to a magnetic drum spinning at 33 revolutions per second. This information was transferred to a magnetic tape that could be transported to another location and read by another computer.

The Stanford engineers had initially dubbed the computer FINAC, a technical-sounding abbreviation of “financial accounting” that sounded similar to the names of other, better-known mainframes such as ENIAC and UNIVAC. However, Bank of America’s public relations team, seeking a friendlier way to describe the machine to its customers, decided it should be called “Electronic Recording Machine-Accounting.”³ The name change appeared to have the desired effect, as *The New York Times*’ reporter personified the new system as a “plump automatic bookkeeper named ERMA.”⁴

The machine promised to dramatically change banking—and the larger business

world—forever. It was “the biggest single advance in bookkeeping in the history of banking,” Bank of America President S. Clark Briese told the assembled reporters. The computer would cut the bank’s check processing time by 80 percent, allowing some bank staff to be reassigned to other positions where a human touch was better suited, Briese added.⁵

“ERMA is a new concept in banking,” he would later say. “Its effects will be far-reaching, touching such things as bank architecture and new banking services undreamed of today.”⁶

By bringing computers, which had been primarily confined to the military and universities, into the banking industry, SRI and Bank of America also sparked a wider discussion about the possibilities this new era provided for the future of commerce.

A deluge of paper

The development of ERMA was a direct response to several significant problems the banking industry faced in the post-World War II economy. As more people and businesses experienced the benefits of economic prosperity following the war, they wrote more and more checks to pay for cars, groceries and other things. From 1939 to 1952, the number of checking accounts in the United States ballooned from 27 million to 47 million, while



The Federal Reserve Banks relied on a large number of employees to handle, sort and process checks. The volume of checks exploded in the 1950s, straining the banking system.

the number of checks written annually jumped from 3.5 billion to 8 billion.⁷ By 1960, Americans were writing 14.5 billion checks a year, and banks were struggling to keep up.⁸

“What banker has not groaned on eyeing the swelling stream of checks written by Americans everywhere?” the Atlanta Fed asked in a 1960 publication. “Only a modest Hollywoodian adjective like supercolossal can adequately describe the growth in check usage in recent years.”⁹

Banks’ problems were made worse by a lack of technological

advancement. Banks were equipped with several mechanical tools, such as cash registers, proof machines and bookkeeping machines, but there was essentially no significant advance in banking technology from 1919 until after the end of World War II.¹⁰

Along with the limited technology, the larger problem was one of people: There simply weren't enough. While employment throughout the entire economy had increased 20 percent from 1946 to 1960, banks gobbled up many more jobs than other industries. During the same period, the number of jobs at financial institutions exploded by 65 percent.¹¹

In a typical 40-person bank branch, seven employees were devoted to clerical work, and their days were spent sorting, verifying, filing or bundling paper checks—a mundane and sometimes unsatisfying job that had a huge turnover rate. In many cases, banks had to close at 2 p.m. so that staff could catch up and deal with the checks that had arrived earlier in the day. In addition, most of the clerical workers who handled checks were young women from the ages of 18 to 24—a group that was leaving the workforce in large numbers to start families during the Baby Boom.¹²

“In fact, banking is having trouble finding enough workers right now,” the Philadelphia Fed warned in 1960, while noting that a recent edition of the Sunday paper was filled with classified ads from companies in other industries looking for clerical workers. “Clerical help is scarce. The low birth rates of the 1930s, plus earlier marriages and motherhood have trimmed the supply of young female workers.”¹³

On top of these problems, there was very little standardization throughout the banking industry when it came to checks. They did not come in a specific size, and they were not



The lack of check standards made processing more difficult. Check designs, sizes and shapes varied widely.

pre-printed with any information, resulting in potential errors due to sloppy handwriting by customers filling out blank boxes and lines on the check. This also raised issues surrounding security, as the only safeguard against fraud was often a bank clerk who compared the signature on a check with the customer's signature on file. These account files, however, were in constant flux because they were ordered alphabetically by customers' names. Clerks were forced to constantly reorder and re-sort the files to adjust for new or departing customers.

Bank clerks were also well familiar with so-called "headache" items that required special handling and sorting because of their strange shape, color or some other issue. Companies sending rebate or promotional checks to customers would print them on paper shaped like boats or sausages. The checks sometimes came printed with the picture of a company president or a factory, and they could be printed in sizes as large as a newspaper. "You could even write a valid check on a golf ball," the Philadelphia Fed noted.¹⁴

It was clear that change was needed, and the emerging power of computers offered a solution.

A private-sector partnership

Executives at San Francisco-based Bank of America realized they were losing the battle against paper checks, and in 1950, they turned to experts at the nearby Stanford Research Institute for help.

The engineers at SRI first focused on the bank's manual sorting and filing practices. They recommended that Bank of America stop sorting bank account information alphabetically by customer name, and instead use a system where each account had its own number. By moving to a number-based system, new accounts could simply be assigned the next available number instead of being inserted into a fixed alphabetical position, changing the order of all files that followed the new account.¹⁵

The next task was not as simple. To enable a machine to read the information on a check, the engineers had to develop a new language that could be easily understood by both people and machines. Scientists at IBM had been working on a bar code system that could be printed on checks, but the staff at SRI had devised a different kind of system that relied on a string of numbers printed at the bottom of each check.

The numbers were printed in magnetic ink, which made it possible for a computer to sense and record the information. The system, known as magnetic ink character recognition (MICR), also had the advantage of durability: When clerks handled checks, normal ink

would rub off or get smudged, but magnetic ink could still be read by a computer even if it was damaged.¹⁶ In addition, the MICR system, which humans could still read and understand if a computer was unavailable, was viewed as a better alternative to IBM's bar code system, which some bankers considered "spooky."¹⁷

In 1956, after visiting several companies and hearing about potential solutions, a committee sponsored by the American Bankers Association chose MICR as the new standard for checks. The Federal Reserve System, which most checks in the nation passed through at some point, provided feedback throughout the process.

After the committee determined the size of the MICR font to be used, the location of where it would be printed on a check and other important details, the Federal Reserve agreed to conduct a pilot test of new check processing technology in 1960. In the test, five Reserve Banks tried out equipment from manufacturers such as IBM, Burroughs Corp., and National Cash Register Company.¹⁸ The Boston Fed, which served as one of the test sites, faced a unique problem from the start. Its headquarters, which was built in 1922, did not have stairwells or elevators large enough for the computer equipment to fit through, so workers removed the windows on the Bank's third floor and used a crane to install the massive machine.¹⁹

Meanwhile, after its ERMA prototype demonstration for the press proved the system could work, Bank of America contracted with General Electric to mass produce the machines for use at several of its branches and processing sites. In 1959, the bank and GE, with the help of spokesman Ronald Reagan, demonstrated the completed model at an event televised to four cities via closed circuit.²⁰ A skilled human bookkeeper could hope to manually process just 245 accounts an hour, but GE officials told reporters the new computerized system could "read, sort and post 550 checking



Before he was president, Ronald Reagan was a spokesman for General Electric. In 1959, he hosted a televised demonstration of a check sorting computer developed by GE.

accounts a minute, or 33,000 an hour.²¹

The rest of the banking industry soon recognized that the check clearing solutions provided by the private sector, with Federal Reserve support, would provide a more efficient system, and by 1967, 98 percent of the checks processed by the Federal Reserve contained a MICR code. At the same time, the processing speed of the machines had almost doubled to 60,000 checks per hour.²² The leap forward in progress also sparked imaginations across the banking industry about what the future of payments might look like.

The checkless society

The efficiency and productivity gains computers brought to banking were obvious. But some wondered if the power of computing could take things further and eventually eliminate the check completely. In the late 1960s, a “checkless society” was within reach, according to the experts, and banks had only scratched the surface of what was possible.²³

In the near future, “paper will give way to electronic pulses as the main method of storing and transmitting financial data,” Dale Reistad, leader of the American Bankers Association’s automation efforts, wrote in 1967. This new system would “employ terminals, communication links, computers, and related technologies in a system based on electronic funds transfers.”²⁴

According to one of several futuristic scenarios that began appearing in academic journals and newspapers in the late 1960s, Mary Doe, a “prudent housewife,” could use an identification card inserted into a home telephone to pay her bills directly from her bank account.

At the grocery store, Mrs. Doe would hand the cashier her “money card” in the checkout line. After she entered a secret three-digit code on a keypad, a light would flash a billionth of a second later, signaling that her bank had cleared the transaction by transferring money from her account directly into the store’s account. Back at home, Mr. Doe inserted his children’s money cards into the telephone and keyed in amounts to transfer money into their accounts for their weekly allowances.²⁵

Other scenarios asked readers to consider the possibility of paying bills electronically by using a bank card at a computer terminal located on the nearest street corner.²⁶ Workers would no longer receive physical pay checks under this system. Their employers would simply instruct their bank to deposit money into employee accounts on a monthly, weekly, or even daily basis.²⁷

Those promoting this future system were not outside of the mainstream. In fact,

one of the most vocal advocates of the “checkless society” was George Mitchell, a member of the Federal Reserve’s Board of Governors. His wife, Mary, recalled years later that Mitchell was “a fanatic on the subject of the Board’s reluctance to initiate change.” Mitchell was also “contemptuous of the check as a means of payment,” because of the large resource commitment required to clear paper through the Federal Reserve and commercial banks.²⁸ In speeches and essays, Mitchell argued it would be only a matter of time before the check became a relic of the past.

“I expect check usage as we know it will have largely disappeared” within a few years, Mitchell said in a 1965 speech to the American Economic Association. Settling and clearing payments would instead be conducted through a vast network of 250 computer centers across the country, he predicted.²⁹

“Depositors will have no need to visit their banking office any more often than they now visit their telephone or electric utility company office,” Mitchell said. Instead of taking their paychecks to a bank branch, the bank would notify customers when a credit had been electronically posted to their account. “Not only will the computer reduce the risks in paying bills, it will also take over the chores in banking—such as a trip to the bank and the standing in line to make a deposit, the writing of checks and mailing them to creditors, and similar routine tasks,” he said.³⁰

In a memoir written several decades later, Mary Mitchell acknowledged that some of her husband’s predictions were “hard to swallow,” and were “greeted with skepticism and



Federal Reserve Gov. George Mitchell was an early advocate for electronic payments. He supported the idea of a “checkless society” and predicted check usage would eventually end.

even derision in some quarters.”³¹ However, Mitchell’s innovative thinking and continued support of an electronic payments system led some to recognize him as “the father of electronic payments.”³²



Workers at the Omaha Branch of the Kansas City Fed in the mid-1960s use a high-speed check reader produced by IBM.

Other experts predicted the checkless society would become a reality by the early 1980s,³³ but even that timeline proved to be too optimistic as consumers, who were “slow to change and difficult to educate,” were not yet ready for such a drastic change.

The ABA’s Reistad suggested in the late 1960s that a complete shift to electronic payments would take at least a generation, as fears of an erosion of privacy and the unknown impact of computers on society were still widespread. The youngest consumers, those born in the 1950s or later, “will expect the computer to work them and will have no fear of its performance,” he predicted. “They will demand, not resist, change in financial actions that are compatible with greater efficiency and the reduction of paperwork.”³⁵

Automated clearinghouses

Amid the speculation of what the future might look like, new technologies and improvements were still being developed.

A significant improvement in processing paper checks came with the opening of Federal Reserve Regional Check Processing Centers (RCPCs) in 1972, an idea that had first been proposed in 1954 but had been taken up with renewed vigor by the Fed Gov. Mitchell. The centers—located across the country in cities that did not have a Federal Reserve Bank or a branch—cut the average time to clear a check substantially.

The fact that the Federal Reserve did not charge member banks to use these facilities also made the central bank an attractive clearing option for some banks. Thirty-five RCPCs were available for member institutions to use by 1973, in addition to the 35 Reserve Bank and Branch office locations that were already processing checks.³⁶ Soon, smaller clearinghouses that were unable to compete with the Fed's free services began closing.³⁷

Meanwhile, larger clearinghouses continued to look for ways to innovate and saw an opportunity. The clearinghouse associations in San Francisco and Los Angeles began work on developing a system to settle payments electronically between banks and formed the Special Committee on Paperless Entries (SCOPE) in 1968. At about the same time, the Atlanta Fed partnered with Georgia Tech University on an electronic payments project that would involve a test market composed of banks in Georgia and Florida.³⁸

Within four years, similar Automated Clearing House (ACH) associations formed across the country and focused on developing a paperless method to help settle recurring payments, such as mortgage payments, insurance premiums and paychecks.³⁹

The Federal Reserve was already in a position to support the ACH efforts through its existing check-clearing system and the Regional Check Processing Centers. While the payment information running through the ACHs were recorded on magnetic tapes, they still had to be transported to various locations, and Gov. Mitchell, who had been named vice chair of the Fed in 1973, pushed the Fed to use its physical check delivery infrastructure to support the development of ACHs across the country. In many cases, ACH associations eventually turned over their operations to their nearest regional Reserve Bank, which provided additional critical support to the electronic system's development.⁴⁰

The federal government also saw an opportunity to automate its billions of dollars in payments for Social Security and other programs, and the Treasury turned to the ACH system to help cut costs.⁴¹ In 1975, at Mitchell's prodding, the Air Force began using the ACH



By the early 1980s, computerized high-speed check readers were common throughout the Federal Reserve and commercial banks.

system to provide direct deposit services to its personnel, delivering magnetic tapes to the Reserve Banks containing information for some 270,000 paycheck recipients. The Treasury Department estimated that by the end of 1976, more than 6.5 million federal workers would receive their paychecks electronically through the ACH.⁴²

A congressional committee assigned to study the issue of electronic payments also endorsed the Fed's role in the effort. In its 1977 report, the National Commission of Electronic Funds Transfers, which included bank regulators, financial institutions, a retailer and members of the public, recommended the Fed continue to provide ACH services and promote access to the ACH network. The commission also recommended the ACH networks and the Fed begin charging for the service in order to promote the possibility for private sector competition.⁴³ This finding, and the lack of any public governance recommendations, illustrated the commission's emphasis that market forces would drive improvements in the payments system.⁴⁴ The commission's report also urged Congress to pass legislation covering a wide range of consumer issues surrounding electronic payments.

Congress acted on the commission's recommendations a year later with the Electronic Fund Transfers Act, which required the Fed to establish regulations for consumers and banks regarding electronic payments. As a result of the Act, Congress had formalized the

framework that placed the central bank in the dual roles of both an operator and a regulator within the electronic payments system.⁴⁵



The Atlanta Fed's Cyber M1000 was used for wire transfers and ACH transactions. The system's control panel is pictured in this photo from the mid-1980s.



Federal Reserve Chairman Paul Volcker warned Congress in 1979 about competitive differences between banks and thrift institutions, which could offer higher interest rates on deposits but could not access the Fed's financial services. The Monetary Control Act sought to level the field by requiring the Fed to charge for its financial services and offer its services to all depository institutions.

Control and Competition

THE MONETARY CONTROL ACT

As Paul Volcker took his seat before the Senate Banking Committee on Sept. 26, 1979, the new Federal Reserve chairman found himself under intense scrutiny as inflation appeared poised to continue its dramatic rise. Only a few weeks into his new job, and amid signs that unemployment was rising, the media and the White House were already questioning whether Volcker's plans for more restrictive monetary policy would steer the economy back into health.

A few days before his Senate appearance, a report in *The Wall Street Journal* noted that officials in the Carter administration were "becoming increasingly nervous about monetary policy under the direction of Fed Chairman Paul Volcker, fearing that it could prolong and deepen the recession." The report also noted that "some White House officials" were privately hoping Volcker's recent clashes with other Fed governors over the direction of the discount rate meant the chairman would stop pursuing tighter monetary policy.¹

Beyond the issue of inflation and the whispers from the White House, Volcker had yet another challenge to deal with. In his prepared remarks to the Senate committee, he warned lawmakers that a growing number of commercial banks were leaving the Federal Reserve System in order to escape the Fed's reserve requirements. The Federal Reserve did not pay interest on these reserves, and as a result, member banks were beginning to treat the funds as an unacceptably high cost of Federal Reserve System membership.

In an environment of rising interest rates, the appeal of maintaining these reserves was declining, and member banks faced a choice. They could continue holding reserves at the Fed in return for free access to the Fed's payments services, such as check clearing and wire transfers, as well as access to the discount window—an important safety mechanism.

Alternatively, member banks could pull their reserves to make loans and take advantage of historically high interest rates. While that decision would require the bank to revoke its Fed membership and give up access to the Fed's payment services, a number of large, private-sector correspondent institutions offered check clearing and other services and would be able to meet those needs.

For many member institutions, the choice was clear, and hundreds of banks were now leaving the Federal Reserve System. Federal Reserve officials had repeatedly warned lawmakers

about the problem, and during the 1970s, more than 300 banks out of 14,500 in the Federal Reserve System revoked their membership. Fed officials were worried the number would continue to grow.²

The issue, Volcker now told the Senate, involved a problem of “competitive inequalities,” between member banks, which were at a disadvantage because of the Fed’s reserve requirements and other regulations limiting the amount of interest they could offer on savings accounts. Other institutions, such as savings and loans, credit unions and non-member banks, didn’t face the same restrictions and could offer new products, such as interest-bearing checking accounts, that traditional banks were prohibited from offering to customers. If the decline in Fed membership continued, Volcker warned, it would “ultimately threaten our ability to conduct effective monetary policy.”³

A solution, though, was at hand. Volcker pointed to two pending bills the Federal Reserve found “acceptable.” The measures would first treat all depository institutions equal by making banks, thrifts and credit unions subject to the central bank’s reserve requirements. Secondly, the bills would permit all depository institutions to use the Fed’s financial services, such as its check processing facilities and the automated clearinghouse, and require the Fed to charge institutions (including member banks) for using those services. As a result, member banks would be placed on equal competitive footing with other institutions.

By passing the bills, Volcker suggested, Congress might improve the effectiveness of the Fed’s policies by placing more of the nation’s money, in the form of reserves, back under the central bank’s influence by increasing the monetary base. The measures could also lead to a more efficient payments system.

“Intelligently implemented, we believe this approach can contribute to the efficiency, competition, and safety of the financial system,” Volcker told the senators.⁴ “These questions have been long debated, and I sense a convergence of views. Now, this Committee has the chance to bring the long process to the edge of conclusion. I urge you to seize that chance.”⁵

Volcker left the senators to consider his comments, but he wasn’t going to wait on Congress to make the changes the Fed needed. Several days after the hearing, Volcker announced a series of policy actions aimed at corralling inflation by targeting the supply of banking reserves in the system.

Meanwhile, Congress continued to debate the competitive inequalities Volcker had mentioned and other issues related to the Fed’s role in the payments system.

The rise of thrifts

For some lawmakers and those in the banking industry, the problems Volcker highlighted were nothing new and reflected ongoing arguments that started several years earlier about the regulatory differences between commercial banks and other classes of depository institutions—primarily savings and loan associations.

Initially designed to serve as a source of mortgage lending, changes to federal law in the mid-1960s allowed savings and loans, also known as thrift institutions, to pay higher interest rates on deposits than what traditional banks were allowed to offer. Lawmakers had determined that a higher interest rate on deposits at thrifts would attract more funds that could then be used to boost mortgage lending, and thus, promote homeownership. In 1970, Congress broadened thrifts' powers further by giving them the authority to make transfers on account holders' behalf to third parties for "household-related expenses." A few years later in 1976, Congress permitted thrifts located in New England offer a new financial product not available to traditional banks—interest-bearing checking accounts.⁶ Federal Reserve regulations prohibited commercial banks from paying interest on similar accounts. In order to process their customers' payments, thrifts sought access to the nation's automated clearinghouses (ACHs), which were operated by the Federal Reserve Banks but governed by associations made up of commercial banks. Perhaps not surprisingly, the commercial banks did not welcome their new competitors.

In California, the regional automated clearing house association, CAHCA, decided that thrifts would only be able to access the ACH if they held "pass-through" accounts with an association member bank acting as a correspondent.⁷ Meanwhile, the Federal Reserve, as operator of most of the nation's ACHs, supported the bankers' position, saying it would be open to allowing thrifts to access the system as long as they were also required to meet the same reserve requirements and interest rate restrictions as commercial banks. Federal Reserve Gov. George Mitchell, the Fed's point person on payments issues, put the issue squarely at the feet of Congress.

"If Congress said, 'We want all the institutions to be part of the money system,' then there wouldn't be any question about it," Mitchell said at a 1974 hearing. "You know what the arguments are for making them (thrifts) more like banks, giving them the same reserve requirements and giving them the same interest ceiling arrangements—that is essentially what we are talking about."⁸

However, Congress delayed taking any significant action on the issue and left the

regulatory differences in place.

The government takes notice

At the same time, the thrifts found a sympathetic ear at the Department of Justice. In a 1974 statement, the Department's Antitrust Division warned that the ACH system was "an essential facility," and as such, those who controlled it "must grant access to it on reasonable and non-discriminatory terms to all competitors," which included thrift institutions.⁹

Three years later, the Justice Department acted on its warning. In 1977, the government sued the Rocky Mountain Automated Clearinghouse Association and CACHA in two separate actions, alleging the associations had essentially created monopolies that benefited from their connections with the Federal Reserve. The government further alleged the Federal Reserve's involvement prevented the emergence of any private-sector competition to the automated clearinghouse. The government won the lawsuits, forcing the associations to begin allowing thrifts access the ACH.¹⁰

Meanwhile, Congress began to take notice of the access problem for thrift institutions and the cost to the Federal Reserve of providing clearing and other payments services to member banks for free. By 1976, the Federal Reserve was spending \$400 million to provide payments services for its members, an amount equal to 60 percent of the central bank's entire operating budget.¹¹ To many in Congress, this was an unnecessary expense that ate into the profits the Fed returned to the U.S. Treasury every year.



Sen. William Proxmire, chair of the Senate Banking Committee, held hearings on the Fed's role in the payments system during the late 1970s.

During a two-day hearing on the issue in 1977, Democrat Sen. William Proxmire of Wisconsin, chair of the Senate Banking Committee, summarized the views of several witnesses representing thrift institutions and private sector payment providers. The witnesses were urging lawmakers to "encourage the greatest amount of competition" and "open up the role of the private sector in the payments mechanism," Proxmire said in summarizing their testimony. He then indicated that he supported a larger role for the private sector in the payments system.

“The current framework is stifling competition” from private-sector service providers, Proxmire said. “It is clear that the private sector is not only willing, but they are eager—you might say very eager—to compete with the Fed.”¹²

Representing the Federal Reserve at the hearing was Gov. Philip Coldwell, who argued the Fed’s role in the nation’s payments system “ensures that the entire nation has the benefit of a uniform, basic level of payments mechanism services.”¹³ Coldwell, echoing Mitchell’s position from a few years earlier, asked that Congress remove the “burden” of Fed membership by requiring all depository institutions to hold reserves at the central bank. In return, Congress should require the Fed to open its payments services to all institutions and charge for the services.

By doing so, Congress could address the decline in Fed membership and foster private sector competition in the payments system. Coldwell added that it was time to eliminate regulations that gave thrift institutions an advantage over banks by allowing thrifts to pay higher interest rates on deposits and offer checking accounts that paid interest.¹⁴

It would take some time, however, for lawmakers to agree on a resolution. Over the next two years, several proposals were introduced, but they all failed to advance in meaningful ways.¹⁵ The Carter administration also tried to address the issue by establishing commissions that offered their own legislative ideas, but the problems were still lingering when Volcker once again visited the Senate Banking Committee in February 1980.

Volcker pushes again

Despite his warnings during the previous hearing in September about the effect declining Fed membership was having on the central bank’s ability to conduct monetary policy, Congress had still not taken any action to address the problem. If anything, Volcker now told the Senate Banking Committee on Feb. 4, 1980, the membership problem would get worse in light of interest rates that were rising at an even faster pace.

While some 300 banks had withdrawn from Federal Reserve membership during the 1970s, a new internal Fed survey found that an additional 320 banks “were considered certain or probable to withdraw” their membership, while another 350 “were actively considering withdrawal,” Volcker said. If these banks, which held \$71 billion of the banking system’s total deposits, left the system, only 64 percent of the nation’s deposits would be held at Fed member banks, the chairman added. It was a level that threatened to limit the effectiveness of monetary policy.



President Jimmy Carter signed the Monetary Control Act in March 1980.

“As one banker has put it, the cost of membership is ‘too high to be a member of anything,’” Volcker said. “I would remind you that loss of members has several adverse effects on monetary control, the soundness of the banking system, and the strength of the Federal Reserve.”¹⁶ Once again, Volcker urged lawmakers to seriously consider addressing the membership problem and to mandate that the Fed start charging for its payment services. Without action, the nation’s central bank was coming “perilously close” to the point of losing control of its ability to manage the country’s monetary system, Volcker warned.¹⁷

Mindful of Volcker’s statements, Congress at last passed the Depository Institutions Deregulation and Monetary Control Act in late March 1980. The new law contained a number of provisions, including the following:

- All depository institutions would be subject to the Federal Reserve’s reserve requirements, which would be phased in over several years. Because more institutions would be required to hold reserves at the Fed, the requirements would be lower for many member banks than they had been previously.
- The Federal Reserve would be required to begin pricing its services starting in 1981. These services, which included currency and coin services, check clearing and collection, wire transfers, automated clearinghouse services, securities safekeeping and any other electronic funds transfers, would be available at explicit prices for all depository institutions.
- As part of the Fed’s price structure, the central bank would be required to add a “private sector adjustment factor” to its prices to account for the depreciation, capital expenses, taxes and other costs faced by service providers in the private sector. The Federal Reserve would also be required to cover its costs of providing payment services.
- Interest rate ceilings would be phased out over the next several years, and all institutions would be allowed to pay interest on checking accounts.

During a White House signing ceremony for the bill, President Jimmy Carter said the new law would “help small savers and address more effectively the relationship of the Federal Reserve System with the banks throughout our nation.”¹⁸ Carter also praised the work of his Treasury Secretary, William Miller, who, he said, “deserves a great deal of credit for having pursued this effort, even when the prospects for success were very bleak.”¹⁹



Treasury Secretary William Miller was credited for the Monetary Control Act, but observers felt Volcker was responsible for its passage.

However, some observers felt Volcker was largely responsible for pushing the various measures through Congress. “The new banking legislation gives the central bank more clout through establishment of a universal and uniform system of reserves,” *The New York Times* wrote. “Paul A. Volcker, the Fed’s chairman, showed himself as a skilled negotiator in wheedling the changes from the legislators after his two predecessors, G. William Miller and Arthur Burns, had failed.”²⁰

In return for help in addressing the membership problem, the Federal Reserve now found itself thrust into a formal role as a competitor in the payments industry. Almost immediately, it encountered new challenges.

The Fed as competitor

Soon after passage of the Monetary Control Act, the Board of Governors issued a policy statement explaining how it would set prices for Federal Reserve services and fulfill lawmakers’ intentions. The policy stated that prices would be set by an explicit fee schedule, that all services covered by the fee schedule would be available to non-member depository institutions, that revenues for “major service categories” match the Fed’s costs, and that the structure of fees and service agreements would “reflect desirable longer-run improvements in the nation’s payment system.”²¹

In August 1981—the first month the Fed’s pricing system went into effect—the central bank’s processing and clearing volume dropped nearly 20 percent as commercial banks turned to other institutions for better and cheaper payment services.²² It was a clear sign that the Fed’s regional Reserve Banks, which had essentially provided their services for free before, would have to quickly adapt and improve in this new competitive environment.

“It’s like taking a bunch of zebras and telling them that because they have stripes, they’re tigers,” one unnamed Federal Reserve Bank president told *Fortune* magazine for a feature story on the Fed’s attempts to set competitive prices for services that previously were free for member banks. “They have to learn to pounce instead of trot.”²³

Some Reserve Banks adjusted better than others by developing slick brochures and other marketing materials and hiring sales staff to visit depository institutions. One brochure produced by the Kansas City Fed announced that “No Job is Too Small for Us,” while the San Francisco Fed prominently marketed its FedLine package, which offered institutions an IBM personal computer, a printer, training, maintenance and access to a communications line for \$175 a month. “One of our representatives can demonstrate and explain the FedLine concept,” the San Francisco Fed’s marketing materials read. “Call or write today. You can’t afford not to know about FedLine.”²⁴

While lawmakers had intended that the new pricing requirements for the Fed would promote private sector competition, some in the financial services industry didn’t see it that way. Correspondent banks that had offered their clearing and payments services to other banks for decades were angry that the Fed, with its massive nationwide network of clearing sites originally intended for member banks only, was now competing for the business of all depository institutions.

“The commercial bankers are furious that the Fed is acting like a private enterprise, and they accuse it of abusing its power as regulator to enhance itself as a competitor,” read one news account in 1982. One banker at a “major commercial check clearer” told a reporter that “The FAA doesn’t fly planes . . . and the SEC doesn’t buy stock. But here we are, competing with our regulator.”²⁵

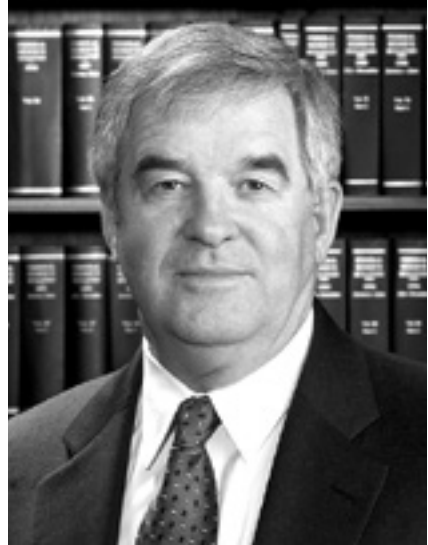
Another banker, George D. Norton of the Philadelphia National Bank, compared the competitive situation to a football game where one team had to compete against the referees. “It’s like you’re the defensive captain in the Super Bowl,” Norton said. “You look across the line at the other team, and you see this big, husky quarterback in a football helmet, but he’s wearing a black-and-white striped shirt.”²⁶

The Fed’s requirement that it add a “private sector adjustment factor” to its prices also became a source of contention with the central bank’s competitors. From the beginning, the Fed came under criticism from the private sector, as well as the Department of Justice, for setting its prices too low and underestimating the PSAF, which was intended to serve as a proxy for taxes, return on capital and other expenses that those in the private sector were

required to account for.²⁷

After initially setting the PSAF at 12 percent, the Fed faced significant criticism from banks and the federal government. The Department of Justice said the proposed level was “unrealistically low.” A more appropriate level, the department’s attorneys said, would be closer to 15 percent. Bankers said it should be even higher, with one industry study suggesting 24 percent would be more appropriate.²⁸ An American Bankers Association spokesperson suggested it “could be at least 30%.”²⁹ At last, the Fed settled on a PSAF of 16 percent for the first year it priced its services.

Such “argle-bargle,” would become an annual event.³⁰ Mark Olson, who served as a Fed governor from 2001 to 2006, noted that “during every year of my service as a Federal Reserve Governor, when the private sector adjustment was being calculated, I was reminded of the debate that took place on the issue.”³¹



More than 20 years after the Monetary Control Act passed, Fed Gov. Mark Olson noted there was still annual controversy over its requirements.

The complaints from correspondent banks were buttressed by congressional reports showing the Federal Reserve had been slow to adjust its fees in a way that ensured it was truly covering its costs, as required by the Monetary Control Act. A 1982 report from the General Accountability Office estimated the Fed had been under-pricing its services, and as a result, more than \$100 million in proceeds were “held back” from the U.S. Treasury.³² A series of congressional hearings following the report collected a number of additional complaints from the private sector about the Fed’s role in the market. One suggestion called for placing the Fed’s financial services into a separate, private corporation. Lawmakers, however, did not take any action and only recommended the central bank price its services according to principles of fair competition.³³

Meanwhile, realizing it would now have to compete, the Fed was diligently working to improve its services by guaranteeing the availability of funds for banks and finding ways to cut costs. Private sector correspondent banks had a “credibility problem” with their customers in this respect, one community banker said. “Availability is always more important than

unit pricing,” this banker told *Fortune*.³⁴

Despite the initial drop in clearing volume and the complaints from correspondent banks, the Fed was able to cover its costs under the new pricing structure by 1984. Fed Gov. Lyle Gramley acknowledged in a 1985 speech that “these past few years have been challenging ones for the Federal Reserve” as it strived to meet the payment provisions of the



Fed Gov. Lyle Gramley said the central bank was challenged to meet the requirements of the Monetary Control Act but noted the law resulted in improved services.

Monetary Control Act. Congress had forced the Fed to re-examine its processes and re-consider whether it was efficiently meeting the nation’s payments needs.

“We thought we were an efficient, low-cost provider of services, but we learned that we had to do better,” Gramley said. “We thought our services were high quality, and that they met the needs of depository institutions. What we found was considerable dissatisfaction with the types and quality of services we offered that forced us to improve.”³⁵

The Board of Governors was also well aware of the criticism and “acute discomfort” from the industry regarding the central bank’s dual role as a regulator and an operator in the payments system, Gramley said. As a result, a number of “external and internal safeguards” had been adopted by the Fed to prevent any potential conflicts, including a policy that stated that any decision involving the Fed’s supervision or lending to a bank “will be made without regard” to that bank’s status as a Federal Reserve customer or competitor. Gramley added that, in any case, Congress had made its intent for the Fed’s role clear, and the new competitive landscape “is something that you in the private sector, and we in the Federal Reserve, will have to learn to live with.”³⁶

In general, some observers said, forcing the Fed to compete with the private sector eventually led to “a great deal of market innovation and increased competition.”³⁷ One

commentator noted in 1985 that “today, the Fed’s service is considered as good or better than [what] can be obtained through a correspondent bank.”³⁸

It was a sentiment echoed by bankers across the country, who reported lower costs and better services from both the Federal Reserve and correspondent institutions as a result of increased competition. A 1985 comment from a banker at National City Bank in Evansville, Ind., was typical. The bank sent small-denomination items to the Fed for processing, and still used correspondents for large-denomination items. The banker, noting the benefits of increased competition, said costs had fallen “at both the Fed and our correspondents.”³⁹

The new competitive payments landscape had laid the groundwork for further innovation and improvements in the payments system, Gramley said.

“We find the world around us changing so rapidly that we dare not relax and rest on our laurels,” he said. “In years to come, the payment system in this country will continue to evolve as rapidly as it has in the recent past, if not more so. ...In short, we can all contemplate an exciting future.”⁴⁰



As the Federal Reserve began competing with the private sector to offer payment services to depository institutions, lawmakers questioned the central bank's business practices. The congressional pressure led to a reassessment of the Fed's role in the payments system in the mid-1990s.

The Fed's Air Force

..... A PLAN FOR THE FUTURE

Throughout the 1980s and 1990s, Democrat U.S. Rep. Henry Gonzalez of Texas used his leadership position on the House Banking Committee to criticize the Federal Reserve, often in the form of late-night speeches on the floor of the House.¹ At the beginning of 1996, he turned his focus to the central bank's payments operations, which, he suggested in typically colorful language, operated under the cover of darkness.

"When day turns to night, the friendly skies fill with the planes of a small air force chartered by none other than the Federal Reserve of the United States solely for the purpose of transporting banks checks for clearing," read a press release Gonzalez issued in January 1996. The release, carrying the title "Waste and Abuse in the Federal Reserve's Payment System," described the results of Gonzalez's latest investigation into the Fed's operations. This time, Gonzalez claimed to have found a number of questionable practices surrounding the Fed's use of airplanes to transport checks across the nation.

In his investigation, Gonzalez said, he and his staff had discovered the Fed awarded several "no-bid, no-lose contracts" to the company that operated the airplanes and had paid for "phantom planes" that didn't exist. In addition, Gonzalez alleged the Fed was violating the requirements of the Monetary Control Act of 1980 (MCA) by not fully recovering the costs for its check transportation operations. The findings amounted to "giveaways of taxpayers' money," Gonzalez said.²

Some private sector firms that competed with the Fed in the payments arena cited the investigation as proof that the Federal Reserve had been unfairly using its position as the central bank to intentionally underprice its check clearing and other payments services. Such activity, as Gonzalez alleged, would have violated the MCA, which required the Fed to fully recover its costs in order to compete fairly with the private sector. In fact, critics pointed out, for the past five years, the Fed's revenues from the transportation of checks, on average, had only covered 93 percent of its costs. "This is something we've suspected for years, that this thing is being subsidized," a bank courier company executive said in response to Gonzalez's investigation. "It's just an absolutely predatory price."³

An official at the Boston Fed, which was responsible for managing the 50 airplanes that transported checks across the country for the Federal Reserve System each night, said

the problems uncovered by Gonzalez were “honest differences of opinion about management decisions.”⁴ But despite the explanation, the story didn’t go away. The Fed’s airplane use was eventually featured in an ABC World News segment devoted to uncovering questionable government spending. In the report, which revealed that the Fed could not account for \$6 million in airplane fuel costs, the “Air Fed” system was called a “fly-by-night operation [that] will waste at least \$9 million a year.”⁵

While Gonzalez would continue his career-long battle against the Fed in other areas, his allegations about the central bank’s check operations renewed congressional scrutiny of the Fed’s role in the payments system. It would also lead the Federal Reserve to examine its own paper-based payment operations in what was quickly becoming an increasingly interconnected and electronic industry.

GAO investigates

Within weeks of Gonzalez’s investigation, Congress’ investigative arm, the General Accountability Office, released a separate report examining the Fed’s operations more



Charles Bowers, comptroller general of the United States, led a number of Government Accountability Office investigations into the efficiency of the Fed’s financial services.

broadly—specifically how the 70 percent of the central bank’s budget dedicated to payments operations was spent. The report, requested by Democrat Sens. Harry Reid and Byron Dorgan, found the Federal Reserve “could benefit from a major systemwide review of operations.” In addition, the GAO said it found “weaknesses in some of the Federal Reserve’s oversight processes.” Perhaps most critically, the report suggested that some of the system’s 12 Regional Banks

and 25 Branches could be closed or merged.⁶

At a later hearing to discuss the GAO's report, the head of the agency called on the Federal Reserve "to take a fundamental review of the overall operations; to look at their primary mission; to look at their business lines." The thousands of Federal Reserve employees across the country who were responsible for sorting, mailing and clearing paper checks were "basically doing it as they did 20, 30 years ago," when it was clear that the payment system was moving toward a new, more efficient electronic age.⁷

Appearing at the hearing following the GAO staff's testimony, Fed Chairman Alan Greenspan defended the Fed's record in the payments system, and said the agency's report "does not reflect the high level of effectiveness with which the Federal Reserve has fulfilled its mission." Greenspan pointed out that over the past decade, the Fed had recovered 101 percent of its payments operations costs, and "if we provided these services inefficiently, we price ourselves out of the market." The Fed played a "crucial" role in payments and was responsible for promoting "the integrity, efficiency and accessibility" of the entire system, Greenspan added. In a bit of a concession, Greenspan acknowledged that there were many useful recommendations in the report, and the Fed would pursue them as appropriate.⁸



Federal Reserve Chairman Alan Greenspan defended the Fed's record as a payments services provider but recognized the need for improvement.

But despite the assurances of one of the most highly respected men in Washington, questions about the efficiency of the Fed's operations at the Reserve Banks remained.

A front-page story in *The Wall Street Journal* later that summer focused on the work of the 12 regional Reserve Banks, comparing their check clearing and ACH operations to running the plumbing of the nation's financial system. "But the plumbing at the Fed banks

seems to be getting rusty,” the article stated, echoing many of the concerns highlighted in the GAO and Gonzalez investigations. “Rapid changes in technology, consolidation in banking and rising competition in some of their basic services threaten to make Fed banks costly relics.”⁹

The article warned that the Fed’s check clearing operations were suffering from what critics had termed the “post office problem,” meaning that the Fed was relying on a declining number of banks to generate most of its revenues. In fact, 25 percent of the Fed’s customers—mostly small, rural banks—were responsible for producing 95 percent of the Fed’s check volume.¹⁰ Many of these banks turned to the Fed to clear checks because private commercial banks had determined it wasn’t profitable to serve these smaller institutions.

The problem was summarized by the Minneapolis Fed’s check clearing manager, who told the *Journal* the Federal Reserve faced a unique challenge that its private sector competitors did not. Because it was responsible for the overall efficiency of the entire payments system, the Fed had an obligation to serve smaller banks, regardless of how unprofitable it was. “My counterparts in the private sector can cut volume deals with other big banks, leaving us with all the junk they can’t make money on,” he said.

Meanwhile, many of those same private sector competitors were still pushing for an end to the Fed’s involvement in the payments system. “The central bank no longer has a legitimate role as a provider of payment services,” said Lee Hoskins, a former president of the Cleveland Fed who helped launch a private-sector effort to provide those same services to banks.¹¹

Even within the Fed, some officials conceded publicly that change was needed. “I wouldn’t be surprised if a hard look at the system shows that some of the Fed branches should be closed,” the Minneapolis Fed’s research director, Arthur Rolnick, told the *Journal*. “The market has changed, and the technology has changed.”¹²

The Rivlin Commission

Following the GAO’s investigation and the public concerns about the Fed’s role in the rapidly changing payments system, the Board of Governors took action. In mid-October 1996, Greenspan announced a new commission to be headed by Vice Chairman Alice Rivlin would take feedback from bankers, consultants and others about the Fed’s payments operations. Rivlin was joined by Gov. Edward Kelley, New York Fed President William McDonough and St. Louis Fed President Thomas Melzer on the commission. “Given the

significant changes occurring in payment processing, this is an opportune time to assess the Fed's role in the payments systems of the 21st century," Greenspan said.¹³

Over the next several months, the commission hosted 10 meetings with bankers and others in the payments industry in five cities. Several Reserve Banks also hosted their own events to gather comments from the financial services industry. To spark discussion at the meetings, the commission released five scenarios laying out the options for the Fed's involvement. They included:



Federal Reserve Gov. Alice Rivlin led an evaluation of the Fed's role in the payments system. The Rivlin Commission's final report included several recommendations.

- Allowing the Fed to continue its existing role in the payments system to ensure all banks had continued access;
- Allow the Fed to continue offering its existing services while pursuing new innovations, such as electronic check presentment;
- Use the Fed's role as the central bank to discourage consumers from using checks over time;
- Move the Fed's current payments operations into a separate entity that would operate outside of the central bank as a for-profit corporation;
- Have the Fed completely exit the check business by liquidating equipment and services.

Rivlin said the commission was "very eager" to hear back from the banking industry on these options.¹⁴

As in past conflicts over the payments system, lines were soon drawn between large institutions, which competed with the Fed in offering clearing and other services to banks, and smaller community banks, which had come to depend on the Fed's payments services to clear their customers' checks and move money. The smaller community banks began a significant public push to ensure the Fed remained involved in the payments system as the Fed was often the only service provider that was willing to accept their business. As one

industry consultant put it bluntly, “If the Fed is removed, who presents a check in Podunk?”¹⁵

“Many of you are probably wondering why the Fed is reviewing a role so vital to community banks,” wrote Bill Sones, the president and chairman of the Independent Bankers Association of America, in a member newsletter. “The answer: Its role as a payments service provider is under attack by the Congress and big-bank competitors. ... Only a few years ago, it was virtually unthinkable that the Federal Reserve would question its payments service role. Today, unfortunately, the unthinkable is being thought.”¹⁶

Throughout the Rivlin Commission’s hearings across the country, community bankers urged the Fed to continue providing its current payments services, but to also to be more aggressive in developing electronic payment systems. “The Fed needs to keep control over the payment system,” a banker from Lincoln, Neb., said at one meeting in Omaha. “They need to move ahead and continue the technology advance.”¹⁷ A Wisconsin banker echoed those sentiments: “The heartland of America is not the same as the coasts,” he said. “It does not have the concentration of financial services.”¹⁸

Within the Fed, this support from community bankers was perhaps not surprising. “The sense is that the private sector would want to go after the segments of the business that promise the best commercial rewards but would not necessarily want to provide services everywhere, as the Fed does,” an anonymous Fed source told Reuters as the commission’s meetings were underway. The source went on to predict that if the Fed withdrew from its role as a service provider to banks, rural institutions could be left out of the payments system.¹⁹

During the commission’s final meetings in Washington, it dropped two of the five scenarios originally offered for comment. Now, the commission was only accepting comments on the options for liquidation, promoting more efficiency and pushing for a more electronic system. The IBAA reported to its members that there was no evident support for the liquidation option during the commission’s final meetings, a development that “would be good news for most bankers—other than those who would like to see a substantial cutback in the Fed’s role in providing payment services to permit them to skim more of the cream from check clearing and other payment services.”²⁰

However, while there appeared to be overwhelming support from community bankers for the Federal Reserve to take on a larger role in the payments system, larger banks weighed in as well. Anthony Cluff, head of the Bankers Roundtable, a lobbying organization for large banks, told the committee that the Fed “ought to allow the private sector to do as much of the retail payment clearance as possible.” He added: “The Fed’s role ought to be

minimized.”²¹

At the same time, Gonzalez and his allies in Congress viewed the commission’s work as a little more than a show with no real substance. Gonzalez suggested that if the Fed was truly serious about reforming its operations, it would have brought in an outside party to conduct an independent examination. “It is too much to ask someone to be detached and objective when their own interests are at stake,” he said.²²

As the commission wrapped up its work, Democrat Rep. Carolyn Maloney of New York, an ally of Gonzalez in his criticism of the Fed, introduced a bill that would alter the Monetary Control Act by



posing another requirement for the Fed. While the Act required the Fed to match its revenues to its costs for each individual service it offered, Maloney and Gonzalez felt the Fed was not recovering its costs for transporting checks, putting the private sector at a disadvantage. Maloney’s bill would require the Fed to begin publishing explicit prices for check transportation and “unbundle” transportation costs from collection costs. “The Fed should not subsidize the transportation of paper checks. That’s the purpose of my bill,” Maloney said.²³

Rep. Henry B. Gonzalez of Texas was highly critical of the Fed, including its role in the payments system.

Shortly after introducing her bill, Maloney also criticized the Fed for continuing to operate a check-clearing system. At a July hearing, she urged Chairman Alan Greenspan to end the Fed’s involvement in processing checks. “Let’s bring...banking services into the 21st century with a modern payment system in which private enterprise provides competition and innovation to promote a full range of choices for the nation’s consumers,” she said. Greenspan responded that the Fed had recovered all costs for its payments operations, and had actually recorded a profit of close to \$1 billion over the years.²⁴

Maloney’s bill constituted a significant threat to the Fed’s ability to continue offering check clearing services, according to industry analysts. “If that bill were passed, you would

see the Fed get out of the transportation business altogether,” one analyst said. “The cost structure is such that the Fed can’t compete.” An anonymous Fed source agreed with that assessment in media reports. “We’ll probably get out of (the check-clearing) business,” if the bill passed, the source said.²⁵

However, despite the threat to the Fed’s operations, the bill did not progress beyond a hearing in September 1997.

The commission’s findings

At a House subcommittee hearing in September 1997, Rivlin gave lawmakers a sneak preview of the commission’s findings. Rivlin said it was clear the payments system generally operated well, and the committee did not think the system was broken in any way. The public comments received by the commission were overwhelmingly supportive of the Fed’s role, and as a result, it had reached two general conclusions.

First, in order to maintain the payments system’s stability, the Fed should continue to clear checks and operate the automated clearing house for at least several more years, Rivlin said. Second, the meetings had revealed a need for the Fed to work more collaboratively with the industry to improve efficiency and develop strategies for the movement toward a more electronic system.²⁶

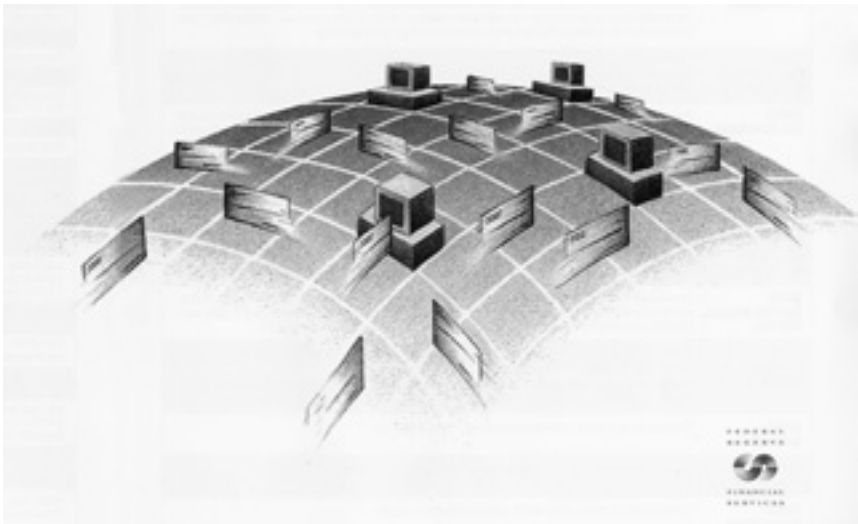
At a press conference in January to unveil the final report, Rivlin and fellow commission member Gov. Edward Kelley emphasized that while the Fed would remain closely involved in the payments system, there was also a need for the private sector to drive new developments in the emerging electronic arena. “We think that major action in all of these areas, but especially on emerging payment systems, has got to be in the private sector,” Rivlin told reporters. “But the question is whether the Federal Reserve, with its responsibility for the general financial system of the country, can help advance the discussion.”²⁷

For industry observers, one way the Fed could move the discussion forward was by using its influence to convince Congress to write legislation that would remove barriers to electronic transactions and ease requirements that only paper documents could be used to settle payments. “This should take the form of a call for aggressive action within the Fed—and within the banking industry generally—for comprehensive legislation aimed at removing legal impediments to electronification and for systemwide infrastructure standards that preserve, and hopefully enhance, the ease, convenience and acceptance of current paper processes,” wrote one analyst.²⁸

Along with the need for more suitable legislation, Rivlin and others noted that the consumer's attachment to the paper check, while waning, was still strong, and this posed another barrier. Recalling the decades-old predictions about a checkless society, Rivlin told a group of bankers in September 1998 that many consumers still felt that "if something isn't written on paper and saved in a drawer, it isn't real." She added that "it will be a long time before older and less affluent people, or at least less educated people, become comfortable with electronic payments and paperless transactions."

However, despite those barriers, Rivlin predicted that a "tipping point" would be reached within the decade "after which electronic payments quite quickly become the norm and the volume of checks falls rapidly."²⁹

This time, the prediction would prove to be accurate.



Even as the nation's payments system was becoming more electronic, as illustrated by this Federal Reserve Financial Services graphic from the mid-1990s, the 9/11 terrorist attacks, which grounded all air traffic for several days, highlighted the inefficiencies of a system that was still dependent on the physical transportation of paper.

Disruption and Evolution

THE DEVELOPMENT OF CHECK 21

Shortly after two airplanes struck the World Trade Center in lower Manhattan on Sept. 11, 2001, Federal Reserve officials dialed in to a conference call to check on conditions at banks across the country. Communication lines connecting Wall Street banks with each other and to the rest of the country were largely inoperable, and the Fed officials were concerned about scattered, but unconfirmed reports of panic-type behavior on the part of depositors.¹ The Board of Governors issued a press release stating: “The Federal Reserve System is open and operating. The discount window is available to meet liquidity needs.”

Several banks had acted quickly to put limits on customer withdrawals: Citibank set cash withdrawals at \$5,000 per customer, while Wells Fargo limited withdrawals to between \$1,000 and \$5,000 per person.² Officials at Bank of America issued instructions to all branch managers to “use discretion” on withdrawal requests,³ and the Wisconsin Bankers Association, among other banking groups, issued an advisory to member banks urging them to remind customers that the bank was the safest place for their money.⁴

While there were a few reports of depositors withdrawing all of their cash and closing accounts throughout the day, it became clear that a full-scale banking panic had not materialized following the terrorist attacks. However, the Federal Aviation Administration’s decision to close U.S. airspace on 9/11 posed another challenge for the central bank. The planes that transported millions of checks between the Federal Reserve’s processing centers—as well as those used by other clearing systems—would be grounded until further notice.

Unable to use the system it had relied on to move checks, the Fed quickly implemented a back-up plan. About 75 percent of the Fed’s normal volume of checks would be carried via ground transportation over the next few days, adding 12 to 24 hours to the usual clearing process. The Fed also pledged that it would immediately credit to banks all checks it processed, resulting in a significant increase in the amount of “float” across the banking system as banks turned to the Fed to process checks during the crisis. This float topped \$47 billion in the days following Sept. 11, compared to around \$700 million on an average day in 2001, and provided a key source of liquidity for the banking system.⁵ But, even as the Fed’s paper check processing system slowed to a crawl, the nation’s electronic payment system generally continued to operate as normal, experiencing only sporadic and isolated

connectivity problems.⁶

On the evening of Sept. 13, the FAA re-opened the nation's air space for flights. The Federal Reserve contacted a private air carrier, AirNet Systems, for help in moving the volume of checks that had been grounded since the 11th. AirNet later reported that it transported 500,000 pounds of checks that evening, an amount that was five times its usual daily volume. Additional flights during the weekend helped clear the backlog further.⁷

The tragic events on Sept. 11 would prove to have a wider economic impact as the nation's economy slumped into a recession soon after. While the nation's payment system had performed well for the most part in the face of the disaster—the most significant problem was a day or two delay in the clearing of checks—the attacks highlighted the Fed's reliance on a largely paper-based system that could be slowed in the face of a national disaster. Officials at the central bank moved quickly to propose a change.

Truncated checks

In a December letter to Senate Banking Committee Chairman Paul Sarbanes and other congressional leaders, Fed Chairman Alan Greenspan updated an idea the Fed had first proposed earlier in the year that would permit banks to present electronic copies of checks to other institutions for payment. Under the proposal, “banks would be able to truncate, or stop, the flow of checks, process them electronically, and create machine-readable substitute checks, if necessary, that would be the legal equivalent of the original checks,” Greenspan wrote. If the proposal had been in effect during 9/11, Greenspan added, “banks would have been able to reduce the impact of the disruption in air transportation on the check collection system.”⁸



Sen. Paul Sarbanes chaired the Senate Banking Committee during the development of Check 21 legislation.

The proposal would be a vast improvement over the existing method of check clearing and presentment. Banks were already permitted to clear and present checks electronically with each other, as long as they had an agreement in place with the bank on the opposite end of the transaction. These agreements, however, were difficult to obtain, and without them, banks would not receive final payment for

a check until the paper item was presented to the check writers' institution.

The Fed's proposal additionally sought only to make electronic presentment an option and not a requirement for banks. By not mandating that banks use substitute checks, the Fed predicted the plan would have a minimal impact on institutions that still wished to use paper checks and provide the canceled versions to their customers.

Still, the idea ran into immediate opposition from AirNet Systems, which saw a significant threat to its airplane courier business. AirNet, along with consumer groups, criticized the Fed's truncation proposal for not establishing a standard for what a "substitute check" would look like, and the groups questioned whether electronic presentment would have adequate safeguards against fraud.⁹

Meanwhile, Congress turned its attention to other issues in the wake of the terrorist attacks. Lawmakers didn't begin to seriously consider the idea of check truncation again until September 2002 when Republican Rep. Mike Ferguson of New Jersey introduced the "Check Clearing for the 21st Century Act."¹⁰ The bill, Ferguson said, would improve the current system of physically transporting paper checks, which was "a tedious and antiquated process that is inefficient, expensive and ... is rife for potential for fraud."¹¹

In contrast to past efforts to modify the payments system through legislation, the "Check 21" bill received widespread support from financial institutions of all sizes. "Usually, large banks and small banks have different views," said David Walker, the head of the Electronic Check Clearing House Organization, a group pushing for the change. "This bill has wide support across both kinds, as well as credit unions, which are often viewed as most consumer-friendly."¹²

Walker's mention of the support of "consumer-friendly" institutions was directed at the consumer advocates who worried that electronic imaging of checks posed new, unknown risks. These risks included the possibility that checks could be duplicated at some point in the electronic clearing process, that privacy would be more easily threatened by creating



Rep. Mike Ferguson of New Jersey introduced the Check 21 legislation to improve payments efficiency.

electronic records of checks, and that older consumers would be confused about receiving check images in their statements, instead of the actual, canceled versions. In addition, the CEO of AirNet testified at a House Financial Services subcommittee hearing that electronic transmission of check information “is no guarantee of uninterrupted check processing.” For a completely secure system, he argued, electronic clearing had to run alongside the air transportation of paper checks.¹³

These concerns were largely dismissed in the face of overwhelming evidence from the banking industry that taking an image of a check and processing it electronically, which many institutions were already doing, was leading to higher efficiency and lower costs for banks, with minimal risks to consumer privacy.

For the banks that were already using imaging technology and sending their customers reproduced images of checks instead of the actual checks themselves in paper statements, the experience was positive. Despite the warnings from some lawmakers and consumer groups that bank customers would reject the idea of receiving check images in their statements instead of the canceled checks, many banks reported that they had receive few or no complaints.

“We lost two customers over it [imaging] out of 6,000 accounts, and one of them came back,” the CEO of a Virginia community bank told *American Banker* in early 2003. “It’s been a win-win situation for manpower, customer service and saving money.”¹⁴ At Washington Mutual, a much larger thrift institution, executives were especially vocal about their support for Check 21. “We can’t wait for that to become law,” the thrift’s head of deposit operations said in *American Banker’s* report. “We’ll be able to completely kill our transportation costs.”¹⁵

Given the broad support from the banking industry, the House passed a version of Check 21 in June on a voice vote of 405-0.¹⁶ The Senate followed quickly, passing its own version just a few weeks later. The votes were hailed by those in the financial industry, with an executive at NCR—a large manufacturer of ATMs and other payments technology—calling the passage “the biggest event in check processing since the invention of MICR.”¹⁷

The measure then headed to a conference committee, where it sat for two more months with little progress as AirNet continued to press its case to lawmakers. Finally, in late September 2003, news reports revealed that the Fed had agreed to AirNet’s demand to provide more public information about the costs of the central bank’s check processing operations. Under the agreement, the Fed would begin publishing its expenses and revenues from transporting checks between processing centers for the next 10 years.¹⁸ Following

news of the agreement, lawmakers approved a compromise version of the bill, and it was signed by President George W. Bush in late October—more than two years after it was first proposed by the Fed.¹⁹

Check 21 provided the nation with a way “to protect the payment system in times of national emergency by ensuring that checks will continue to be processed through the payment system with limited interruption,” said Rep. Michael Oxley, an Ohio Republican who chaired the House Financial Services Committee. “We must ensure that our banking system operates as efficiently as possible, while preserving safety and soundness.”²⁰



Rep. Michael Oxley, chair of the House Financial Services Committee, said Check 21 would limit interruptions to the nation's payment.

Workforce adjustments

While the new law would clearly provide efficiency benefits by eliminating much of the paper that moved across the country each day, there also would be adjustments at both commercial banks and the Fed. As clearing became a more electronic process, the thousands of workers who sorted, filed and mailed checks soon found their jobs were no longer needed.

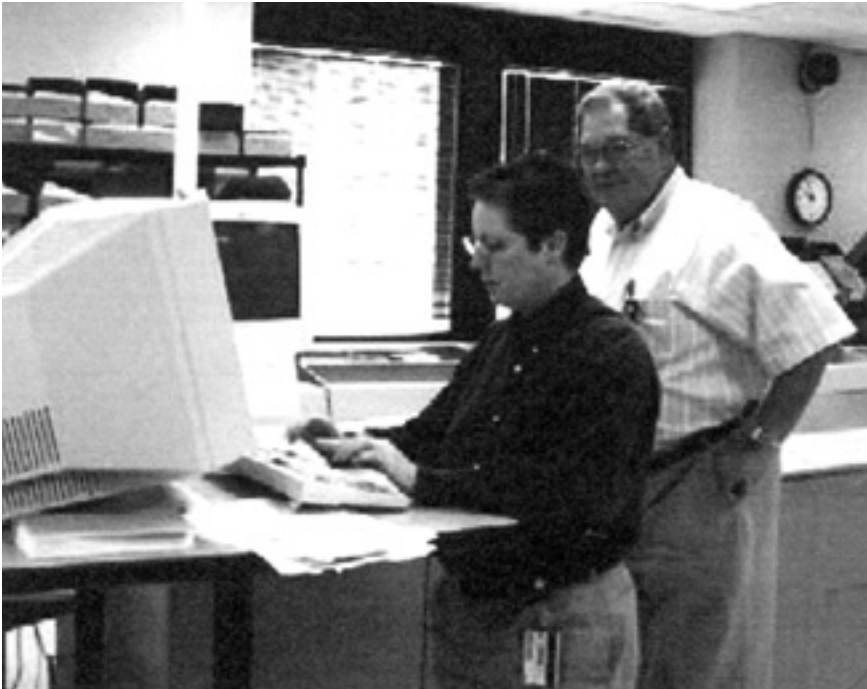
In February 2003, with Check 21 still moving through Congress, the Fed announced it would reduce the number of locations that processed checks from 45 to 32.²¹ Commercial banks would also see similar job cuts in their check operations. “There are a lot of people working these jobs that are going to see their place of employment disappear,” one industry analyst predicted. “That’s going to affect communities all over the country that have a lot of lower-skilled workers.”²²

Fed officials also acknowledged there would be “a shaving of jobs” in the near term as the law took effect and more banks began to use imaging technology and truncate checks.²³ In a speech at a Fed conference the day after Check 21 was signed into law, Greenspan acknowledged that the payments industry and the Reserve Banks “face classic issues involving the adjustment of infrastructure to demand,” adding that “the pace of decline in the volume

of paper-check clearings could well accelerate.” At the same time, the convenience and ease of using a check meant it was “unlikely to be completely eliminated as a major payment instrument any time soon.” Still, he noted, “We know that over time the efficient use of resources will require reductions in excess production and process capacity as the market demand for checks and check processing declines.”²⁴

In fact, as Fed researchers would later confirm, the number electronic payment transactions would exceed the number of check transactions in the United States for the first time in 2003.²⁵ The trend would continue to accelerate, and by 2010, checks accounted for less than 25 percent of all non-cash payments, with cards and ACH payments making up the rest, and nearly all interbank checks—those drawn at one bank and deposited at another—were cleared electronically.²⁶

In the years following the enactment of Check 21, the Fed consolidated its check clearing operations further, announcing in 2007 that it would reduce its paper check clearing operations to four sites. It soon accelerated the plans and consolidated those operations to



In this 2003 photo, Kansas City Fed employees test new software to prepare the Federal Reserve for Check 21 requirements.

one office in early 2010. In 2012, the Atlanta Fed became the only Reserve Bank location to process both paper and electronic checks. In addition, the number of personnel hours the Fed devoted to clearing paper checks plummeted by 48 percent from 2001 to the end of 2007.²⁷ Ultimately, 5,000 jobs related to check clearing were cut across the Reserve Banks.²⁸ Transportation costs to the Fed also declined, and by 2009, the central bank ended its use of air courier services to move checks across the country.²⁹



As the volume of debit card transactions skyrocketed in the late 2000s, the fees card companies charged merchants to process such payments—known as “interchange”—became a controversial issue. An amendment to the Dodd-Frank Act of 2010 required the Federal Reserve to cap the fees, setting up a bitter fight between merchants and banks.

Banks vs. Merchants

THE DURBIN AMENDMENT

As check volume began to decline in the early 2000s, the debit card quickly took its place as a preferred payment method. In 2000, debit cards accounted for 8 billion transactions, or 12 percent of the total volume of non-cash retail payments. By 2009, debit card transactions had jumped to 37.5 billion, or 35 percent of non-cash retail payments, making it the most popular non-cash retail payment method in the United States by volume.¹

While consumers increasingly used debit cards to complete transactions, their reliance on the payment method led to growing tensions reminiscent of past fights among merchants, consumers and bankers over who should pay the costs of processing a payment.

With every swipe of a debit or credit card, merchants paid a fee—averaging between 1 to 2 percent of a transaction's value—to process the payment. This fee, part of which card networks sent along to the banks that issued the cards, were a significant source of conflict between financial institutions and merchants, who took their allegations of unfair trade practices to court. As early as 1996, Visa, MasterCard and banks were sued in several class action and Department of Justice lawsuits claiming the card issuers and the networks had committed antitrust violations in assessing the fees.² Many of these lawsuits were settled over the course of several years, but merchants' complaints over sharp increases in the card fees also drew public attention.

While financial regulators in other countries began limiting interchange fees, the Federal Reserve, which regulated banks that issued cards but not the card networks, did not appear eager to step in. In a written response to questions about interchange fees from lawmakers in 2005, Fed Chairman Alan Greenspan said the central bank's authority "does not currently encompass regulating interchange fees." He added that the Fed would continue to "assess whether changes are needed."³

At a 2005 conference on the issue of interchange fees, Federal Reserve Bank of Kansas City President Thomas Hoenig said he was "not convinced that the Federal Reserve could simply decide to regulate prices under the current economic environment and legal structure of the United States." While other countries had started regulating interchange fees, "there is not a consensus for such intervention in the United States," Hoenig added.⁴

Congress, under pressure from merchants, continued to study the issue. A 2009 study

by the General Accountability Office found that the portion of the processing fee paid to card-issuing banks—known as “interchange”—had indeed risen steadily over time. While not expressing an opinion on whether Congress should act on the issue, the GAO report considered a number of options, including limiting or capping these fees, requiring that card companies disclose these fees to consumers, loosening the card network restrictions on merchants, and granting merchants an antitrust exemption to allow them to collectively negotiate contract terms with the card networks.⁵

Sen. Dick Durbin, a high-ranking Democrat from Illinois, emerged as a leading proponent of regulating the interchange fees on credit card transactions. In 2009, Durbin introduced a bill that would provide an antitrust exemption for merchants to negotiate contracts with electronic payment providers and establish a three-judge panel known as the “Electronic Payment System Judges” that would review credit and debit card interchange fees and contract terms at the conclusion of the negotiations.⁶ Durbin’s proposal was unsuccessful, but the issue would return as Sen. Christopher Dodd, D-Conn., chairman of the Senate Banking Committee, completed a draft of a massive financial reform bill in 2010.

The amendment

Almost two years after a financial crisis led markets to seize up in 2008, lawmakers’ work on a large financial reform bill was nearing completion. The bill, which would eventually be known as the Dodd-Frank Wall Street Reform and Consumer Protection Act, included a number of new regulations aimed squarely at the banking industry. Amid a political environment where distrust of the financial sector was high, merchants saw a new opportunity to bring card fees back into the public spotlight.

Following the completion of Dodd’s draft bill in March 2010, lobbyists with the retail industry heavily criticized the senator’s proposal for not addressing card interchange fees—also known as “swipe fees.” The lack of an interchange provision was “a glaring omission” that would “depress the ability of main street merchants to thrive and grow,” the National Retail Federation argued. The lobbying group said merchants had paid more than \$48 billion in swipe fees to banks in 2008, up from \$16 billion in 2001, and ultimately, it was consumers who paid this cost in the form of higher prices. Unless Congress addressed the issue, “financial services reform isn’t complete,” the group contended.⁷

Shortly after the retailers complained, Durbin announced he would introduce a number of amendments to Dodd’s bill, including one that would address credit card interchange



At a press conference in May 2010, Sen. Dick Durbin, center, flanked by merchants, announced he would offer a measure to limit the swipe fees charged by card companies.

fees.⁸ However, while Durbin's initial statement had focused on credit card fees, he instead decided to take aim at the interchange fees assessed on debit card transactions.⁹

Regulating interchange fees would ensure “fairer treatment when it comes to debit cards,” Durbin said during a news conference. Debit cards “draw money directly out of the bank account just like a check does, and I don't think [banks] should be rewarded with a fee comparable to a credit card, where there is a risk involved in collection.” Limiting debit card fees would help small businesses and “is the key to our economic recovery,” Durbin said.¹⁰

Durbin's formal introduction of the amendment came on the Senate floor in early May 2010, as work on the Dodd bill was drawing to a close. Using the example of a merchant who received just \$98 on a \$100 debit card transaction, Durbin said businesses “often raise their prices or cut back on other expenses, like hiring” to pay for interchange fees. His amendment called for the Federal Reserve to set a limit on the debit card interchange fees that would be “reasonable and proportional” to the costs involved in processing a debit transaction.¹¹

The proposed amendment drew a swift rebuke from the payment card industry. In a statement issued the same day as Durbin's Senate floor speech, MasterCard called the

proposal an “arbitrary intervention” by Congress that was “inappropriate,” and Visa blasted Durbin’s proposal as “an eleventh hour attempt by lobbyists, representing some of the nation’s largest retailers and trade associations, to hijack the Senate financial reform measure.”¹²

Meanwhile, several financial industry lobbying groups, including the American Bankers Association, the Independent Community Bankers of America, the Credit Union National Association, and the National Association of Federal Credit Unions launched a campaign to prevent the Durbin amendment from being included in the financial reform bill. The proposal to limit debit card fees threatened to significantly reduce the revenue banks and other financial institutions received from those transactions. In a joint statement, the organizations warned of “devastating consequences to community banks and credit unions.” In addition, the groups said the amendment, if passed, “would likely force small financial institutions to stop issuing [debit and credit card products] altogether.”¹³

The banking groups flooded senators’ offices with letters and e-mail messages pushing back against the amendment. Banking lobbyists also suggested that campaign donations to senators would be affected by how they voted on the proposal.¹⁴ Meanwhile, lobbyists for retailers turned up the pressure from the other side, suggesting Durbin’s proposal was aimed at limiting the influence of large Wall Street banks. “With this vote, Senators have a choice,” the Merchants Payments Coalition said. “They can defend the bad acts of the biggest Wall Street banks and credit card giants, or they can stand up for consumers and small businesses.” Durbin also criticized community banks’ opposition to his amendment, arguing they were “completely in the thrall of the American Bankers Association and the credit card companies.”¹⁵

But, public and political opinion was largely against the banks, which many blamed for causing the financial crisis. The Senate moved quickly—and overwhelmingly—on Durbin’s amendment, approving it on a vote of 64-33 a few days after it was introduced. Before the vote, Durbin sought to appease community bankers by inserting language that would exempt institutions with less than \$10 billion in assets from the interchange limit. However, community banks didn’t appreciate the gesture: They felt a cap on large banks’ interchange fees was effectively a cap on the entire industry as smaller institutions would be forced to match the fee established for large institutions.¹⁶

Several days later, the Senate passed the full version of Dodd’s bill, with the Durbin amendment included, and the issue moved on to a conference committee that would reconcile the Dodd bill with the House’s financial reform measure.

Early on, congressional leaders indicated there was little chance Durbin's measure would be taken out of the final version of the bill. Rep. Carolyn Maloney, R-NY, suggested that lawmakers might "clarify" the Durbin amendment's language, but "the strong vote in the Senate" meant it would likely stay.¹⁷ By the same measure, Dodd said he "can't imagine this provision coming out of this bill. ... Right now, consumers get whacked because of how retailers are treated by the credit card industry, by and large."¹⁸

However, a group of 131 House members from both parties lodged a vocal protest against the possible inclusion of the Durbin amendment in the final bill. In a letter to the House/Senate conference committee, the representatives argued a cap on interchange fees would "devastate credit unions and community banks while providing no discernable benefit to consumers." The representatives were also concerned about "the lack of congressional review, debate or study about these provisions. The debit rate-setting provision has never been vetted by any committee in either chamber."¹⁹

Despite the group's protests, the conference committee's final report retained the Durbin amendment. The report was approved by both chambers, and the Dodd-Frank Act was signed into law by President Barack Obama on July 21, 2010. Along with numerous banking regulations called for by the new law, the Federal Reserve would now be responsible for establishing a cap on debit card interchange fees.



Small business owners demonstrated near the Capitol in Washington in June 2010, urging lawmakers to include the Durbin amendment in the final version of the Dodd-Frank Act.

While banks had lost the fight against merchants in Congress, they weren't giving up just yet.

“It’s going to be painful”

The Dodd-Frank Act gave the Fed several months to develop a cap on debit card interchange fees, but in October 2010, Minnesota-based TCF Bank sued Fed Chairman Ben Bernanke and the Fed’s Board of Governors, arguing that any cap on interchange would be unconstitutional. The bank’s CEO, William A. Cooper, argued that the law allowed banks to recover only a portion of the costs associated with processing debit transactions, and a limit on interchange “makes no more sense than regulating the price of a fast-food hamburger based solely on the costs of the meat and bun.”²⁰ In statements to the media, Cooper said the bank’s lawsuit “is a line in the sand for the industry,” which was under assault as a result of Dodd-Frank.²¹

Soon after TCF filed its lawsuit, JPMorgan Chase announced it would end its debit card rewards programs due to the legislation, and warned the new law will force banks to raise fees for customers using other financial products to make up for lost interchange fee revenue.²² Bank of America also announced it would take a \$10 billion quarterly charge as a result of Fed’s soon-to-be-announced interchange limit. A merchant lobbying group disputed Bank of America’s claim that it would actually lose that much in interchange revenue, adding that the announcement was “a feeble attempt to divert attention from its mortgage foreclosure problems.”²³

In December, the Fed revealed a draft rule that proposed limiting interchange fees to an average of 12 cents per transaction. The number, a significant cut to the average swipe fee of 44 cents per transaction, shocked the payment card networks, banks and their investors.²⁴ One analyst’s report predicted the lower fee would make debit cards “significantly unprofitable” for the banks that issued them and reduce interchange revenue at large banks by billions of dollars.²⁵

“It’s going to be painful,” said Richard Hunt, president of the Consumer Bankers Association. Hunt predicted that if the fee limit was adopted in its final form at 12 cents, it would “have major negative implications for consumers,” who could face higher costs for other banking services. The American Bankers Association echoed those concerns, saying the proposed cap “seems little more than direct government interference in the card payments system on behalf of large retailers and the expense of everyday consumers.” At the same

time, lobbyists for the merchants hailed the proposed 12 cent fee as “a benefit for consumers,” who could expect retailers to cut their prices as a result of lower interchange fees.²⁶

When the Fed announced the 12-cent fee proposal, Gov. Daniel Tarullo urged Board members to “be particularly open-minded” to input from the public on what was clearly a contentious issue. “We should be more than usually open to a variety of comments on how to implement the final rule.”²⁷

During a House Financial Services Committee hearing two months later in February 2011, Tarullo’s colleague on the Board, Gov. Sarah Bloom Raskin, told lawmakers the Fed was “reserving judgment” on the rules. She said card issuers may decide to charge customers higher fees or reduce card rewards programs to make up for lost interchange revenue, but consumers also stood to benefit “to the extent merchants pass on their interchange-fee savings in the form of lower prices.”²⁸

During a Senate Banking Committee hearing held the same day, Fed Chairman Ben Bernanke addressed the Durbin amendment’s provision that exempted small institutions from the interchange fee cap. “We are not certain how effective that exemption would be,” Bernanke said, acknowledging the community banks’ argument that a cap for the largest institutions would effectively apply to the entire industry.²⁹ The chairman’s statement drew immediate criticism from Durbin, who said Bernanke had “echoed the financial industry’s talking points and failed to acknowledge several critical realities.”³⁰

Delaying Durbin

As the Board of Governors sifted through some 11,000 comments submitted by banks, merchants, consumer groups and others as it considered a final swipe fee cap, two senators called for a two-year delay in implementing the Durbin amendment’s requirements. A measure filed in March 2011 by Sens. Jon Tester, D-Mont., and Bob Corker, R-Tenn., would also require a formal study of the Durbin amendment’s effects on consumers, merchants and small businesses.³¹

The effort to delay the Durbin amendment received the support of several disparate interest groups, including the NAACP, the U.S. Hispanic Chamber of Commerce and the National Education Association, each of which voiced concern that a limit on debit card swipe fees would make other banking services too expensive for low-income and minority consumers.³²

Once Tester and Corker agreed to reduce their proposed two-year delay to one year,



Sen. Bob Corker meets with reporters on June 8, 2011, following the defeat of his measure seeking to delay implementation of the Durbin amendment.

a majority of the Senate voted in favor of it. However, the 54 votes the bill received fell six short of the 60 needed to advance past the Senate’s procedural hurdles. Tester said the Senate “missed an opportunity to stand up for consumers, small businesses and community banks in rural America.”³³ Corker later sharply criticized the Durbin amendment as a “government price-fixing idea” that was “sold in a moment of populism as a great way to stick it to the country’s biggest banks.” It was, Corker added, the result of “a Congress more interested in scoring political points than doing the right thing by the American people.”³⁴

A few weeks after the defeat of the Tester-Corker bill, the Board of Governors announced it was ready to release its final rule on debit card interchange fees. At a late June hearing, the Board voted 4-1 to set a fee limit of 21 cents per transaction and allow an extra amount for fraud costs, resulting in an average swipe fee of 24 cents per transaction. It was twice as large as the Fed’s initial proposed amount, but still considerably less than the previous average of 44 cents. Gov. Elizabeth Duke, a former banker, voted against the final rule, citing potential negative effects on consumers, such as the potential end of free checking accounts and higher fees for other bank services.³⁵

While the other members of the Board of Governors supported the rule, they voiced concerns with the final result. “This is the best available solution to implement the will of

Congress,” Bernanke noted. Raskin said the exemption for small banks wasn’t likely to limit the impact of the fee cap on those institutions. “We are only doing what Congress directed,” she said. “It appears to me that we have no choice in this matter, but to adhere to Congress’ directive even when the guideposts for achieving its requirements are far from clear.”³⁶

Merchants and bankers were both disappointed with the final result. The head of the Merchant Payments Coalition said the Board “clearly did not follow through on the intent of the law” with its final rule and suggested merchants would bring court action to “address the irresponsible mistakes made in writing this rule.”³⁷ Richard Hunt, head of the Consumer Bankers Association, called the final rule a “gift to big box retailers”³⁸ and pledged bankers would “be watching this like a hawk. . . . The book is never closed on the Durbin amendment.”³⁹

On the same day the Board of Governors issued its final rule, a federal appeals court struck a blow to TCF Bank’s lawsuit against Bernanke and the Fed over the swipe fee cap. The court said the Durbin amendment would only limit what banks could charge for processing a debit card transaction; there was no restriction on what banks could charge customers for using debit cards. The court also ruled that TCF’s argument that the amendment was unconstitutional was not likely to pass muster.⁴⁰ TCF withdrew its lawsuit, saying it still felt the limit on swipe fees was unconstitutional, but the bank’s CEO conceded, “it is time for us to move on.”⁴¹

However, as CBA’s Hunt had predicted, the book on Durbin wasn’t closed.

“Utterly indefensible”

Nearly five months after the Board announced its final rule on the Durbin amendment, the National Retail Federation, the National Association of Convenience Stores, the Food Marketing Institute and others sued the Federal Reserve over its interchange fee limit of 24 cents per transaction, claiming that merchants would be seriously harmed by the cap, which, they argued, was set too high. One of the plaintiffs, Miller Oil Co. of Norfolk Va., said it had previously paid interchange fees averaging 16 cents per transaction, and those fees had risen following the Fed’s rule. The merchants argued the Fed had arrived at the 24-cent limit by considering some bank costs, such as fraud losses, that were not allowed by the amendment’s language.⁴²

The lawsuit remained in court for nearly two years before a judge issued a decision. In late July 2013, federal judge Richard Leon agreed with the merchants, ruling that the Board of Governors had overstepped its authority in its final rule. In a scathing 58-page decision,

Leon said that including some bank expenses, such as fraud losses, in the final swipe fee cap was “a blatant act of policymaking that runs counter to Congress’ will.”⁴³ Leon added that the Board’s interpretation of the law—that Congress had intended for the Board to consider such expenses—was “utterly indefensible.” The Board had “shoehorned a whole array of excluded costs into the interchange fee standard,” he wrote.⁴⁴

The merchants hailed the ruling and said the Fed had “grossly misapplied the swipe fee law,” while failing to follow Congress’ guidance to make swipe fees “reasonable and proportional” to the costs of processing debit card transactions.⁴⁵ Bankers, however, predicted the ruling would create “even more chaos for consumers and small banks” and called on Congress to act to repeal the Durbin amendment. For his part, Durbin, who had been pushing for interchange regulation for years, felt vindicated. In a statement, the Illinois Democrat said Leon’s ruling was “a victory for consumers and small businesses around the country.”⁴⁶

In a hearing in his Washington, D.C., courtroom two weeks later, Leon suggested that banks should be forced to reimburse merchants the fees they had collected since the Fed implemented the swipe fee cap. The idea puzzled many observers as merchants weren’t seeking damages from banks in the lawsuit. In media accounts, the reimbursement suggestion was attributed to Leon’s frustration at the Federal Reserve’s “foot-dragging in implementing his decision.”⁴⁷

The Board of Governors soon notified Leon it would appeal his decision, and in March 2014, a three-judge panel from the D.C. Court of Appeals weighed in.

The appeals court acknowledged Congress had put the Fed “in a real bind” as a result of the Durbin amendment’s ambiguous language. In fact, the panel’s decision cited numerous grammar books in an attempt to make sense of the law. The language of the amendment was “confusing and its structure convoluted,” and the measure as passed by Congress was “poorly drafted,” the appeals panel said in its ruling. The confusion about congressional intent was “perhaps unsurprising” due to the amendment’s inclusion in the Dodd-Frank Act “at the eleventh hour,” the judges wrote.⁴⁸ The panel overturned Leon’s decision, meaning the Fed’s interchange fee limit would stand.

The ruling amounted to a “giveaway to the nation’s most powerful banks and a blow to consumers and small businesses,” Durbin said following the appeals panel’s decision. Furthermore, Durbin rejected the argument that his amendment was rushed through Congress. It had been “debated and approved on the Senate floor with a strong bipartisan

majority months before enactment,” he said. An attorney for the National Convenience Store Association said the decision was “disappointing” and the group would review its options.⁴⁹

It remains to be seen whether there will be further court or legislative movement on the interchange issue, but in early June 2014, the National Retail Federation and other merchants announced they would petition the Supreme Court for a hearing on the issue.⁵⁰

Afterword

THE PATH AHEAD

As new technology continues to be adopted by banks, consumers, businesses and the government, the Federal Reserve is re-evaluating the state of the payments system. Over the past century, Congress has repeatedly turned to the Fed to act as a payments regulator, and, in the case of the Reserve Banks, as a participant and operator. But, it's clear that one of the primary tasks Congress entrusted to the Fed in 1914—to clear the nation's checks—has changed dramatically over the last 100 years.

Today, 99.9 percent of check deposits processed by the Federal Reserve are processed electronically.¹ Nearly all checks written today are converted into an electronic form once they enter the banking system. Increasingly, these checks are converted by consumers and merchants equipped with imaging software on mobile devices or by bank customers with access to an ATM that is capable of scanning checks immediately upon deposit.²

The move away from paper has come as consumers increasingly turn to debit cards to make purchases and use their bank's bill paying services and direct deposit to manage their money. In 2012, debit and credit cards accounted for 73 percent of all non-cash payments, while checks represented just 15 percent. Nearly a decade earlier, checks accounted for a much larger share—46 percent—of all non-cash payments.³

This decline in check volume has led some to question the Federal Reserve Banks' role within the payments system. That role "has been greatly diminished," says Bruce J. Summers, former head of the Federal Reserve's national information technology infrastructure and a past deputy director for payment system policy at the Board of Governors. "National payment system governance motivated by public interest considerations has eroded," Summers adds. Addressing concerns about the payments system "should begin with renewal of public interest governance."⁴

In September 2013, the Reserve Banks released a public consultation paper aimed at sparking discussion on the payment system's key challenges and opportunities. The paper reiterated the Reserve Banks' financial services strategy, announced in 2012, to improve the system's speed and efficiency while also assuring its safety and accessibility. Previously, the Reserve Banks had been primarily interested in how banks interacted with each other in the payments system, but the focus has now shifted to improving the system for end users, with

a goal of developing a system capable of completing transactions in near-real-time.⁵

Through a series of forums in late 2013, the Reserve Banks accepted comments from payments industry participants and end users. The results of this process will be made public in the second half of 2014. In addition, six Reserve Banks held public town hall meetings in June 2014 to discuss improvements to the payments system.

Meanwhile, the payments system continues to change rapidly as new players enter and technology advances. While the financial industry, businesses and consumers continue to explore the possibilities of mobile payment applications and digital wallets, many are also closely watching the development of other technological advancements, such as bitcoin, which has seen dramatic fluctuations in its value, questions over its security, and increased public and regulatory attention.⁶

Along with the challenges posed by the digital age, the issue of interchange, or “swipe fees” on payment cards, is still one that is being balanced by the Federal Reserve, banks, merchants and consumers. The Fed’s recent experience with implementing the Durbin amendment, including the intense lobbying efforts from banks and merchants, along with the various court cases involved, recalls the challenges the central bank faced in the late 1910s and 1920s when it tried to stamp out the exchange charges some banks assessed on checks. While the technology has evolved since then, the core questions—who bears the costs for running the payment system, and how much should those costs be?—are strikingly similar to those from nearly a century earlier.

As history has shown, the central bank has played an important role as a participant and leader within the payments system, with its operator role especially prominent in times of financial system stress, as illustrated in the days following Sept. 11. But, the Fed “is just one player in the U.S. payments system,” said former Cleveland Fed President Sandra Pianalto, who served as chair of the Fed’s Financial Services Policy Committee, in a 2012 speech. “Many successes in the U.S. payments system occurred as a result of teamwork between multiple industry participants, including the Federal Reserve.”⁷

Although it is just one player, the Federal Reserve remains positioned at the center of a system involving thousands of banks and other depository institutions, numerous other private sector participants, and millions of consumers and businesses that depend on the efficient and secure movement of money. It’s a role that’s been acknowledged by both Congress and the private sector for decades.

“No single bank or consortium of banks has resources sufficient to tackle the mystifyingly

complex table of laws, regulations, and customs that govern payment system operations,” private sector consultant Richard Poje wrote in a 1998 *American Banker* commentary. “As an institution enjoying universal, if sometimes grudging, respect for its integrity, the Fed can muster resources to effect dramatic system change and is uniquely positioned to work with Congress and other legislative bodies in shaping a unified body of law befitting the computer age.”⁸ That statement could apply today, 15 years after Poje wrote it.

To be sure, the challenges in today’s fragmented payments arena, which now includes a growing number of nonbank participants, have changed since the Federal Reserve began clearing checks a century ago. But since the Federal Reserve’s founding, Congress has expected the central bank to play a key role in influencing—and leading—change in the payments system.

Endnotes

CHAPTER 1: A CALCULUS OF CHAOS

1. Mihm, Stephen. *A Nation of Counterfeiters: Capitalists, Con Men and the Making of the United States*. Harvard University Press, 2007, p. 3.
2. Trivoli, George. "The Suffolk Bank: A Study of a Free-enterprise Clearing System." The Adam Smith Institute. 1979, p. 6.
3. Trivoli, p. 5.
4. Dexter's scheme is featured prominently in: Kamensky, Jane. *The Exchange Artist: A Tale of High-Flying Speculation and America's First Banking Collapse*. Penguin Books. 2009.
5. Appleton, Nathan. *An Examination of the Banking System of Massachusetts*. Stimpson and Clapp. 1831, p. 19.
6. Lake, Wilfred. "The End of the Suffolk System." *The Journal of Economic History*. Vol. 7, No. 2 (November 1947), p. 192.
7. Whitney, D.R. *The Suffolk Bank*. 1878, p. 2.
8. Whitney, p. 1.
9. Trivoli, p. 6.
10. Appleton, p. 13.
11. Appleton, p. 4.
12. Hammond, Bray. *Banks and Politics in America from the Revolution to the Civil War*. Princeton University Press, 1957, p.550.
13. These techniques are described in Kamensky, among others.
14. Appleton, p. 11.

CHAPTER 2: "ORDER OUT OF CONFUSION"

1. Whitney, p. 7.
2. Whitney, p. 8-10.
3. Whitney, p. 8.
4. Frass, Arthur. "The Second Bank of United States: An Instrument for an Interregional Monetary Union." *The Journal of Economic History*. Vol. 34, No. 2. June 1974, p. 448.
5. Hammond, p. 301.
6. White, Horace. *Money and Banking*. Ginn and Co. Publishers: Boston. 1896, p. 11.
7. Lake, p. 185.
8. Whitney, p. 12.
9. Trivoli, p. 11.
10. White, p. 326.
11. Lake, p. 192.

12. Whitney, p. 9-10.
13. Whitney, p. 15.
14. White, p. 327.
15. Whitney, p. 15.
16. Knox, John Jay. *A History of Banking in the United States*. Bradford Rhodes & Company: New York, 1900, p. 332.
17. Lake, p. 186; The Bank of New England was the only Boston bank that did not join the Suffolk's system (See: Davis, William. *Professional and Industrial History of Suffolk County, Massachusetts*. Vol. 2. The Boston History Co. 1894, p. 204).
18. Whitney, p. 25.
19. Appleton, p. 16.
20. Whitney, p. 37.
21. Lake, p. 190.
22. Whitney, p. 37.
23. *Hunt's Merchant's Magazine and Commercial Review*, Vol. 5, July 1841, p. 262.
24. Hammond, Bray. *Banking and Politics in America from the Revolution to the Civil War*. Princeton University Press. 1957, p. 552.
25. Whitney, p. 35.
26. Whitney, p. 38.
27. Whitney, p. 32.
28. Hunt's, p. 262.
29. Whitney, p. 28.
30. See Calomiris, Charles, and Charles M. Kahn. "The Efficiency of Self-Regulated Payments Systems: Learning from the Suffolk System." National Bureau of Economic Research Working Paper 5442, January 1996; Rolnick, Arthur, et al. "The Suffolk Bank and the Panic of 1837." *Federal Reserve Bank of Minneapolis Quarterly Review*. Vol. 24, No. 2, Spring 2000; and Trivoli.
31. Knox, p. 333.
32. Whitney, p. 60.
33. Whitney, p. 35.
34. Lake, p. 189 and Rolnick, Arthur, et al. "Lessons from a Laissez-Faire Payments System: The Suffolk Banking System (1825-58)." *Review*. Federal Reserve Bank of St. Louis, May/June 1998, p. 11.
35. Whitney, p. 41.
36. Todd, Tim. *The Balance of Power: The Political Fight for an Independent Central Bank, 1790-Present*. Federal Reserve Bank of Kansas City. 2012, p. 3-8.
37. Whitney, p. 44.
38. Whitney, p. 57.
39. Lake, p. 195.
40. Lake, p. 199.
41. Lake, p. 197.

42. Lake, p. 198.
43. Lake, p. 199.
44. Lake, p. 200.
45. Lake, p. 201.
46. Whitney, p. 59.
47. Whitney, p. 60.
48. Whitney, p. 55.
49. Knox, p. 368.
50. Hammond, p. 556.

CHAPTER 3: “A NEW ERA”

1. Cannon, James G. *Clearing-House Methods and Practices*. U.S. National Monetary Commission. Senate Document no. 491, 61st Congress, 2nd Session, Government Printing Office, 1910, p. 190, 159.
2. Cannon, James G. “Clearing Houses and the Currency,” in *Currency Problems and the Current Financial Situation*, 1908, accessed via fraser.stlouisfed.org, p. 102.
3. White, Horace. *Money and Banking*. Ginn & Co. Publishers, Boston, 1896, p. 240.
4. Cannon, 1908, p. 102.
5. White, p. 240.
6. The Clearinghouse. “New York Clearing House Historical Perspective.” Available at theclearinghouse.org/docs/000591.pdf.
7. Gibbons, James S. *The Banks of New York, Their Dealers, the Clearing House and the Panic of 1857*. D. Appleton & Co: New York, 1859, p. 292.
8. Gibbons, p. 292.
9. Gibbons, p. 294.
10. The Clearing House.
11. Knox, John Jay. *A History of Banking in the United States*. Bradford Rhodes & Company: New York, 1900, p. 423.
12. Cannon, 1910, p. 153; Knox, p. 423.
13. Cannon, 1910, p. 154.
14. Gibbons, p. 296.
15. Gibbons, p. iv.
16. Lacker, Jeffrey, et al. “The Fed’s Entry into Check Clearing Reconsidered.” *Economic Quarterly*. Federal Reserve Bank of Richmond, vol. 85, no. 2, Spring 1999, p. 3.
17. Harding, W.P.G. *The Formative Period of the Federal Reserve System (During the World Crisis)*. Houghton Mifflin Company: Boston, 1925, p. 49.
18. White, p. 243.
19. Quinn, p. 13.
20. Quinn, p. 14.
21. Harding, p. 50.

22. Lacker, p. 7; and Duprey, James, and Clarence Nelson. "A Visible Hand: The Fed's Involvement in the Check Payments System." *Quarterly Review*. Federal Reserve Bank of Minneapolis, Spring 1986, p. 20.
23. Duprey, p. 20.
24. Cannon, 1910, 72.
25. Cannon, 1910, p. 70.
26. Harding, p. 51.
27. Duprey, 21-22.
28. Gilbert, R. Alton. "Did the Fed's Founding Improve the Efficiency of the U.S. Payments System?" *Review*. Federal Reserve Bank of St. Louis, May/June 1998, p. 125.
29. Cannon, 1910, p. 1.
30. Gorton, Gary. "Clearinghouses and the Origin of Central Banking in the United States." *The Journal of Economic History*, vol. 45, no. 2. June 1985, p.279.
31. Young, Stanley. "Enlargement of Clearing House Functions." Included in *Banking Problems*, American Academy of Political and Social Science, 1910, p. 131, accessed via fraser.stlouisfed.org.
32. Cannon, 1910, p. 26.
33. Young, p. 131.
34. Bruner, Robert, and Sean Carr. *The Panic of 1907: Lessons Learned from the Market's Perfect Storm*. John Wiley & Sons, 2007, p. 59.

CHAPTER 4: "A FAMINE OF CURRENCY"

1. *The New York Times*, Oct. 21, 1907.
2. *The New York Times*, Oct. 22, 1907.
3. *The New York Times*, Oct. 23, 1907.
4. Ibid.
5. Ibid.
6. Bruner, Robert, and Sean Carr. *The Panic of 1907: Lessons Learned from the Market's Perfect Storm*. John Wiley & Sons, 2007, p. 86.
7. Sprague, O.M.W., History of Crises Under the National Banking System. National Monetary Commission. 61st Congress, 2nd Session, Senate Document No. 538, Government Printing Office, 1910, p. 259. Accessed via fraser.stlouisfed.org.
8. Sprague, O.M.W. "The American Crisis of 1907." *The Economic Journal*. Vol. 18, No. 71, September 1908, 364.
9. Andrew, Abram Piatt, "Hoarding in the Panic of 1907." *The Quarterly Journal of Economics*, Vol. 22, No. 2, February 1908.
10. Tallman, Ellis, and Jon Moen. "Lessons from the Panic of 1907." *Economic Review*. Federal Reserve Bank of Atlanta, May/June 1990 p. 9-10.
11. Sprague, 1908, p. 368.
12. Andrew, Abram Piatt. "Substitutes for Cash in the Panic of 1907." *The Quarterly Journal of Economics*, Vol. 22, No. 4, August 1908, p. 500.

13. Andrew, p. 502 A-C, 505, 507.
14. Bruner, p. 117.
15. Andrew, p. 512.
16. Horowitz, Steven. "Competitive Currencies, Legal Restrictions, and the Origins of the Fed: Some Evidence from the Panic of 1907." *Southern Economic Journal*, Vol. 56, No. 3, January 1990, p. 643.
17. Sprague, 1908, p. 368.
18. Andrew, p. 515.
19. Horowitz, p. 644.
20. Annual Report of the Comptroller of the Currency, 1907, p. 70. Accessed via fraser.stlouisfed.org.
21. Andrew, p. 516.
22. Andrew, p. 514-15.
23. Cannon, James G. "Clearing Houses and the Currency," in *Currency Problems and the Current Financial Situation*, 1908, accessed via fraser.stlouisfed.org, 110.
24. Todd, p. 10.
25. *The New York Times*, Oct. 23, 1907.
26. Sprague, 1910, 320.
27. Annual Report of the Comptroller of the Currency, 1907, p. 70, 71, 75.

CHAPTER 5: "THE HIGHWAYS OF COMMERCE"

1. Andrew, A.P. "The Currency Legislation of 1908." *The Quarterly Journal of Economics*. Vol. 22, No. 4. August 1908. p. 666.
2. Owen, Robert. *The Federal Reserve Act: Its Origin and Principles*. 1919. p. 29-30.
3. See Timberlake, Richard. "The Central Banking Role of Clearinghouse Associations." *Journal of Money, Credit and Banking*. Vol. 16, No. 1. February 1984, p. 12; and Andrew, p. 667.
4. Laughlin, J.L. "The Aldrich-Vreeland Act." *Journal of Political Economy*. Vol. 16, No. 8. October 1908. p. 499.
5. Laughlin, p. 513.
6. Owen, p. 2.
7. Owen, p. 34.
8. Owen, p. 43-44.
9. The bill had been in the works since at least 1910, when the Jekyll Island meeting was held. See Todd, Tim. *The Balance of Power: The Political Fight for an Independent Central Bank, 1790-Present*. Federal Reserve Bank of Kansas City. 2009, p. 11.
10. *Report of the National Monetary Commission*, Jan. 8, 1912, p. 7, available via fraser.stlouisfed.org.
11. Warburg, Paul. *The Federal Reserve System: Its Origin and Growth*. The Macmillan Company. 1930, p. 296; and Stevens, Edward. "The Founders' Intentions: Sources of the Payment Services Franchise of the Federal Reserve Banks." Federal Reserve Financial Services Working Paper No. 03-96. The Federal Reserve Bank of Cleveland, December 1996, p. 8.

12. Owen, p. 54.
13. Owen, p. 67.
14. "Report of the Committee Appointed Pursuant to House Resolutions 429 and 504 to Investigate the Concentration of Control of Money and Credit," (The Pujo Committee Report), 62nd Congress, 3rd Session, Report No. 1593, submitted Feb. 28, 1913, p. 19. Available at fraser.stlouisfed.org.
15. Pujo Committee Report, p. 20-21 and p. 109.
16. *Ibid.*, p. 25.
17. *Ibid.*, p. 23.
18. *Ibid.* p. 111.
19. Glass, Carter. *An Adventure in Constructive Finance*. Doubleday, Page & Company: New York. 1927, p. 299-300.
20. Glass, p. 301.
21. Willis, Henry Parker. *The Federal Reserve System: Legislation, Organization and Operation*. The Ronald Press Company: New York. 1923, p. 1,053.
22. Willis, p. 1,062. In addition, Stevens argues that the financial services measures in the Federal Reserve Act were "not intended to secure public benefit directly by correcting market failures or externalities, but rather to avoid irrelevance" and that the measures served as the Fed's "institutional glue."
23. Glass, p. 90.
24. Willis, p. 145.
25. Owen, Robert. "The Federal Reserve Bank Bill." *Proceedings of the Academy of Political Science in the City of New York*. Vol. 4, No. 1, Banking and Currency in the United States, October 1913, p. 1.
26. *Ibid.*, p. 4.
27. *Ibid.*, p. 8.
28. Howe, Edward. "The Country Banks and the Owen-Glass Bill." *Proceedings of the Academy of Political Science in the City of New York*. Vol. 4, No. 1, Banking and Currency in the United States, October 1913, p. 172.
29. U.S. Senate, 63rd Congress, 1st Session. "Hearings Before the Committee on Banking and Currency on H.R. 7837 (S. 2639)." Vol. 1. 1913, p. 194. Available at fraser.stlouisfed.org.
30. *Ibid.*, p. 194.
31. Willis, pp. 399-402.
32. Van Duesen, W.M. "The Clearing of Checks at Par." *Proceedings of the Academy of Political Science in the City of New York*. Vol. 4, No. 1, Banking and Currency in the United States, October 1913, p. 185-186.
33. Glass, Carter. "Speech of Hon. Carter Glass of Virginia in the House of Representatives, Monday, Dec. 23, 1913." Appendix to the Congressional Record, p. 563.

CHAPTER 6: “A PROBLEM... OF GREAT NOVELTY”

1. *Proceedings of the 42nd Annual Convention of the American Bankers Association*, held at Kansas City, Mo., September 25-30, 1916. p. 668.
2. Federal Reserve Annual Report for 1914, p. 19.
3. Federal Reserve Annual Report for 1915, p. 16.
4. Federal Reserve Annual Report for 1915, p. 16.
5. Federal Reserve Annual Report for 1915, p. 16.
6. Federal Reserve Bulletin, May 1, 1916.
7. Federal Reserve Annual Report for 1916, p. 11.
8. *ABA Proceedings*, p. 635.
9. *ABA Proceedings*, p. 639.
10. First National Bank of York, Neb., is now known as Cornerstone Bank, which has 34 banking locations and assets of \$1.3 billion.
11. *ABA Proceedings*, pp. 643-645.
12. The ABA's full membership approved a resolution officially protesting the Federal Reserve Act's par collection provisions. While the resolution called for “the establishment of a collection system which is fair and equitable to all banks and to the general public,” it left the task of deciding on formal action to a committee comprised of 15 country bankers and 10 city bankers. (*ABA proceedings*, p. 186).
13. *ABA Proceedings*, p. 75. Lynch would later become governor of the Federal Reserve Bank of San Francisco.
14. Thralls, Jerome. “Report of the Committee of Twenty-Five on the Clearing and Collection Problem.” *Journal of the American Bankers Association*. May 1917, p. 885.
15. “Are State Banks Coerced?” *United States Investor*. Volume XXXI, No. 12. Boston and New York, March 20, 1920, p. 1.
16. Warne, Colston. “Enforced Par Remittance Under the Federal Reserve System.” *The Quarterly Journal of Economics*. Oxford University Press. Vol. 35, No. 2. February 1922, p. 280-1.
17. Thralls, *Journal of the ABA*, May 1917, pp. 885-886.
18. Thralls, *Journal of the ABA*, June 1917, p. 963.
19. Thralls, *Journal of the ABA*, June 1917, p. 964. Thralls did not identify the Reserve Bank.
20. Thralls, *Journal of the ABA*, June 1917, p. 963.
21. Vest, George. “The Par Collection System of the Federal Reserve Banks.” *Federal Reserve Bulletin*. February 1940, p. 91.
22. Wyatt, Walter. “The Par Clearance Controversy.” *Virginia Law Review*. Vol. 30, No. 3. June 1944, p. 378.
23. Wyatt disputes this claim and argues the congressional record made it clear what was being voted on.
24. Tippetts, Charles. “The Par Remittance Controversy.” *The American Economic Review*. American Economic Association. Vol. 14, No. 4. December 1924, p. 634.
25. Warne, p. 282.

CHAPTER 7: BANK ROBBERS AND BOLSHEVIKS

1. This account is based on several letters and affidavits filed by Federal Reserve agents, bankers and others that are stored in the Federal Reserve Bank of Kansas City's archives.
2. Federal Reserve System Board of Governors. *Fifth Annual Report of the Federal Reserve Board Covering Operations for the Year 1918*. Government Printing Office: Washington, D.C. 1919, p. 75.
3. *Ibid.*, p. 76.
4. Federal Reserve System Board of Governors. *Fifth Annual Report of the Federal Reserve Board Covering Operations for the Year 1918*. Government Printing Office: Washington, D.C. 1919, p. 76.
5. "Address of Wallace D. Simmons, President, Simmons Hardware Company." Chamber of Commerce of the United States Records (Accession 1960), Series I, Box 8, "Minutes of the Seventh Annual Meeting," pp. 316-323. Courtesy of the Hagely Museum and Library, Wilmington, Del.
6. "Memorandum" of E.P. Tyner to Asa Ramsey, Federal Reserve Agent. Oct. 14, 1919. Federal Reserve Bank of Kansas City archives, Legacy Collection. Box 103, File 5. "Bank Operations—Cash Item Collection—Par Point Campaign, 1918-1920."
7. Letter from Republic State Bank Cashier C.J. Taylor to E.P. Tyner. Oct. 11, 1919. Federal Reserve Bank of Kansas City archives, Legacy Collection. Box 103, File 5. "Bank Operations—Cash Item Collection—Par Point Campaign, 1918-1920."
8. Affidavit of A.A. Davies, Feb. 11, 1920. Federal Reserve Bank of Kansas City archives, Legacy Collection. Box 103, File 6. "Bank Operations—Cash Item Collection—Par Point Campaign—Nebraska Bank Controversy."
9. Affidavit of Woods Cones, published in the Federal Reserve Board's transcript of "Hearing on Complaints of State banks of the State of Nebraska against Alleged Methods of Check Collection of the Federal Reserve Bank of Kansas City and its Branch bank of Omaha, Nebraska." Washington, D.C., February 24-25, 1920.
10. Affidavit of A.A. Davies, Feb. 11, 1920. Federal Reserve Bank of Kansas City.
11. Affidavit of A.A. Davies, Feb. 11, 1920. Federal Reserve Bank of Kansas City.
12. Affidavit of A.A. Davies, Feb. 11, 1920. Federal Reserve Bank of Kansas City.
13. Affidavit of A.A. Davies, Feb. 11, 1920. Federal Reserve Bank of Kansas City.
14. "Resolutions Unanimously Adopted at a Special meeting of State bankers of Nebraska held at Omaha—January 14, 1920." Federal Reserve Bank of Kansas City archives, Legacy Collection. Box 103, File 6.
15. "Between the Bankers." *Omaha Bee*. Jan. 16, 1920.
16. Letter from J.E. Hart, Secretary of Nebraska Department of Trade and Commerce to J.Z. Miller, Jan. 27, 1920. Federal Reserve Bank of Kansas City archives, Legacy Collection. Box 103, File 6.
17. Letter from J.Z. Miller to J.E. Hart, Jan. 29, 1920. Federal Reserve Bank of Kansas City Legacy Collection.
18. "Par Collection of Checks on Non-Member Banks by Federal Reserve Bank." *The Banking Law Journal*. Vol. XXXVII, No. 4. April 1920, p. 204.

19. Preston, Howard. "The Federal Reserve Banks' System of Par Collections." *Journal of Political Economy*. Vol. 28, No. 7. The University of Chicago Press. July 1920, p. 579.
20. "Mr. Claiborne's Address." *Journal of the American Bankers Association*. November 1920, p. 385.
21. Federal Reserve System Board of Governors. *Seventh Annual Report of the Federal Reserve Board Covering Operations for the Year 1920*. Government Printing Office: Washington, D.C. 1921, p. 64-65.
22. A judge's ruling in this case was published in the Federal Reserve Bulletin, December 1922.
23. "State Banks in Federal Reserve System." Senate Document No. 184, 66th Congress, 2nd Session, p. 1.
24. Senate Document No. 184, p. 5.
25. Senate Document No. 184, p. 35.
26. "Criticizes Reserve Banks: Congressman Says They Oppress the Small Banking Houses." *The New York Times*. Jan. 24, 1920.
27. House Resolution 452. Jan. 30, 1920.
28. Letter from W.E. Andrews to Omaha Branch of the Federal Reserve Bank of Kansas City. Feb. 2, 1920. Federal Reserve Bank of Kansas City Legacy Collection.
29. "Wall-St Surprised at Naming of Moehlenpah to Bank Board." *The Milwaukee Journal*. September 10, 1919.
30. The following account is from a transcript of a hearing held by the Board of Governors in Washington, D.C. on Feb. 24-25, 1920; and a letter from J.Z. Miller to Gov. Harding, Feb. 17, 1920.
31. Federal Reserve System Board of Governors. *Seventh Annual Report of the Federal Reserve Board Covering Operations for the Year 1920*. Government Printing Office: Washington, D.C. 1921, p. 66.
32. Tippetts, Charles. *State Banks and the Federal Reserve System*. D. Van Nostrand Company Inc: New York. 1929, p. 328.
33. Tippetts, Charles. "The Par Remittance Controversy." *The American Economic Review*. American Economic Association. Vol. 14, No. 4. December 1924, p. 637-8.
34. Federal Reserve System Board of Governors. Tenth Annual Report of the Federal Reserve Board Covering Operations for the Year 1923. Government Printing Office: Washington, D.C. 1924, p. 49.
35. Quinn, Stephen and William Roberds. "The Evolution of the Check as a Means of Payment: a Historical Survey." *Economic Review*. Federal Reserve Bank of Atlanta. No. 4. 2008, p. 18.
36. Federal Reserve System Board of Governors. *Tenth Annual Report of the Federal Reserve Board Covering Operations for the Year 1923*. Government Printing Office: Washington, D.C. 1924, p. 50.
37. Jessup, Paul. *The Theory and Practice of Nonpar Banking*. Northwestern University Press: Evanston, Ill. 1967, p. 20.
38. Stevens, Ed. "Non-Par Banking: Competition and Monopoly in Markets for Payments Services." Federal Reserve Bank of Cleveland. Working Paper 9817. November 1998, p. 20.
39. Federal Reserve System Board of Governors. *67th Annual Report of the Federal Reserve Board*. Washington, D.C., 1981, p. 281 [cited in Stevens].

CHAPTER 8: “A PLUMP AUTOMATIC BOOKKEEPER”

1. Fisher, Amy Weaver and James McKenney. “The Development of the ERMA Banking System: Lessons from History.” *IEEE Annals of the History of Computing*. Vol. 15, No. 1, 1993, p. 46.
2. “Banking Machine ‘Reads’ Text.” *The New York Times*, Sept. 22, 1959; and SRI International. “Electronic Recording Machine, Accounting,” available at <http://www.sri.com/work/timeline/erma-micr>.
3. Fisher, p. 55.
4. *The New York Times*, Sept. 22, 1955.
5. *The New York Times*, Sept. 22, 1955.
6. Transcript of General Electric 1961 National Sales Meeting, “Frontiers of Progress,” available online from the Southwest Museum of Engineering, Communications and Computation at http://www.smec.org/frontiers_of_progress_-_1961_sales_meeting.htm.
7. Quinn, Stephen and William Roberds. “The Evolution of the Check as a Means of Payment: A Historical Survey.” *Economic Review*. Federal Reserve Bank of Atlanta. Vol. 93, No.4. 2008, p. 19-20.
8. Wapensky, Basil. “Electronic Check Processing.” *Monthly Review*. Federal Reserve Bank of Atlanta. May 1960, p. 4.
9. Wapensky, p. 4.
10. Federal Reserve Bank of Philadelphia. “How Banking Tames its Paper Tiger.” *Business Review*. May 1960, p. 6.
11. Federal Reserve Bank of Philadelphia, p. 3.
12. Fisher, p. 44.
13. Federal Reserve Bank of Philadelphia, p. 3.
14. Federal Reserve Bank of Philadelphia, p. 9.
15. SRI International.
16. McKenney, James. “Developing a Common Machine Language for Banking: The ABA Technical Subcommittee Story.” *IEEE Annals of the History of Computing*. Vol. 17, No. 4, 1995, p. 68.
17. Fisher, p. 52.
18. Connolly, Paul and Robert Eisenmenger. “The Role of the Federal Reserve in the Payments System.” In *The Evolution of Monetary Policy and the Federal Reserve System Over the Past Thirty Years: A Conference in Honor of Frank E. Morris*. Federal Reserve Bank of Boston. October 2000, p. 136.
19. Minehan, Cathy, et al. “The U.S. Retail Payments System: Moving to the Future.” *Federal Reserve Bank of Boston Annual Report*, 2000, p. 8.
20. “G.E. Solves Bookkeeping Problem for Big Bank.” *The New York Times*, Sept. 15, 1959; and Fisher, p. 23.
21. *The New York Times*, Sept. 15, 1959.
22. “Automated Check Processing: September 1, 1967 Deadline Approaching.” *Review*. Federal Reserve Bank of St. Louis. June 1967, p. 15.
23. For an in-depth examination of this idea, please see: Batiz-Lazo, Bernardo, Thomas Haigh and David L. Stearns. “How the Future Shaped the Past: The Case of the Cashless Society.” MPRA Paper No. 34846. November 2011, accessed at http://mpra.ub.uni-muenchen.de/34846/1/MPRA_paper_34846.pdf.

24. Reistad, Dale. "The Coming Cashless Society: Implications and Benefits of a Pending System." *Business Horizons*. Vol. 10, No. 3. Fall 1967, p. 23.
25. Smith, William. "The Checkless Society: Human Beings Causing the Chief Delays." *The New York Times*, May 21, 1967.
26. Kramer, Robert and W. Putnam Livingston. "Cashing in on the Checkless Society." *Harvard Business Review*. September/October 1967, p. 143.
27. Reistad, p. 24.
28. Mitchell, Mary. *A Search for Understanding: A Biography of George W. Mitchell, Member of the Board of Governors of the Federal Reserve System, 1961-1976*. iUniverse Inc: Bloomington, Ind. 2008, p. 108.
29. Mitchell, George. "Effects of Automation on the Structure and Function of Banking." *The American Economic Review*. Vol. 56, No. 1/2. March 1, 1966, p. 160.
30. Mitchell, George. p. 165.
31. Mitchell, Mary, p. 188.
32. McEntee, Elliot. "A tribute to the father of electronic payments." *Payment Systems Report*. Vol. 2, No. 2. Feb. 1, 1997.
33. Kramer, p. 143.
34. Lee, Norris. "Tomorrow's Checkless, Cashless Society: The Problems, The Solutions, The Benefits." *Management Review*. September 1967, p. 60.
35. *The New York Times*, May 21, 1967.
36. Mitchell, Mary, p. 192.
37. Fernelius, Leonard and David Fettig. "Dichotomy Becomes Reality: Ten Years of Federal as Regulator and Competitor." Federal Reserve Bank of Minneapolis. *Annual Report*. Jan. 1, 1992.
38. Gamble, Richard. A History of the Federal Reserve Bank of Atlanta: 1914-1989. The Federal Reserve Bank of Atlanta. 1989, p. 128.
39. Bradford, Terri. "The Evolution of the ACH." *Payments System Research Briefing*. Federal Reserve Bank of Kansas City. December 2007, p. 1.
40. Connolly, p. 138.
41. "The Electronic Payments Network and the ACH: A History." The Electronic Payments Network. Available at <http://www.epaynetwork.com/cms/documents/001743.pdf>.
42. Mitchell, Mary, p. 193.
43. Connolly, p. 140.
44. Summers, Bruce. "Facilitating Consumer Payment Innovation Through Changes in Clearing and Settlement." In *Consumer Payment Innovation in the Connected Age*. A symposium hosted by the Federal Reserve Bank of Kansas City, March 29-30, 2012, p. 198.
45. Connolly, p. 140.

CHAPTER 9: CONTROL AND COMPETITION

1. *The Wall Street Journal*. “Carter to Maintain Stance in Anti-Inflation Fight.” Sept. 24, 1979.
2. Timberlake, Richard. “Legislative Construction of the Monetary Control Act of 1980.” *The American Economic Review*. Vol. 75, No. 2. May 1985, p. 98.
3. Volcker, Paul. “Statement Before the Committee on Banking, Housing, and Urban Affairs, United States Senate.” Sept. 26, 1979, p. 1. Available at fraser.stlouisfed.org.
4. Volcker, Sept. 26, 1979, p. 17.
5. Volcker, Sept. 26, 1979, p. 23.
6. Kuprianov, Anatoli. “The Monetary Control Act and the Role of the Federal Reserve in the Interbank Clearing Market.” *Economic Review*. Federal Reserve Bank of Richmond. July/August 1985, p. 25.
7. Kuprianov, p. 26.
8. Kuprianov, p. 27.
9. Kuprianov, p. 29.
10. Kuprianov, p. 30.
11. “Oversight on the Payments Mechanism, the Federal Reserve’s Role in Providing Payments Services, and the Pricing of Those Services.” U.S. Senate Committee on Banking, Housing, and Urban Affairs. October 10 and 11, 1977, p. 1.
12. “Oversight on the Payments Mechanism...”, p. 110.
13. “Oversight on the Payments Mechanism...”, p. 118.
14. “Oversight on the Payments Mechanism...”, p. 123.
15. Kuprianov contains a thorough history of the various legislative proposals.
16. Volcker, “Statement of Paul A. Volcker, Chairman, Board of Governors of the Federal Reserve System, before the Committee on Banking, Housing, and Urban Affairs, Feb. 4, 1980.” *Federal Reserve Bulletin*. March 1980, p. 143-144.
17. Volcker, Feb. 4, 1980, p. 148.
18. Farnsworth, Clyde. “Far-Reaching Banking Legislation Signed by President.” *The New York Times*. April 1, 1980, p. A1.
19. Carter, Jimmy. “Depository Institutions Deregulation and Monetary Control Act of 1980: Remarks on Signing H.R. 4986 Into Law.” March 31, 1980. Available at The American Presidency Project, www.presidency.ucsb.edu.
20. Farnsworth, Clyde. “Washington Watch: More Clout for the Fed.” *The New York Times*. March 17, 1980.
21. Board of Governors of the Federal Reserve System. “Policies: Principles for the pricing of Federal Reserve Bank Services.” 1980. Available at http://www.federalreserve.gov/paymentsystems/pfs_principles.htm.
22. Frodin, Joanna. “Fed Pricing and the Check Collection Business: The Private Sector Response.” *Business Review*. Federal Reserve Bank of Philadelphia. January/February 1984, p.16.
23. Mayer, Martin. “The Fed Goes into Business.” *Fortune*. April 4, 1983, p. 168.

24. Mayer, p. 168.
25. *The Wall Street Journal*. “Banks Angered by Fed’s Check-Clearing Aspirations.” Oct. 26, 1982.
26. Mayer, p. 168.
27. *The Wall Street Journal*, “Justice Dept. Says Planned Fees for Fed Services Are Too Low.” Nov. 10, 1980.
28. *The Wall Street Journal*, Nov. 10, 1980.
29. Mayer, p. 169.
30. Mayer, p. 169.
31. Olson, Mark. “The Monetary Control Act, 30 Years Later.” *ABA Banking Journal*. March 2010, p. 6.
32. Fernelius, Leonard, and David Fettig. “Dichotomy Becomes Reality: Ten Years of Federal Reserve as Regulator and Competitor.” Federal Reserve Bank of Minneapolis. 1991 *Annual Report*. Available at http://www.minneapolisfed.org/publications_papers/pub_display.cfm?id=675.
33. Fernelius and Fettig.
34. Mayer, p. 169.
35. Gramley, Lyle. “The Federal Reserve’s Role in Check Processing.” Speech before the Bank Administration Institute’s 1985 Check Processing Conference. March 27, 1985, p. 2. Available at fraser.stlouisfed.org.
36. Gramley, p. 8-9.
37. Frodin, p. 21.
38. Garsson, Robert. “Fed Proved to be an Aggressive Marketer of Payments Services.” *American Banker*. Jan. 14, 1985.
39. “Bankers find Fed competition a mixed blessing.” *ABA Banking Journal*. August 1985, p. 26.
40. Gramley, p. 3, 20 and 21.

CHAPTER 10: THE FED’S AIR FORCE

1. Todd, Tim. *The Balance of Power: The Political Fight for an Independent Central Bank, 1790-Present*. Federal Reserve Bank of Kansas City. 2012, pp. 48-50.
2. “Waste and Abuse in the Federal Reserve’s Payment System.” Press release from the Office of U.S. Rep. Henry Gonzales, Jan. 17, 1996.
3. Fox, Justin. “Fed Check Transport Hit by Democrats as Anticompetitive, Costly.” *American Banker*, Jan. 10, 1996.
4. Fox, *American Banker*, Jan. 10, 1996.
5. Martin, John. “Your Money: Air Fed Delivery Inefficient, Under Scrutiny.” ABC World News Tonight. Aug. 13, 1997.
6. Wilke, John. “Fed Is Faulted on Its Own Bookkeeping—GAO Calls Central Bank’s Operations ‘Inefficient’; Expenses Rise Sharply.” *The Wall Street Journal*, March 26, 1996.

7. U.S. Senate Banking Committee. "Hearing Regarding the General Accounting Office Report on the Federal Reserve." Transcript by Federal Document Clearing House Inc., July 26, 1996.
8. U.S. Senate Banking Committee hearing, July 26, 1996.
9. Wilke, John. "Showing Its Age: Fed's Huge Empire, Set Up Years Ago, is Costly and Inefficient." *The Wall Street Journal*. Sept. 12, 1996.
10. Wilke, Sept. 12, 1996.
11. Wilke, Sept. 12, 1996.
12. Wilke, Sept. 12, 1996.
13. "U.S. Fed sets up payment services review committee." Reuters News, Oct. 17, 1996.
14. Seiberg, Jaret. "Fed Huddling With Bankers on Its Role In Payments." *American Banker*, May 8, 1997.
15. Marlin, Steven. "Federal Reserve Stirs Renewed Debate With Aim to Stay in Processing." *Bank Systems + Technology*, Nov. 1, 1997.
16. Sones, Bill. "Fed payments services face keen scrutiny." *Independent Banker*, May 1, 1997.
17. Seiberg, Jaret. "GAO Proposes Five Methods to Safeguard Electronic Payments." *American Banker*, June 26, 1997.
18. Seiberg, *American Banker*, May 8, 1997.
19. Clary, Isabelle. "Fed mulls next role in U.S. payments system." Reuters News, June 5, 1997.
20. Sones, Bill. "Community bankers: Tell the Congress 'no!'" *Independent Banker*, July 1, 1997.
21. Seiberg, *American Banker*, June 26, 1997.
22. Seiberg, *American Banker*, May 8, 1997.
23. Clary, Isabelle. "US bill seen challenging Fed's payment system role." Reuters News, Aug. 15, 1997.
24. Seiberg, Jaret. "Lawmakers to Fed: Get Out of Check Processing." *American Banker*, July 23, 2007; and Clary, Reuters, Aug. 15, 1997.
25. Clary, Reuters, Aug. 15, 1997.
26. Rivlin, Alice. "Role of the Federal Reserve in the Payment System." Testimony before the U.S. House Subcommittee on Domestic and International Monetary Policy, Sept. 16, 1997.
27. Transcript of press conference with Alice Rivlin and Edward Kelly. Federal Document Clearing House Inc., Jan. 5, 1998.
28. Poje, Richard. "Fed is Only Logical Payment System Leader." *American Banker*, May 8, 1998.
29. Dow Jones News Service. "Fed's Rivlin Sees Phase-Out of Paper Checks in 10 Yrs." Sept. 28, 1998.

CHAPTER 11: DISRUPTION AND EVOLUTION

1. Mollenkamp, Carrick, et al. "Bank Branches Close in Wake of Attacks; Check Processing, Transport Disrupted." *The Wall Street Journal*, Sept. 12, 2001.
2. Lacker, Jeffrey. "Payment System Disruptions and the Federal Reserve Following September 11, 2001." Federal Reserve Bank of Richmond Working Paper 03-16. Dec. 23, 2003. p. 8.
3. Bragg, Roy. "Anxious S.A. caught in attacks' grip; Parents rush to children; banks see heavy use." *San Antonio Express-News*, Sept. 11, 2001.

4. Gores, Paul. "Nation's banking system OK, officials say; Some nervous customers take out cash after attack." *The Milwaukee Journal-Sentinel*, Sept. 12, 2001.
5. Board of Governors of the Federal Reserve System. *88th Annual Report for 2001*, p. 175.
6. Lacker, p. 7.
7. U.S. House Committee on Financial Services. "Subcommittee on Financial Institutions and Consumer Credit holds a hearing on H.R. 5414, The Check Clearing for the 21st Century Act." Transcript of hearing held on September 25, 2002 from Federal Document Clearing House Inc.
8. Heller, Michelle. "Fed Offers Check Truncation Plan." *American Banker*, Dec. 28, 2001.
9. Heller, Dec. 28, 2001.
10. Electronic Check Clearing House Organization. "Check 21: History." Timeline available at <http://www.eccho.org/history>.
11. U.S. House Committee on Financial Services, Sept. 25, 2002.
12. Lee, W.A. "Truncation Debate Opens Today on the Hill." *American Banker*, Sept. 25, 2002.
13. U.S. House Committee on Financial Services, Sept. 25, 2002.
14. Brower, Brooke. "Check Imagining on a Fast Track at Small Banks." *American Banker*, March 4, 2003.
15. Brower. *American Banker*, March 4, 2003.
16. Heller, Michelle. "In Brief: House Approves Check-Clearing Bill." *American Banker*, June 6, 2003.
17. Wade, Will. "A Check 21 Provision that May Alter Image Debate." *American Banker*, July 1, 2003.
18. Heller, Michelle. "The Fed and AirNet Work Out Final Kink in 'Check 21'." *American Banker*, Sept. 23, 2003.
19. Wade, Will. "In Brief: President to Sign Check 21 Today." *American Banker*, Oct. 28, 2003.
20. "House Okays Compromise Check Truncation Measure by Voice Vote." *EFT Report*, Oct. 15, 2003.
21. Bielski, Lauren. "Disappearing Act: With check volumes decreasing, banks mull over their options." *ABA Banking Journal*, March 1, 2003.
22. Norton, Frank. "Banks Rush to Embrace Digital Check Processing." *The (Charleston, S.C.) Post and Courier*, Nov. 3, 2003.
23. Norton, Nov. 3, 2003.
24. "Remarks by Chairman Alan Greenspan at the Federal Reserve Payments System Development Committee 2003 Conference." Washington, D.C. Oct. 29, 2003. Available at <http://www.federalreserve.gov/boarddocs/speeches/2003/20031029/default.htm>.
25. Gerdes, Geoffrey, et al. "Trends in the Use of Payment Instruments in the United States." Federal Reserve Bulletin, vol. 91. Spring 2005. Available at http://www.federalreserve.gov/pubs/bulletin/2005/spring05_payment.pdf.
26. "The 2010 Federal Reserve Payments Study: Noncash Payment Trends in the United States." The Federal Reserve System. April 5, 2011. Available at http://frbsservices.org/files/communications/pdf/press/2010_payments_study.pdf.

27. U.S. Government Accountability Office. "Check 21 Act: Most Consumers Have Accepted and Banks are Progressing Toward Full Adoption of Check Truncation." GAO-09-08. October 2008.
28. Pianalto, Sandra. "Collaboration to Improve the U.S. Payments System." Speech at the Federal Reserve Bank of Chicago Payments Conference. Chicago. October 22, 2012.
29. Bauer, Paul, and Geoffrey Gerdes. "The Check is Dead! Long Live the Check! A Check 21 Update." *Economic Commentary*. Federal Reserve Bank of Cleveland. June 2009.

CHAPTER 12: BANKS VS. MERCHANTS

1. Haysahi, Fumiko. "The New Debit Card Regulations: Initial Effects on Networks and Banks." Federal Reserve Bank of Kansas City. *Economic Review*. Fourth quarter 2012, p. 82, p. 85.
2. McGinn, Stacie, and Mark Chorazak. "Debit Interchange Regulation: Another Battle or the End of the War?" *Harvard Business Law Review Online*. 2011. Available at <http://www.hblr.org/?p=1536>.
3. Wilke, John and Robin Sidel. "Merchants Expand Credit-Card Fight to Major Banks." *The Wall Street Journal*, June 23, 2005.
4. Hoenig, Thomas. "Central Bank Session Comments." In *Interchange Fees in Credit and Debit Card Markets: What Role for Public Authorities?* A conference hosted by the Federal Reserve Bank of Kansas City. May 2005, p. 267. Available at <https://www.kansascityfed.org/publications/research/pscp/pscp-2005.cfm>.
5. Hung, Christian. "An Update on Interchange Legislation in the United States." Federal Reserve Bank of Kansas City. *Payments System Research Briefing*. December 2009, p. 3.
6. Hung, 3.
7. "NRF Urges Dodd to Include Interchange in Reform Bill." *Convenience Store News*. March 17, 2010.
8. Saunders, Rhys. "Durbin to Introduce Bill Aimed at Banks." *The State Journal-Register* (Springfield, Ill.), April 19, 2010.
9. "Sen. Richard J. Durbin, D-Ill., Senate Majority Whip, holds a News Teleconference on Financial Regulatory Reform." Transcript. Political Transcripts by CQ Transcriptions. May 3, 2010.
10. Durbin news conference transcript, May 3, 2010.
11. Press release from the Office of Sen. Richard J. Durbin, May 7, 2010.
12. Drawbridge, Kevin, and Maria Aspan. "US Senator revives credit card fee reform." *Reuters*, May 5, 2010.
13. "Durbin amendments would harm consumers, small financial institutions." News release. Electronic Payments Coalition, May 10, 2010.
14. Appelbaum, Binyamin. "Debit Fee Cut Is a Rare Loss for Big Banks." *The New York Times*, May 15, 2010.
15. Crittenden, Michael. "US Sen Durbin Blasts Community Bank Group Over 'Swipe' Fees." *Dow Jones Newswires*, May 13, 2010.
16. Adler, Joe. "Durbin Battles Banks, CUs Over Interchange Amendment." *American Banker*, May 14, 2010.

17. McGrane, Victoria. "Sen. Durbin Alleges Visa, MasterCard Threatened Banks." *Dow Jones Newswires*, May 27, 2010.
18. Crittenden, Michael. "US Sen Dodd: 'Can't Imagine' Eliminating Interchange Language." *Dow Jones Newswires*, June 7, 2010.
19. Letter to conference committee. June 16, 2010, available at <http://wassermanschultz.house.gov/legislation/Interchange%20Letter%20to%20Conferees%20with%20Signatures.pdf>.
20. Lammers, Dirk. "Debit card issuer TCF National Bank sues Fed Reserve chairman and board of governors over fees." *The Associated Press*, Oct. 12, 2010.
21. Davis, Paul. "TCF CEO: Lawsuit to Block Debit-Card Fee Caps Is a 'Line in the Sand.'" *American Banker*, Oct. 12, 2010.
22. Fitzgerald, Kate. "JPM Phasing Out Debit Rewards." *American Banker*, Nov. 9, 2010.
23. Rexrode, Christina. "BoFA posts \$7.6 billion loss as it braces for debit fees' end." *Charlotte Observer*, Oct. 20, 2010.
24. Connelly, Eileen. "Federal Reserve proposes capping merchant debit card fees at 12 cents in blow to big banks." *The Associated Press*, Dec. 16, 2010.
25. Fitzgerald, Kate. "Fed Rules' Hit to Debit Issuers Pegged at \$12B." *American Banker*, Dec. 28, 2010.
26. Randall, Maya. "Fed Board Backs Staff Plan for 12-Cent Debit Card Fee Cap." *Dow Jones Newswires*, Dec. 16, 2010.
27. Ibid.
28. Goldstein, Steve. "Brawl over debit fees continues at hearing." *Marketwatch*. Feb. 17, 2011.
29. Roberts, Ed. "Fed Questions Viability of Two-Tiered Interchange System." *ATM & Debit News*. Feb. 17, 2011.
30. Goldstein, Steve. "Brawl over debit fees continues at hearing." *Marketwatch*. Feb. 17, 2011.
31. "Price Control Regulation on Debit Interchange: Timeline." Electronic Payments Coalition. Available at <http://www.electronicpaymentscoalition.org/history-of-the-issue/>.
32. McGrane, Victoria, and Robin Sidel. "Banks Find Allies in Debit-Fee Fight." *The Wall Street Journal*, March 23, 2011.
33. Wong, Scott. "Senate swipes banks' hopes." *POLITICO*, June 8, 2011.
34. Corker, Bob. "Durbin amendment backfires." *POLITICO*, Oct. 25, 2011.
35. Subsequent research has found that consumers, on net, have actually seen increased access to free checking fees following the implementation of the Durbin amendment. See: Sullivan, Richard. "The Impact of Debit Card Regulation on Checking Account Fees." Federal Reserve Bank of Kansas City. *Economic Review*. Fourth quarter 2013, pp. 59-93.
36. Borak, Donna, and Rob Blackwell. "Everybody Hates Interchange: Bankers, Retailers Object to Fed Final Rule." *American Banker*, June 30, 2011.
37. *American Banker*, June 30, 2011.

38. *American Banker*, June 30, 2011.
39. Schroeder, Peter. "Banks score small victory when Fed decides only to halve debit card fees." *The Hill*, June 30, 2011.
40. "Bid to Block Debit Card Swipe Cap Denied by Appeals Court." *Bloomberg News*, June 30, 2011.
41. Marx, Claude. "TCF Bank Drops Interchange Lawsuit Against the Fed." *Credit Union Times*, June 30, 2011.
42. Connelly, Eileen. "Retail groups file suit claiming Federal Reserve didn't follow law in setting debit card fees." *The Associated Press*. Nov. 22, 2011.
43. Gordon, Marcy. "US judge strikes Federal Reserve rule setting 24-cent cap on debit-card transaction fees." *The Associated Press*. July 31, 2013.
44. Braithwaite, Tom. "Judge attacks Fed over card cap." *Financial Times*, Aug. 1, 2013.
45. Stephenson, Emily. "U.S. judge rejects Fed cap on debit card swipe fees." *Reuters*, July 31, 2013.
46. *The Associated Press*, July 31, 2013.
47. Wack, Kevin. "Despite Court Action, Debit Swipe Fee Refunds Not Likely." *PaymentsSource*. Aug. 16, 2013.
48. Kendall, Brent, et al. "Fed Gets a Win on Card Fees." Dow Jones Newswires, March 21, 2014; and Wack, Kevin. "Banks' Victory on Swipe Fees Seems Likely to Hold Up." *American Banker*, March 24, 2014.
49. *American Banker*, March 24, 2014; Dow Jones, March 21, 2014.
50. Stephenson, Emily. "Retailers to ask U.S. Supreme Court to hear 'swipe fee' case." *Reuters*. June 2, 2014.

AFTERWORD

1. Board of Governors of the Federal Reserve System. *100th Annual Report: 2013*, p. 89.
2. Federal Reserve System. "The 2013 Federal Reserve Payments Study: Recent and Long-Term Payment Trends in the United States: 2003-2012." December 19, 2003, p. 6.
3. Federal Reserve System. "The 2013 Federal Reserve Payments Study: Recent and Long-Term Payment Trends in the United States: 2003-2012." December 19, 2013, p. 12.
4. Summers, Bruce. "Facilitating Consumer Payment Innovation Through Changes in Clearing and Settlement." In *Consumer Payment Innovation in the Connected Age*. A symposium hosted by the Federal Reserve Bank of Kansas City, March 29-30, 2012, p. 194.
5. The paper is available at fedpaymentsimprovement.org.
6. Tracy, Ryan. "Authorities See Worth of Bitcoin." *The Wall Street Journal Online*. Nov. 18, 2013.
7. Pianalto, Sandra. "Collaborating to Improve the U.S. Payments System." Speech at the Federal Reserve Bank of Chicago Payments Conference. Oct. 22, 2012.
8. Poje, Richard. "Fed is Only Logical Payment System Leader." *American Banker*, May 8, 1998.

Sources and Selected Bibliography

The following sources are referenced in the text and were used for research. Many of the Federal Reserve publications and speeches referenced are available from FRASER, the Federal Reserve Archive, available online at fraser.stlouisfed.org. FRASER also includes many of the materials produced by the National Monetary Commission and the Pujó Committee in the early 1900s.

Materials on file at the Federal Reserve Bank of Kansas City's own archives were also used for research, especially for the sections describing the nonpar banking controversy in Nebraska during the 1920s.

*Information and quotes were also used from a number of news media sources, including *The Wall Street Journal*, *Fortune*, *American Banker*, *Reuters*, *The New York Times*, *Associated Press*, *POLITICO*, *Dow Jones Newswires*, *Financial Times*, *Bloomberg News* and many others.*

During the course of research for this book, historical materials from the archives of the Kansas City Clearinghouse Association were made available by Kansas City-based EPCOR—Electronic Payments Core of Knowledge.

Andrew, Abram Piatt, "Hoarding in the Panic of 1907." *The Quarterly Journal of Economics*, Vol. 22, No. 2, February 1908.

_____. "Substitutes for Cash in the Panic of 1907." *The Quarterly Journal of Economics*, Vol. 22, No. 4, August 1908.

_____. "The Currency Legislation of 1908." *The Quarterly Journal of Economics*. Vol. 22, No. 4, August 1908.

Appleton, Nathan. *An Examination of the Banking System of Massachusetts*. Stimpson and Clapp. 1831.

Batiz-Lazo, Bernardo, Thomas Haigh and David L. Stearns. "How the Future Shaped the Past: The Case of the Cashless Society." MPRA Paper No. 34846. November 2011.

Bauer, Paul, and Geoffrey Gerdes. "The Check is Dead! Long Live the Check! A Check 21 Update." *Economic Commentary*. Federal Reserve Bank of Cleveland. June 2009.

Bradford, Terri. "The Evolution of the ACH." *Payments System Research Briefing*. Federal Reserve Bank of Kansas City. December 2007.

Bruner, Robert, and Sean Carr. *The Panic of 1907: Lessons Learned from the Market's Perfect Storm*. John Wiley & Sons. 2007.

Calomiris, Charles, and Charles M. Kahn. "The Efficiency of Self-Regulated Payments Systems: Learning from the Suffolk System." National Bureau of Economic Research Working Paper 5442. January 1996.

Cannon, James G. "Clearing Houses and the Currency," in *Currency Problems and the Current Financial Situation*. 1908.

_____. *Clearing-House Methods and Practices*. U.S. National Monetary Commission. Senate Document No. 491, 61st Congress, 2nd Session. Government Printing Office. 1910.

Connolly, Paul and Robert Eisenmenger. "The Role of the Federal Reserve in the Payments System." in *The Evolution of Monetary Policy and the Federal Reserve System Over the Past Thirty Years: A Conference in Honor of Frank E. Morris*. Federal Reserve Bank of Boston. October 2000.

Duprey, James, and Clarence Nelson. "A Visible Hand: The Fed's Involvement in the Check Payments System." *Quarterly Review*. Federal Reserve Bank of Minneapolis. Spring 1986.

Frass, Arthur. "The Second Bank of United States: An Instrument for an Interregional Monetary Union." *The Journal of Economic History*. Vol. 34, No. 2. June 1974.

Gamble, Richard. *A History of the Federal Reserve Bank of Atlanta: 1914-1989*. The Federal Reserve Bank of Atlanta. 1989.

Gibbons, James S. *The Banks of New York, Their Dealers, the Clearing House and the Panic of 1857*. D. Appleton & Co: New York. 1859.

Gilbert, R. Alton. "Did the Fed's Founding Improve the Efficiency of the U.S. Payments System?" *Review*. Federal Reserve Bank of St. Louis. May/June 1998.

Glass, Carter. *An Adventure in Constructive Finance*. Doubleday, Page & Company: New York. 1927.

Gorton, Gary. "Clearinghouses and the Origin of Central Banking in the United States." *The Journal of Economic History*. Vol. 45, No. 2. June 1985.

Federal Reserve Board of Governors Annual Reports, various years.

Fernelius, Leonard, and David Fetting. "The Dichotomy Becomes Reality: Ten Years of the Federal Reserve as Regulator and Competitor." Federal Reserve Bank of Minneapolis. *Annual Report*. Jan. 1, 1992.

Fisher, Amy Weaver and James McKenney. "The Development of the ERMA Banking System: Lessons from History." *IEEE Annals of the History of Computing*. Vol. 15, No. 1. 1993.

Frodin, Joanna. "Fed Pricing and the Check Collection Business: The Private Sector Response." *Business Review*. Federal Reserve Bank of Philadelphia. January/February 1984.

Hammond, Bray. *Banks and Politics in America from the Revolution to the Civil War*. Princeton University Press. 1957.

Harding, W.P.G. *The Formative Period of the Federal Reserve System (During the World Crisis)*. Houghton Mifflin Company: Boston. 1925.

Hayashi, Fumiko. "The New Debit Card Regulations: Initial Effects on Networks and Banks." Federal Reserve Bank of Kansas City. *Economic Review*. Fourth Quarter 2012.

Horwitz, Steven. "Competitive Currencies, Legal Restrictions, and the Origins of the Fed: Some Evidence from the Panic of 1907." *Southern Economic Journal*. Vol. 56, No. 3. January 1990.

Hung, Christian. "An Update on Interchange Legislation in the United States." Federal Reserve Bank of Kansas City. *Payments System Research Briefing*. December 2009.

Jessup, Paul. *The Theory and Practice of Nonpar Banking*. Northwestern University Press: Evanston, Ill. 1967.

Kamensky, Jane. *The Exchange Artist: A Tale of High-Flying Speculation and America's First Banking Collapse*. Penguin Books. 2009.

Knox, John Jay. *A History of Banking in the United States*. Bradford Rhodes & Company: New York. 1900.

Kramer, Robert and W. Putnam Livingston. "Cashing in on the Checkless Society." *Harvard Business Review*. September/October 1967

Kuprianov, Anatoli. "The Monetary Control Act and the Role of the Federal Reserve in the Interbank Clearing Market." *Economic Review*. Federal Reserve Bank of Richmond. July/August 1985.

Lacker, Jeffrey, et al. "The Fed's Entry into Check Clearing Reconsidered." *Economic Quarterly*. Federal Reserve Bank of Richmond. Vol. 85, No. 2. Spring 1999.

Lacker, Jeffrey. "Payment System Disruptions and the Federal Reserve Following September 11, 2001." Federal Reserve Bank of Richmond Working Paper 03-16. Dec. 23, 2003.

Lake, Wilfred. "The End of the Suffolk System." *The Journal of Economic History*. Vol. 7, No. 2. November 1947.

Laughlin, J.L. "The Aldrich-Vreeland Act." *Journal of Political Economy*. Vol. 16, No. 8. October 1908.

Lee, Norris. "Tomorrow's Checkless, Cashless Society: The Problems, The Solutions, The Benefits." *Management Review*. September 1967.

McGinn, Stacie, and Mark Chorazak. "Debit Interchange Regulation: Another Battle or the End of the War?" *Harvard Business Law Review Online*. 2011.

McKenney, James. "Developing a Common Machine Language for Banking: The ABA Technical Subcommittee Story." *IEEE Annals of the History of Computing*. Vol. 17, No. 4, 1995.

Mihm, Stephen. *A Nation of Counterfeiters: Capitalists, Con Men and the Making of the United States*. Harvard University Press, 2007.

Mitchell, George. "Effects of Automation on the Structure and Function of Banking." *The American Economic Review*. Vol. 56, No. 1/2. March 1, 1966.

Mitchell, Mary. *A Search for Understanding: A Biography of George W. Mitchell, Member of the Board of Governors of the Federal Reserve System, 1961-1976*. iUniverse Inc: Bloomington, Ind. 2008.

Owen, Robert. *The Federal Reserve Act: Its Origin and Principles*. 1919.

Preston, Howard. "The Federal Reserve Banks' System of Par Collections." *Journal of Political Economy*. Vol. 28, No. 7. The University of Chicago Press. July 1920.

Quinn, Stephen and William Roberds. "The Evolution of the Check as a Means of Payment: A Historical Survey." *Economic Review*. Federal Reserve Bank of Atlanta. No. 4. 2008.

Reistad, Dale. "The Coming Cashless Society: Implications and Benefits of a Pending System." *Business Horizons*. Vol. 10, No. 3. Fall 1967.

Rolnick, Arthur, et al. "Lessons from a Laissez-Faire Payments System: The Suffolk Banking System (1825-58)." *Review*. Federal Reserve Bank of St. Louis, May/June 1998.

_____. "The Suffolk Bank and the Panic of 1837." *Federal Reserve Bank of Minneapolis Quarterly Review*. Vol. 24, No. 2, Spring 2000.

Sprague, O.M.W. "The American Crisis of 1907." *The Economic Journal*. Vol. 18, No. 71. September 1908.

_____. *History of Crises Under the National Banking System*. National Monetary Commission. 61st Congress, 2nd Session, Senate Document No. 538. Government Printing Office. 1910.

Stevens, Edward. "The Founders' Intentions: Sources of the Payment Services Franchise of the Federal Reserve Banks." Federal Reserve Financial Services Working Paper No. 03-96. Federal Reserve Bank of Cleveland. December 1996.

_____. "Non-Par Banking: Competition and Monopoly in Markets for Payments Services." Federal Reserve Bank of Cleveland. Working Paper 9817. 1998.

Sullivan, Richard. "The Impact of Debit Card Regulation on Checking Account Fees." *Economic Review*. Federal Reserve Bank of Kansas City. Fourth Quarter 2013.

Summers, Bruce. "Facilitating Consumer Payment Innovation Through Changes in Clearing and Settlement." In *Consumer Payment Innovation in the Connected Age*. A symposium hosted by the Federal Reserve Bank of Kansas City, March 29-30, 2012.

Tallman, Ellis, and Jon Moen. "Lessons from the Panic of 1907." *Economic Review*. Federal Reserve Bank of Atlanta. May/June 1990.

Timberlake, Richard. "The Central Banking Role of Clearinghouse Associations." *Journal of Money, Credit and Banking*. Vol. 16, No. 1. February 1984.

_____. "Legislative Construction of the Monetary Control Act of 1980." *The American Economic Review*. Vol. 75, No. 2. May 1985.

Tippetts, Charles. "The Par Remittance Controversy." *The American Economic Review*. American Economic Association. Vol. 14, No. 4. December 1924.

_____. *State Banks and the Federal Reserve System*. D. Van Nostrand Company Inc: New York. 1929.

Todd, Tim. *The Balance of Power: The Political Fight for an Independent Central Bank, 1790-Present*. Federal Reserve Bank of Kansas City. 2009.

Trivoli, George. "The Suffolk Bank: A Study of a Free-Enterprise Clearing System." The Adam Smith Institute. 1979.

Vest, George. "The Par Collection System of the Federal Reserve Banks." *Federal Reserve Bulletin*. February 1940.

Warburg, Paul. *The Federal Reserve System: Its Origin and Growth*. The Macmillan Company. 1930.

Warne, Colston. "Enforced Par Remittance Under the Federal Reserve System." *The Quarterly Journal of Economics*. Oxford University Press. Vol. 35, No. 2. February 1922.

Wapensky, Basil. "Electronic Check Processing." *Monthly Review*. Federal Reserve Bank of Atlanta. May 1960.

White, Horace. *Money and Banking*. Ginn and Co. Publishers: Boston. 1896.

Whitney, David R. *The Suffolk Bank*. Riverside Press: Cambridge. 1878.

Willis, Henry Parker. *The Federal Reserve System: Legislation, Organization and Operation*. The Ronald Press Company: New York. 1923.

Wyatt, Walter. "The Par Clearance Controversy." *Virginia Law Review*. Vol. 30, No. 3. June 1944.

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106. National Institute of Standards and Technology, Advanced Measurement Laboratory Dedication Photo Gallery, http://www.nist.gov/public_affairs/factsheet/aml-dedication-gallery.cfm (2004).
107. Biographical Directory of the United States Congress, <http://bioguide.congress.gov/scripts/biodisplay.pl?index=F000443> (accessed June 10, 2014).

109. Biographical Directory of the United States Congress,
<http://bioguide.congress.gov/scripts/biodisplay.pl?index=O000163>
(accessed June 10, 2014).
 110. Federal Reserve Bank of Kansas City, Public Affairs Employee Publications,
Bank Notes (September, 2003).
 112. www.photospin.com
 115. Dick Durbin website, <http://www.durbin.senate.gov/public/index.cfm/photos?ID=4faed55f-503c4d59-aa24-3cb2e698188e> (accessed June 10, 2014).
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“ OVER THE PAST CENTURY...CONGRESS HAS REPEATEDLY TURNED TO THE FEDERAL RESERVE TO ENSURE...PAYMENTS IMPROVEMENTS ARE UNIVERSALLY AVAILABLE AND THAT THE SYSTEM REMAINS SAFE AND SECURE. NO OTHER INSTITUTION—PUBLIC OR PRIVATE—HAS THAT RESPONSIBILITY. ”

.....

Since its formation, the Federal Reserve has played an important role as both an overseer and participant in the U.S. payments system. But the origin of central bank involvement goes back even further. Throughout U.S. history, consumers, merchants, financial institutions, policymakers and others have grappled with the question of who is ultimately responsible for what congressional leaders in 1913 called the “highways of commerce.” From the chaos of the early 19th century to today’s digital transactions, there has been a spirited—and often contentious—debate over the central bank’s roles and responsibilities.

