# *Clearinghouses and the Origin of Central Banking in the United States*

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The pre-1914 U.S. banking industry is not easily characterized as a market operating through a price system. The endogenous development of the clearinghouse as the industry's organizing institution can be explained by inherent characteristics of demand deposits. During banking panics the clearinghouse united banks into an organization resembling a single firm which produced deposit insurance.

BEGINNING with Coase's famous essay "The Theory of the Firm," a large literature has developed which seeks to explain why organizations, such as firms, are preferred to a price system for allocating resources.[1] The structure of the U.S. banking industry prior to the existence of the Federal Reserve System is a unique example of such a nonprice allocation system. An essential feature of the banking industry then was the endogenous development of the clearinghouse, a governing association of banks to which individual banks voluntarily abrogated certain rights and powers normally held by firms. Behaving most of the time as the dominant authority in a market-like setting, the clearinghouse was capable of temporarily behaving as a single firm during banking panics. The powers and functions that clearinghouses developed most resembled those of a central bank. In fact, it is almost literally true that the Federal Reserve System, as originally conceived, was simply the nationalization of the private clearinghouse system.

Studying the organization of the pre-1914 banking industry, and, in particular, the role of the clearinghouse, is likely to have implications for assessing the efficiency and uniqueness of contractual arrangements in banking. My note suggests some working hypotheses about banking industry products and structure and focuses on the New York City Clearinghouse Association (NYCHA) response to banking panics.

## I. BANK NOTES AND DEMAND DEPOSITS

The clearinghouse emerged with a shift in the relative importance of banking products, products with differing informational and contractual

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[1] R. H. Coase, "The Nature of the Firm," *Economica*, 4 (1937), p. 386–405.

characteristics. The first clearinghouse in the United States, established by New York City banks in 1853, simply created an organized market—a single location where exchange between banks occurred through one other party—the clearinghouse.[2] The rise of demand deposits relative to bank notes, during the latter part of the Free Banking Era (1837 to 1863) necessitated a larger role for the clearinghouse than the market organizer because the demand deposit contract significantly differed from the bank note contract.[3]

Bank notes, small denomination discount bonds, payable in specie on demand at the issuing bank, did not exchange at par outside the bank but at a discount against specie. The system of floating exchange rates between bank notes and specie was possible because secondary markets in bank notes could exist. In fact, the bank note industry consisted of three, sometimes overlapping, types of firms. Banks issued and redeemed notes. Note brokers could earn a return on their investment in information gathering, "making a market" in bank notes, because notes, bought at a discount, could be redeemed at par when "cleared" at the issuing bank. Finally, the prices in these secondary markets were transmitted to agents using the notes in other markets by "monitoring" firms which published bank note reporters and counterfeit detectors.[4] The bank note market revealed information about specific issuing banks so that resources in the bank note industry were allocated by this price system.

A demand deposit, unlike a bank note, is a "double claim" since it is a claim on a specific agent's account at a specific bank. Markets for double claims would be extremely "thin," and it would likely be very costly for brokers to invest in information gathering on every depositor. Also, while in principle checks can circulate by being endorsed, the least costly way to verify the agent-specific dimension of the claim was to "clear" the check quickly. Consequently, private secondary markets in bank checks did not develop. This market was internalized by the banking industry in the form of the clearinghouse, but with the implication that prices did not reveal bank-specific information. In fact, the public exchange rate between checks and specie was fixed at one-to-one. In other words, the demand deposit contract, whereby checks cleared after every transaction, created an information asymmetry between banks and customers because the exchange rates did not fluctuate. Without sufficient price statistics available to depositors to

[2] On clearinghouse beginnings see J. S. Gibbons, *The Banks of New York, Their Dealers, The Clearinghouse, and the Panic of 1857* (New York, 1968; reprint of 1859 original); James G. Cannon, *Clearinghouses* (Washington, 1910); Fritz Redlich, *The Molding of American Banking* (New York, 1951), chap. 13.

[3] See Redlich, *American Banking*, Part II, p. 3.

[4] See William H. Dillistin, *Bank Note Reporters and Countefeit Detectors, 1826–1866*, Numismatic Notes and Monographs 114 (New York, 1949).

judge the riskiness of banks' deposits, individual banks had an incentive to market deposits with a specie price of less than one, free-riding on the industry. This necessitated a nonprice system to monitor bank performance.[5]

Rather than allocate resources through a price system, the clearinghouse regulated quantities to ensure that the one-to-one exchange rate was accurate. On the one hand, entry to the clearinghouse was screened, and then members were regulated. There were capital requirements, reserve requirements, interest rate restrictions, and ongoing audits and reporting forms to ensure compliance.[6] These efforts were designed to ensure that members did not take advantage of the information asymmetry to reduce the "backing" of their deposits. On the other hand, insofar as deposits were of differing quality, clearinghouses signalled this to the public by requiring members to publish balance sheet items so that the public could adjust their holdings across banks.[7] Threat of expulsion from the clearinghouse was a potent enforcement mechanism.[8]

## II. THE CLEARINGHOUSE RESPONSE TO PANICS

The U.S. clearinghouse system experienced eight banking panics prior to the creation of the Federal Reserve System. A banking panic occurs with a sudden shift in the perceived riskiness of demand deposits at all banks, leading depositors to demand large-scale transformations of deposits into currency. While the precise variables which can account for panic-causing changes in perceived risk are a matter of debate, information asymmetry creates the possibility of panic. Depositors could not identify bank-specific risk so all banks were vulnerable to runs caused by aggregate events such as increases in business failures.[9] Moreover, in such a setting the failure of individual banks could cause changes in depositors' conditional expectations so that other banks

[5] The argument is developed in greater detail in G. Gorton and D. Mullineaux, "The Joint Production of Confidence: Clearinghouses and the Theory of Hierarchy," 1985, forthcoming.

[6] See Cannon, *Clearinghouses*.

[7] An important part of the clearinghouses' usual functioning was the investigation of rumors about particular member banks. In response to rumors the clearinghouse, sometimes at the request of the member bank, would audit the bank with its own auditors or auditors hired for that purpose and would then announce the results. There are many examples of this in the New York City Clearinghouse Association, *Clearinghouse Committee Minutes* [hereafter, *Minutes*]. See, for example, April 29, 1873 entry.

[8] Member banks were suspended, expelled, and readmitted fairly frequently. For example, the *Minutes* record two member suspensions, six expulsions, four applications for membership declined, four readmissions, and two admissions during the first six years after the clearinghouse was organized.

[9] See Gary Gorton, "Banking Panics and Business Cycles," Philadelphia Federal Reserve Bank, Working Paper, 1984.

experienced runs. Clearinghouses were institutional responses to both the possibility and the actuality of such information externalities.

When a panic occurred, the structure of the banking industry was radically altered by the metamorphosis of the clearinghouse into a single, firm-like organization uniting the member banks in a hierarchical structure topped by the Clearinghouse Committee. The formation of the new entity was signaled by the first act of the clearinghouse facing a panic, which usually was to suspend the publication of individual bank balance sheet information, publishing instead the aggregate of all members.[10] This was generally accompanied by a joint suspension of convertibility of deposits into currency.[11]

The suppression of bank-specific information, an act completely contrary to the usual functioning of clearinghouses, avoided identifying "weak" banks which might then experience a run which led to runs on other banks. Much more importantly, however, bank-specific information was no longer relevant because banks had joined together in such a way that the aggregate information was, in fact, the appropriate information. The mechanism which united banks was the clearinghouse loan certificate, a liability of the clearinghouse created during panics.

During a panic depositors are demanding that bank portfolios be transformed into securities, the value of which is easily ascertained—namely, specie. Because of the information asymmetry, it is impossible to convince depositors of the value of bank portfolios. The banks themselves, however, were in a position to cope with the problem. The clearing process provided information as did clearinghouse audits and member bank reports. In addition, banks had the specialized knowledge to value bank assets. Moreover, banks had an incentive to avoid other members' failures because of the information externalities.

The clearinghouse loan certificate originated during the Panic of 1857 and was used in every subsequent panic through 1914.[12] The process worked as follows. When a panic was imminent or had occurred, the clearinghouse would authorize the issuance of loan certificates. A member bank needing currency to satisfy depositors' demands applied to the clearinghouse's Loan Committee, submitting part of its portfolio as collateral. If acceptable as collateral, certificates were issued amounting to a percentage of the market value of the collateral, that is, bank assets were discounted. The certificates had a fixed maturity of,

[10] New York City Clearinghouse Association, *Loan Committee Minutes*, January 30, 1891, June 6, 1893, November 1, 1907; and *Minutes*, November 1, 1907.

[11] Suspension of convertibility was avoided during the crises of 1860, 1884, 1895, and 1896. Loan certificates were issued during the crises of 1860 and 1884. In the Panic of 1884 one member did suspend convertibility and was then "suspended from the privileges of the clearinghouse" by unanimous vote (*Minutes*, May 6, 1884). During the crises of 1895 and 1896 the Loan Committee was authorized to issue loan certificates, but no members applied (*Loan Committee Minutes*, December 24–31, 1895, ff., and August 24, 1896).

[12] See *Minutes* October 14, 1857 through November 9, 1857.

typically, one to three months, carried an interest charge, and were issued in large denominations.[13] Member banks could use the loan certificates in the clearing process in place of currency, freeing currency for the payment of depositors' claims.

The loan certificates were acceptable in the clearing process not only because they were backed by discounted securities—of greater importance was that loan certificates were claims on the clearinghouse, a joint liability of the members. If a member bank failed and the collateral was worth less than the member's outstanding loan certificates, the loss was shared by the remaining members in proportion to each member's capital relative to the total of all members.[14] The intention of the risk-sharing arrangement, whereby member banks insured each other, was to allow enough currency to be paid out to depositors to signal the soundness of the members while avoiding members' failures.

The coinsurance arrangement, triggered by a panic, did not operate in the usual way markets are thought to operate. The Clearinghouse Committee (and Loan Committee) had a great deal of power in directing the loan certificate process. Not only were the assets submitted as collateral scrutinized by the committee, but the committee had the "power to demand additional security either by an exchange or an increased amount at their discretion."[15] Since the rate of interest on loan certificates and the discount on collateral were the same for all banks (and assets), the power to select and approve collateral and decide on amounts of certificates for individual banks was crucial to the allocation process.

In addition, the committee apparently had the power to directly allocate the resources of healthy banks to particularly troubled banks. For example, consider this entry in NYCHA minutes, dated October 21, 1907: "The debit balance of the Mercantile Bank having been found to be $1,900,000, it was agreed to extend aid to that bank for the amount of its balance, in addition to the amount already advanced, and the Manager [of the NYCHA] was requested to make requisition on individual banks for the sum of $2,000,000." And there are other examples, as well, of the committee making arrangements for "aid" for members during panics.[16] In general, banks were not allowed to fail during the period of suspension of convertibility, but were expelled

[13] O.M.W. Sprague, *History of Crises Under the National Banking System* (New York, 1968; reprint of 1910 original), pp. 432–33 lists dates of issue, amounts, rate of interest, nature of collateral, and length of issue.

[14] The original loan certificate process agreement, *Minutes*, November 21, 1860, does not mention this, though it was made clear during the Panic of 1907 (*Minutes*, October 31, 1907). The Panic of 1907 was apparently the only occasion when members, subsequent to the October 31 resolution could not repay loan certificates.

[15] *Minutes*, November 21, 1860.

[16] See *Minutes*, October 18, 1907, October 21–22, 1907, January 9, 28, 1907, February 1, 1908.

from clearinghouse membership for failure to repay loan certificates after the period of suspension had ended.[17]

During banking panics the clearinghouse became a hierarchical structure with the Clearinghouse Committee administering the internal allocation of resources in an attempt to signal to depositors the accuracy of the one-to-one exchange rate for deposit to specie. After a panic, the clearinghouse would revert to its nonpanic form. For the temporary transformation of the clearinghouse to be a viable way for the survival of banking system, the screening and regulatory functions undertaken during nonpanic times had to be successful in limiting the exposure of banks to risk.

## III. DEPOSIT INSURANCE

During the panics of 1893 and 1907 clearinghouses took the further step of issuing loan certificates, in small denominations, directly to the public.[18] Since this did not involve replacing gold in the clearing process, but instead was the direct monetization of bank portfolios, large amounts of money could be created and issued to the public in exchange for demand deposits. During the Panic of 1893 about $100 million of clearinghouse hand-to-hand money was issued (2.5 percent of the money stock), and, during the Panic of 1907, about $500 million was issued (4.5 percent of the money stock.)[19]

Previously, a banking panic was described as an event caused by a shift in the perceived risk of demand deposits at all banks which could happen because depositors lacked information about bank-specific risk. The loan certificates issued to the public, in exchange for their demand deposits, were acceptable to depositors because they were claims on the association of banks, not just a single bank. Consequently, the exchange of a demand deposit for a loan certificate insured the depositor against individual bank failure. Thus, the problem of bank-specific risk, due to the information assymetry, was directly addressed.

The loan certificates in the hands of the public were not insurance against the failure of all banks in the association, that is, the failure of the clearinghouse. But, since these claims on the association made bank-specific risk irrelevant to depositors, a secondary market in these claims could and did quickly develop, allowing the risk of clearinghouse failure to be priced. Indeed, a currency premium arose in exchanges of certificates for currency, gradually subsiding until reaching zero, where-

[17] *Minutes*, January 30–31, 1908.

[18] During the Panic of 1873, the New York City Clearinghouse took an intermediate step by certifying limited amounts of checks as liabilities of the Association. See Sprague, *Crises*, p. 54.

[19] John D. Warner, "The Currency Famine of 1893," *Sound Currency*, 11 (Feb. 15, 1895); A. Piatt Andrew, "Substitutes for Cash in the Panic of 1907," *Quarterly Journal of Economics*, 22 (Aug. 1908), pp. 497–516.

upon the suspension of convertibility was lifted.[20] This secondary market, reminiscent of bank notes, could exist because of the contractual basis of the loan certificates.

## IV. CONCLUSION

Traditional economic theorizing is strongly biased in favor of markets which operate costlessly through price mechanisms. When applied to banking the paradigm suggests that banking is like any other industry.[21] Yet, by the early twentieth century clearinghouses looked much like central banks. They admitted, expelled, and fined members; they imposed price ceilings, capital requirements, and reserve requirements; they audited members and required the regular submission of balance sheet reports. Finally, they issued money and provided a form of insurance during panics. That such an economic entity should have endogenously arisen in the banking industry suggests important links between the characteristics of the product and institutional and contractual forms of economic organization. While much work remains to be done on these links, the existence of the clearinghouse suggests that private agents can creatively respond to market failure.

[20] The currency premia are provided by Sprague, *Crises*, pp. 57, 187, 280–81.

[21] For example, see Eugene Fama, "Banking in the Theory of Finance," *Journal of Monetary Economics*, 6 (Jan. 1980), pp. 39–57.