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Abstract

Before the advent of the Federal Reserve System, private clearinghouses provided emergency liquidity support to the banking system during panics. The most notable of these institutions, the New York Clearing House Association (NYCH), supported its member banks by issuing clearinghouse loan certificates (CLCs), short-term collateralized loans guaranteed by the NYCH, as an alternative liquidity source during banking panics; member banks used CLCs exclusively for the purpose of temporarily settling payments with other NYCH members. During the Panic of 1890, the NYCH issued $16.65 million of CLCs between November 12 and December 22, 1890. The Loan Committee received requests from and authorized CLC issuance to member banks with corresponding collateral pledges, which were subject to a minimum 25% haircut. The NYCH required borrowing banks to pay out 6% interest to accepting banks—other members that received the CLCs in place of cash settlements—as well as a 0.25% monthly commission fee. A borrowing bank could redeem the CLC and then petition the Loan Committee to retire the loan, ending interest payments and receiving back its collateral. The CLCs, which peaked at $15.21 million outstanding on December 12, 1890, were all redeemed by February 7, 1891. With the help of substantial liquidity from the Treasury and the bailout of troubled banks by two banking syndicates, the NYCH liquidity support via CLCs contained the panic, and ultimately, only a small number of banks failed. Unlike several other crises in the National Banking Era (1863–1913), New York banks did not temporarily suspend payments to depositors.

Keywords: clearinghouse loan certificates, National Banking Era, New York Clearing House Association, Panic of 1890, private lender of last resort

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https://elischolar.library.yale.edu/journal-of-financial-crises/.

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Overview

Chartered in 1854, New York Clearing House Association (NYCH) was a private institution created to facilitate the settlement process for interbank transactions for banks around New York City. Most of the largest banks in New York joined as members of the NYCH, keeping their reserves at the NYCH, which streamlined the procedure for settling balances with other banks (Fulmer 2022). During the National Banking Era (1863–1913), a period marked by the absence of a central bank, the NYCH served as a private lender of last resort for its member banks during banking crises (Cannon 1910a; Fulmer 2022).

In 1890, banking disruptions—beginning in the first half of year—culminated in two separate episodes of credit tightening: one between August and September and the other in November (Wicker 2000, 44–45). The latter incident came to be known as the Panic of 1890 and is the subject of this case study. Although collapsing stock market prices extended from May to November, losing on average half of their value, the disturbances did not translate into bank failures until the end of 1890 (NYT 1890a).

During August and September 1890, the seasonal flow of funds out of New York City to finance crop transportation placed downward pressure on the reserves of NYCH member banks (Wicker 2000, 14, 144). Meanwhile, financial spillovers from foreign markets during the summer of 1890 eroded valuations of US securities (Wicker 2000, 42). To relieve the credit tightness, from July 19 the November 1, the Treasury spent $99 million—the bulk of its surplus—on bond redemptions to alleviate money market disruptions (OCC 1891). However, when the second episode of credit tightness materialized in November, the Treasury did not have an available surplus to support the distressed banking system. Subsequently, the NYCH took on the role of providing liquidity relief in the form of clearinghouse loan certificates (CLCs) (Wicker 2000, 45).

Key Terms

Purpose: "For the purpose of enabling banks that were short of cash to make their exchanges" (NYT 1890a)

Launch Dates	Announcement: November 11, 1890 First issuance: November 12, 1890
Expiration Dates	Final issuance: December 22, 1890 Final cancellation: February 7, 1891
Legal Authority	Not applicable
Peak Outstanding	$15.21 million on December 12, 1890
Participants	24 of 66 eligible NYCH member banks
Rate	6% fixed + 0.25% per month left unretired
Collateral	Bills receivable, stocks, bonds, and other securities
Loan Duration	Not applicable
Notable Features	NYCH disclosed identities of banks borrowing CLCs
Outcomes	Smallest of the NYCH crises, with only one member bank failure

Throughout 1890, the British banking system was adversely affected by spillovers from a financial crisis in Argentina (CFC 1891). On November 7, the Bank of England unexpectedly raised its discount rate from 5% to 6%, which generated "a general feeling of apprehension and alarm" in both London and US markets (Gorton and Tallman 2016; Sprague 1910, 141).[3] On Saturday, November 8, New York banks' reserves revealed a $4.24 million decline, falling below the legal limit (reserve deficit) (Sprague 1910, 141).

On November 11, as money markets continued to tighten further, the panic in New York came to a head with the announcement that the brokerage firm Decker, Howell & Co. ran out of cash; the brokerage firm owed $1.40 million in overdraft to the Bank of North America, a member of the NYCH (NYT 1890a; Sprague 1910, 142). While still solvent, the Bank of North America became short $900,000 cash to settle balances with other member banks of the NYCH. Before the NYCH stepped in to support banks, J.P. Morgan assembled nine NYCH bank presidents, himself included, who agreed to loan the Bank of North America the sum of its clearinghouse deficit (NYT 1890a). Later that day, November 11, the NYCH complemented the individual members' efforts to resolve the crisis by authorizing an emergency plan effective November 12. This plan established a temporary Loan Committee authorized to issue clearinghouse loan certificates to members as a form of liquidity relief. A CLC was an instrument used for the sole purpose of replacing legal currency in the settlement of balances between NYCH member banks (OCC 1891).

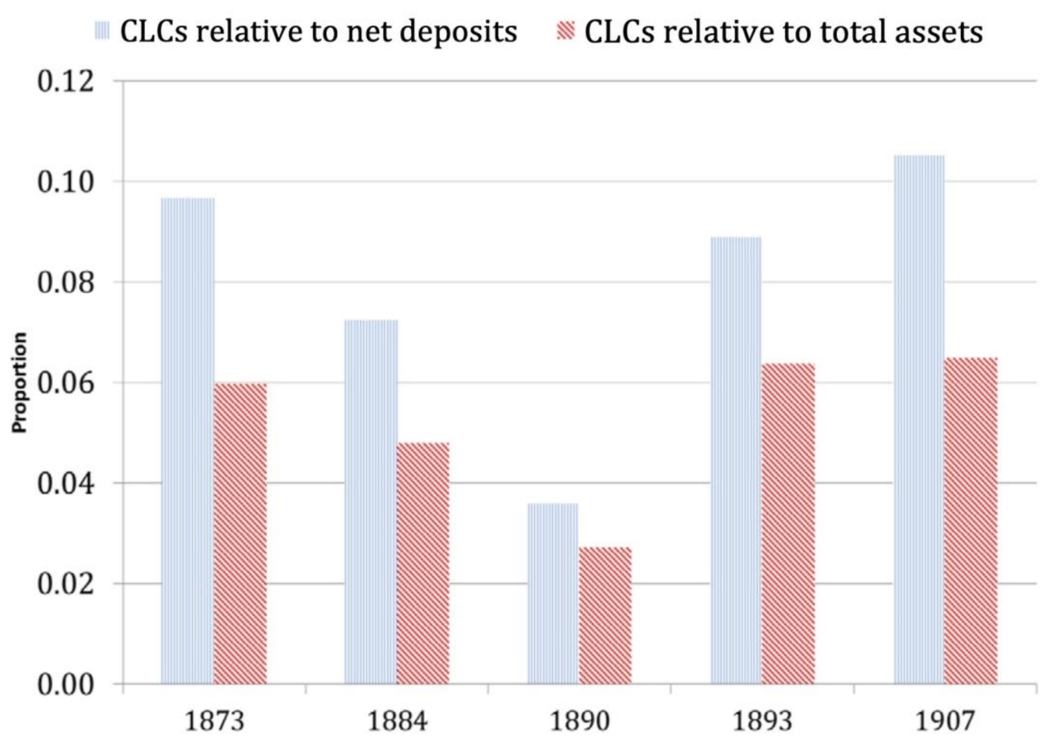
Under the CLC resolution of 1890, NYCH member banks could request certificates in increments of $20,000 and presented bills receivable and other securities, including stocks and bonds, as collateral, subject to a minimum haircut of 25% (OCC 1891). After the Loan Committee approved a borrowing member bank's request, the borrowing bank then presented their CLCs as temporary substitutes for currency to settle clearinghouse balances with another member (the accepting bank) of the NYCH. As compensation, the CLC contract required the borrower to pay a 6% annual interest plus 0.25% monthly commission to the accepting bank until the certificate's cancellation (Cannon 1910a). The accepting bank could also thereafter use the CLC for a later settlement with another member bank, and in so doing, the accrual of interest transferred to the new accepting bank (Hoag 2016).

Importantly, all members were obligated to accept CLCs as temporary settlement payments from borrowing banks or risk their NYCH membership (Cannon 1910a; Gorton and Tallman 2018, 43). However, the NYCH collectively guaranteed the equitable distribution of losses related to defaulted CLCs so that accepting banks did not individually bear the credit risk of a borrower's CLC. Moreover, if a borrower defaulted on its CLC, the Loan Committee liquidated the collateral and the total remaining loss was mutually repaid across the membership in proportion to the share of capital plus surplus reserves of each member (Gorton and Tallman 2016; Hoag 2016).

[3] On November 6, 1890—though not publicly disclosed at the time—the Bank of England was notified of the distress of Baring Brothers & Co., a large British investment bank with significant exposures to the Argentinean financial crisis (Banerjee 2017, 4; CFC 1891). The formal announcement on November 15 of Baring's distress generated a second shock to New York banks (CFC 1891; Wicker 2000, 46).

From November 12 through December 22, 1890, the Loan Committee issued a total of $16.65 million in certificates (Gorton and Tallman 2016). CLCs outstanding reached a peak of $15.21 million on December 12, 1890, and the last remaining certificates were finally retired on February 7, 1891 (Cannon 1910a). Of the 66 eligible NYCH member banks,[4] 24 banks took out CLCs in 1890; compared to other panics, in 1890, only a few large national banks—two of the largest six—borrowed CLCs (Moen and Tallman 2013). See Figure 1 for the relative volume of CLCs issued during the Panic of 1890 compared to other National Banking Era panics.

Figure 1: Relative Size of the CLCs Issued by the NYCH across Panics, 1873–1907



Source: Moen and Tallman 2013.

One unique feature of the 1890 CLC issuance was the NYCH's decision to deploy CLCs early in the crisis when only a few of its members had experienced bank runs (Gorton and Tallman 2018, 54). As such, the issuance of CLCs in 1890 was similar to that of 1884 insofar as the measure provided aid to specific, vulnerable NYCH banks, rather than the membership as a whole (Gorton and Tallman 2018, 51). The CLC program in 1890 also differed from other panics in that the NYCH publicized borrowing banks' identities (Gorton and Tallman 2016).

[4] The OCC report of 1890 reported that, as of 1890, the NYCH membership, excluding the sub-treasury, was comprised of 64 member banks, 20 of which were State-chartered banks and the remaining 44 were national banks, incorporated under the National Banking Act (OCC 1890, 69). This is slightly different than the numbers used by Moen and Tallman (2013), which we primarily rely on in this case.

Summary Evaluation

Of the five panics during the National Banking Era, those in 1884 and 1890 are considered less severe and more localized panics. The Panic of 1890 saw the fewest bank failures, 18, as compared to the maximum of 503 observed in 1893 out of the set of five panics (Wicker 2000, 4). Of the 1890 bank failures, only one was an NYCH member bank, North River Bank (Gorton and Tallman 2016).

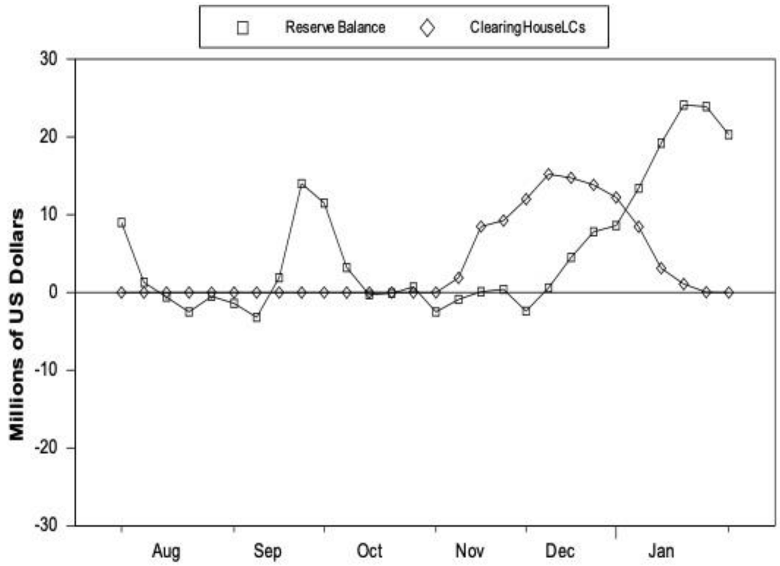
Wicker (2000) distinguishes these two crises as "incipient" panics in which the banking system avoided a "general loss of depositor confidence," thanks to the NYCH, which "acted with dispatch to forestall a banking panic" through CLC relief (Wicker 2000, xv). Wicker notes that the Panic of 1890 shared many characteristics with more severe banking crises and that without the rapid dispersal of CLCs, 1890 may have materialized into a "full-scale banking panic" (Wicker 2000, 41). Similarly, Gorton and Tallman speculate that in these two crises, "the issuance of loan certificates was, apparently, by itself enough to forestall runs" (Gorton and Tallman 2016).

The Panic of 1890 was the only National Banking Era crisis in which the Treasury provided significant relief to the banking system (Wicker 2000, 133). Wicker points out that it was the "main reason why there were no bank closings in August and September," which "prevented the situation from deteriorating into a full-scale financial panic" (Wicker 2000, 44–45). Moen and Tallman (2013) give it more weight, attributing the overall successful resolution of the Panic of 1890 to the Treasury's actions. They note that the supply of funds used to purchase bonds "dwarf[ed] the issues of clearing house loan certificates." However, the Office of the Comptroller of the Currency (OCC), in the 1891 annual report, emphasized the insufficiency of the Treasury relief alone in allaying the Panic of 1890:

> It is apparent, however, that while the [Treasury] relief afforded was timely and the sums disbursed very large, the unfavorable and threatening conditions were caused to a greater degree by want of confidence and a curtailment of credits than by lack of circulating medium. (OCC 1891)

In the context of the two episodes of credit tightness in 1890, the loan contraction by NYCH banks amounted to $14 million for the August–September distress (addressed by Treasury intervention) and $21 million during the November panic (addressed by the NYCH's CLC resolution) (Wicker 2000, 42, 43). Compared to the aggregate CLC issuance, the Treasury's bond redemptions of $99 million represented a much larger volume of direct liquidity support (OCC 1891). Despite this smaller scale of liquidity operations, the CLC issuance in November and December corresponded with larger and sustained recoveries in reserve surpluses; Figure 2 shows the aggregate level of surplus reserves amongst the NYCH members as well as the outstanding CLC volume during the months of banking disturbances in 1890 (Gorton and Tallman 2016).

Figure 2: NYCH Reserve Surplus vs. Outstanding CLCs, August 1890–January 1891



Source: Gorton and Tallman 2016.

Context: NYCH 1890-1891	
Net deposits of NYCH membership (average of weekly data)	\$404.3 million in 1890 \$409.4 million in 1891
Loans held by NYCH membership (average of weekly data)	\$399.8 million in 1890 \$400.9 million in 1891
Capital and surplus of NYCH membership (average of weekly data)	\$120.8 million in 1890 \$124.2 million in 1891
Required reserves held by NYCH membership (average of weekly data)	\$101.0 million in 1890 \$102.3 million in 1891
Number of members in the NYCH	65 in 1890 64 in 1891
NYCH clearing transactions (annual)	\$37.5 billion in 1890 \$33.7 billion in 1891
Number of commercial failures	10,907 failures in 1890 12,273 failures in 1891
Total liabilities of commercial failures	\$189.9 million in 1890 \$189.9 million in 1891
Total individual deposits for the United States (excluding savings banks)	\$2,511 million in 1890 \$2,542 million in 1891
Ratio of aggregate CLC issuance to net deposits of NYCH membership	4.1% in 1890
Source: Andrew 1910.	

Key Design Decisions

1. **Purpose: The NYCH issued CLCs to provide relief to illiquid banks and to resolve general tightness in money markets.**

In 1890, as bank credit contracted, the average price for stocks listed on the New York Stock Exchange declined by almost 50% between May and November. The panic in the stock market culminated on November 11, 1890, with the failure of the prominent brokerage firm Decker, Howell & Co., which ran out of cash and could not honor $1.40 million in obligations to the Bank of North America, an NYCH member (NYT 1890a). The Bank of North America, short $900,000 in cash required to settle clearinghouse balances, could not safely liquidate its available assets under the adverse market conditions and, consequently, faced "imminent collapse" (Wicker 2000, 45).

The NYCH membership held an emergency meeting that same day, November 11, and unanimously approved a plan to extend liquidity support for the Bank of North America, along with two other illiquid members, Mechanics & Traders' National Bank and North River Bank (Gorton and Tallman 2016). Through a temporary Loan Committee, the NYCH began issuing clearinghouse loan certificates the following day in an initial allotment directed toward the three banks to be used "in settlements of balances at the clearing house" (OCC 1891). The use of CLCs to settle intermember bank balances allowed borrowing members to use all of the cash on their individual balance sheets for transactions outside the NYCH membership (NYT 1890a).

2. **Legal Authority: The NYCH's status as a private institution did not provide a clear legal basis for CLC issuance, yet regulators did not interfere with these liquidity operations.**

The banking legislation of the National Banking Era did not grant private bank clearinghouses, like the NYCH, unique legal status. Rather, clearinghouses were voluntary organizations of private banks (Wicker 2000, 128).

Bank notes issued by state-chartered banks or private banks at the time were subject to a 10% tax (Timberlake 1984). If treated as currency, CLCs neglected to pay out the 10% tax, potentially undermining their legality (Cannon 1910a).

However, contemporary sources and scholars tend to agree that CLCs used entirely for interbank transactions—such as those issued in 1873, 1884, and 1890—did not break this law because they did not circulate as currency. The National Bank Act of 1864 sanctioned CLCs that circulated only between banks: "Clearing-house certificates, representing specie or lawful money specifically deposited for the purpose of any clearing-house association, shall be deemed to be lawful money" (National Bank Act of 1864 1864, 13:109).

A former clearinghouse chairman, James Cannon, wrote in 1910 that the term "clearing-house certificates" used in the act would refer both to the certificates that clearinghouses issued in normal times, which were backed by gold, and to clearinghouse *loan* certificates that they issued in crises, which were backed by securities (Cannon 1910b).

In 1895, a Pennsylvania Supreme Court case, Philler et al. vs. Patterson, discussed the legitimacy of the Philadelphia Clearing House Association and loan certificates issued by it that were similar to the CLCs issued by the NYCH. The case seems to support the legality of CLCs generally (Philler et al. v. Patterson 1895, 482).

According to the opinion by Justice Henry W. Williams in Philler et al. vs. Patterson:

> We are unable therefore to see in what respect these banks have violated the statutes of the United States relating to national banks or have transcended the limits which these statutes have drawn about the business of banking. . . . This same method or one identical in general outline has been adopted by the banks in every great city in the United States and by many in other lands; and as far as I am aware, it has nowhere been held that the method is illegal. (Philler et al. v. Patterson 1895, 482)

Starting in 1893, some clearinghouses issued CLCs in smaller denominations and encouraged their use as currency, raising more directly the question of their legality under the National Banking Act. Timberlake (1984) cites several authors who in later decades argued that those small-denomination CLCs issued outside New York were clearly illegal (Timberlake 1984, 8).

Whether or not CLCs violated note issuance laws, banking regulators offered tacit approval of their use by not prosecuting or taxing such operations. Moreover, authorities recognized the value of CLCs in restoring banking stability during a time in which clear legal alternatives did not exist (Andrew 1908).

3. Part of a Package: The issuance of CLCs to member banks accompanied other remedial measures administered by the NYCH, individual financiers, and the Treasury.

In 1890, as in other banking crises in the National Banking Era, the NYCH suppressed weekly balance sheet reports by individual member banks and conducted special examinations of some banks' portfolios. In other crises, NYCH members partially suspended the convertibility of deposits into cash, issuing certified checks backed by the NYCH to depositors in place of cash; however, this did not occur in the crises of 1884 or 1890 (Gorton and Tallman 2016).

Special Examinations: After issuing the first round of CLCs on November 12, the NYCH introduced special examinations of three member banks in response to the unexpected closure of North River Bank, a borrowing member bank. Between November 13 and November 15, the NYCH's Clearing House Committee[5] inspected the financial health of North River Bank, Bank of North America, and Mechanics & Traders' National Bank (Gorton and

[5] The Clearing House Committee was the permanent executive committee of the NYCH holding "almost absolute power, the direction of practically the whole machinery of the [clearinghouse]" (Cannon 1910b).

Tallman 2016). In contrast to the examination of Metropolitan National Bank in 1884, the NYCH began examining banks only after each had already received CLCs (NYT 1890a; OCC 1891). Without revealing the precise details of these examinations, the Clearing House Committee published the overall results, which circulated in the *New York Times* each day after an examination; only North River Bank received a negative assessment and remained closed following the inspection (Gorton and Tallman 2016).

NYCH Member Loan Syndicates: On November 11, the day before the first issues of CLCs, distressed member banks received special settlement loans from two separate loan syndicates of financially sound members.

- One such syndicate of nine NYCH members, led by J.P. Morgan, agreed to provide loans to the Bank of North America hours before the NYCH meeting authorized CLCs (Wicker 2000, 45). The nine banks agreed to each lend $100,000 on securities to the illiquid bank to help settle its $900,000 balance at the clearinghouse (NYT 1890a). These advances were quickly redeemed when, on the same day, the NYCH issued the Bank of North American $900,000 in CLCs (NYT 1890b).

- Prior to its closure on November 12, 1890, the North River Bank found itself short of $60,000 needed to settle clearinghouse balances on November 11. Two banks, Importers and Traders' National Bank and Gallatin National Bank, each advanced $30,000 against securities to allow North River Bank to make payments. The following day, the Loan Committee approved the North River Bank's request for $95,000 in CLCs, which it used to promptly redeem the $60,000 in advances from the two banks. However, the state examiners ruled the North River Bank insolvent later that day and the bank closed indefinitely (NYT 1890b).

Treasury Intervention: During August and September 1890—months before the NYCH assisted its distressed member banks—the US Treasury responded to initial banking disturbances through significant bond redemptions. Made possible through the rare coincidence of a government surplus during financial stress, these redemptions totaled $99 million in direct liquidity support (OCC 1891). While the actions of the Treasury helped relieve the initial period of credit tightness in 1890, once these problems resurfaced in November, the bond redemptions had exhausted most of the surplus, preventing further Treasury support (Wicker 2000, 45). Wicker (2000, 44) remarks on the moral hazard involved where some "money market participants expected US Treasury support . . . and the Secretary [of Treasury] did not hesitate to acknowledge his responsibility."

4. Management: The NYCH Loan Committee managed the distribution of CLCs and valued and held collateral. If required, the Clearing House Committee conducted examinations of CLC applicants.

Similar to CLC issuance in other crises, the NYCH established a temporary Loan Committee, consisting of five members, including the chair of the clearinghouse (Gorton and Tallman 2018, 43). The NYCH authorized the Loan Committee to approve CLC requests on the basis of collateral deemed "satisfactory" to the committee (OCC 1891).

During its evaluation of a banks' CLC application and collateral offering, the Loan Committee sometimes alerted the Clearing House Committee, which could examine whether a bank had requested an exorbitant sum (NYT 1890b). Although the NYCH promised to judge applications impartially, Gorton and Tallman (2016) express uncertainty as to whether the Loan Committee used an applicant's financial condition as part of the CLC approval process.

Borrowing banks largely dictated the process of canceling a CLC by notifying the Loan Committee, which then decided the date at which interest payments would end (Cannon 1910a; Hoag 2016). The Loan Committee determined when it would stop issuing CLCs; the last issuance was on December 22, 1890 (Gorton and Tallman 2016; OCC 1891).

5. Administration: The Loan Committee issued CLCs against collateral by approving requests from member banks; banks then used CLCs to settle balances within the NYCH membership.

At the start of the crisis, the NYCH membership met to establish the temporary Loan Committee, authorize CLC issuance, set minimum haircuts, and define eligible collateral (OCC 1891). In turn, banks sent requests to the Loan Committee for a certain sum and deposited relevant collateral to be approved by the committee. In the case of 1890, the Loan Committee issued CLCs in increments of $20,000 (OCC 1891).

Most of the discretion given to the Loan Committee pertained to the approval of CLC collateral. So long as collateral satisfied the 25% minimum haircut, the Loan Committee could determine the exact quantity and quality of securities sufficient for CLC approval (NYT 1890a).

After approving CLC applications, the Loan Committee issued certificates to the requesting banks, which stipulated a fixed interest rate, paid by the borrower to an accepting member bank, which received the CLCs as temporary cash substitutes for settling balances. The NYCH emphasized the necessity for all member banks to accept CLCs from borrowing banks as a condition for membership (Cannon 1910a).

Once borrowing banks could afford redeeming CLCs in cash, borrowers typically initiated the cancellation process by informing the Loan Committee, which then announced a date on which the corresponding interest payments would cease (Hoag 2016). In the final step, the Loan Committee returned deposited collateral in the same proportion used to initially secure the CLC (Cannon 1910a).

Along with the authorization of the Loan Committee, the NYCH also passed a resolution for retirement of CLCs if the corresponding collateral appeared to be insufficient for redemption. The resolution stated that losses resulting from CLCs would be distributed across the NYCH membership in proportion to each member's share of "capital and surplus" (OCC 1891).

6. Eligible Participants: Only NYCH member banks were eligible to receive CLC issues, and solvency tests did not appear to be a condition for loan approval.

The NYCH confined CLC operations within its membership, and therefore, only member banks could request CLCs used for settling balances exclusively with other members of the association (OCC 1891). Out of the 66 NYCH member banks in 1890, 24 took out CLCs (Moen and Tallman 2013; OCC 1890). During the Panic of 1890, as compared to other panics, relatively few large national banks—only two of the six largest—borrowed any CLCs. State banks, which did not issue CLCs during 1884, were uniquely large issuers of CLCs in 1890, particularly Bank of North America and Mechanics & Traders' National Bank (Moen and Tallman 2013).

As part of the 1890 CLC program, the NYCH introduced solvency tests in the form of special examinations of vulnerable banks. The NYCH, however, did not introduce these examinations until prompted by the failure of North River Bank, a CLC borrower, on November 12 (NYT 1890a). In the subsequent days, the NYCH inspected three members including North River Bank, which was the only of the three banks to be denied additional CLC support and remained closed (Gorton and Tallman 2016).

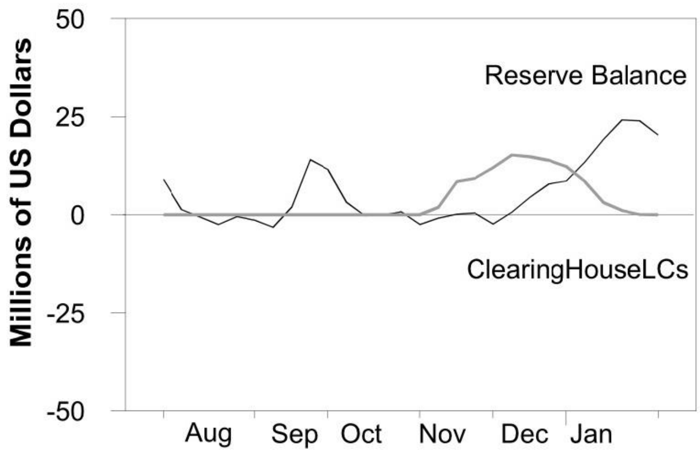
7. Funding Source: Member banks received CLCs to use as temporary substitutes for currency settlements with another NYCH member; CLCs were joint liabilities collectively shared by the membership.

NYCH member banks used CLCs only in temporary settlements with other member banks as mutually accepted currency substitutes (Moen and Tallman 2013). Although in 1890 the NYCH did not impose borrowing limits, individual members' collateral assets dictated the amount of CLCs each could borrow. While borrowing banks' deposited collateral secured each CLC, the entire membership ultimately shared the liability (Bluedorn and Anderson 2016). In this way, the repayment of each CLC was mutually guaranteed by members' cumulative cash assets (Moen and Tallman 2013). In the event of a defaulted CLC, the liquidation of the borrower's collateral might have been insufficient to repay the cash liability. As a result, members collectively repaid the liability with their currency reserves, with each paying in proportion to their share of capital and surplus reserves (Gorton and Tallman 2016; Hoag 2016).

8. Program Size: The NYCH did not provide a limit to CLC issuance when introducing the program in 1890, and CLCs outstanding peaked at $15.21 million.

Over the course of the Panic of 1890, the NYCH issued CLCs from November 12 to December 22, 1890, which totaled $16.65 million. The outstanding CLCs reached a peak of $15.21 million on December 12, 1890 (Cannon 1910a). Out of all the panics during the National Banking Era, the NYCH issued the smallest volume of CLCs in 1890 (OCC 1907). Figure 3 shows the cumulative reserve surplus of all NYCH member banks and outstanding CLCs between August 1890 and January 1891; while the Treasury intervened heavily in August and September when the surplus reserves first turned negative, the NYCH introduced CLCs in November as banking disturbances reemerged (Gorton and Tallman 2018, 47).

Figure 3: NYCH Reserve Surplus vs. Outstanding CLCs, 1890–1891



Source: Gorton and Tallman 2018, 47.

9. Individual Participation Limits: Evidenced by the large volumes of CLCs issued to select member banks, certificates did not appear to stipulate limits aside from collateral availability.

Research did not reveal any individual participation limits. If the NYCH imposed participation limits in the 1890 CLC program, they likely bore no relation to legal reserves.

Moen and Tallman draw particular attention to the large sums of CLCs the largest participants borrowed relative to their reserve currency. Of the five largest recipients of CLCs, only two banks borrowed less than their legal reserves, and their loans still made up 92% and 76% of reserves, respectively (Moen and Tallman 2013). In contrast to both the Panic of 1873 and the Panic of 1890, most of the largest borrowers in other crises took out CLCs in much smaller amounts relative to their individual cash reserves (Moen and Tallman 2013).

10. Rate Charged: The NYCH stipulated that all CLCs carry a 6% fixed annual rate in addition to a commission of 0.25% for each month certificates remained unpaid.

CLCs carried an interest rate of 6% paid by the borrowing bank to the member that accepted the certificates as temporary substitutes for currency in settlement of their mutual balance. In setting the interest rate, the NYCH stipulated a high enough interest rate to ensure the quick retirement of CLCs once banks possessed sufficient reserves (Cannon 1910a; OCC 1907). Additionally, CLC rates approximated similar rates for commercial paper (Gorton and Tallman 2016).

The CLCs issued in 1890 also included an additional 0.25% monthly fee paid to the NYCH for unredeemed certificates (OCC 1891). This type of fee had been used for some but not all CLC programs during National Banking Era panics. Research could not determine what motivated the NYCH to introduce such fees in some crises.

11. Eligible Collateral: Member banks secured CLCs using bills receivable, stocks, bonds, and other securities subject to a minimum haircut of 25%, later accepting government bonds at par.

The resolution introducing CLC issuance in 1890 described eligible collateral for securing such loans as simply "bills receivable" (OCC 1891). The 1907 annual report of the OCC stated that in 1884, 1890, and 1893, eligible collateral more broadly consisted of "bills receivable, stocks, bonds, and other securities" (OCC 1907). Regardless, the 1890 resolution, as in other crises, demanded that CLCs "not be in excess of 75 per cent of the market value" of the deposited collateral (OCC 1891); in other words, total collateral offered per CLC was subject to a minimum 25% haircut, and additional haircuts were up to the discretion of the Loan Committee (OCC 1891).

12. Loan Duration: The CLCs did not have a specific maturity and were retired at the initiative of borrowing banks; all CLCs were retired by February 7, 1891.

CLCs did not stipulate a maturity; rather, individual borrowing banks initiated the cancellation of CLCs by petitioning the Loan Committee (Cannon 1910a). The Loan Committee, however, selected the final issuing date for CLCs, which was December 22, 1890 (Gorton and Tallman 2016; OCC 1891). The outstanding issues were eventually retired by February 7, 1891 (OCC 1907).

13. Other Conditions: Research could not determine any other conditions attached to CLC issuance.

Aside from the resolution for retiring insufficiently secured CLCs—described in Key Design Decision No. 5, Administration, no further conditions were found.

14. Impact on Monetary Policy Transmission: The NYCH, as a private clearinghouse, received no public mandate for monetary policy and, therefore, did not consider monetary effects of CLC issuance.

Although CLCs did not directly create money, they reduced the need to hoard currency, thereby freeing up reserves because NYCH banks—vulnerable to runs—received immediate resources to settle payments rather than risk insolvency (Gorton and Tallman 2016). The NYCH attempted to fill the vacant role of a central bank, but the association was bound not by a public mandate for managing the monetary system but by members' clearing needs and legal constraints (Cannon 1910a; Wicker 2000, 128). As a result, the NYCH did not need to sterilize its temporary CLC issues or consider other monetary implications so long as regulators did not litigate its actions and members had ample reserves.

15. Other Options: The NYCH avoided unilateral convertibility suspensions and reserve pooling, which had been used in other panics.

In several panics during the National Banking Era, banks facing runs stopped converting demand deposits into currency, thus breaking their contracts with depositors to always honor withdrawals as long as their doors were open (Gorton and Tallman 2018, 181). In 1873, banks that suspended convertibility issued certified checks backed by the NYCH to depositors in place of cash. The NYCH's actions in the panics of 1890 and 1884 were unique from its initiatives during the other crises in the National Banking Era insofar as they avoided widespread convertibility suspension across the membership. Suspending convertibility, while illegal, allowed banks to refuse payments for demand deposits, thereby preventing deposit runs from becoming bank failures. In both 1890 and 1884, the provision of CLCs coincided with the onset of the crisis; Gorton and Tallman say that such timely liquidity assistance "alleviated the need for a suspension of convertibility" (Gorton and Tallman 2016).

16. Similar Programs in Other Countries: The NYCH's CLC issuances concurred with other loan certificates issued by the memberships of the Boston and Philadelphia clearinghouses.

In addition to the NYCH, clearinghouses in two other central reserve cities, Philadelphia and Boston, issued unique CLCs with which associated members settled intra-clearinghouse balances (OCC 1907). Compared to the NYCH's maximum of $15.21 million, CLCs outstanding peaked at $8.87 and $5.07 million for the Philadelphia and Boston clearinghouses, respectively (Cannon 1910a). Both the Philadelphia and Boston clearinghouses began issuing CLCs a week after the NYCH, on November 19, 1890, and although Boston's operations ended within a month, the Philadelphia clearinghouse's CLC issuances lasted through May 1891 (Cannon 1910a).

17. Communication: The NYCH announced the CLC program and other developments in their crisis response through regular press channels.

The NYCH approved the resolution to issue CLCs in an emergency meeting on November 11, 1890, the day before the first issues took place (OCC 1907). The NYCH did not notify the public of the emergency meeting and waited until after markets closed on November 11 to relay the results of the meeting to the press, in particular, the *New York Times* (NYT 1890a). In an article on November 12, the *New York Times* describes the NYCH's authorization of CLCs by stating that the association "had determined to provide against every possible misfortune and exigency" supported by the membership's "available assets of $95 million" (NYT 1890a). Quoted in the *New York Times*, the president of the NYCH characterizes the measures as providing "relief for the present and an assurance for the future" (NYT 1890a). The same *New York Times* article also quotes an unnamed member of the NYCH's Clearing House Committee, who proclaimed, "[T]his ends the money market trouble; loan rates will be normal now. The pinch is over" (NYT 1890a). J.P. Morgan also weighed in on the CLC plan, saying that such actions relieved any apprehensions he had about the prospects of the financial system as a result of the "considerable amount of cash" released by CLC issues (NYT 1890a).

18. Disclosure: As in other panics, the NYCH suspended publication of balance sheet information about individual banks, but unlike in other panics, it publicized the identities of CLC borrowers in 1890.

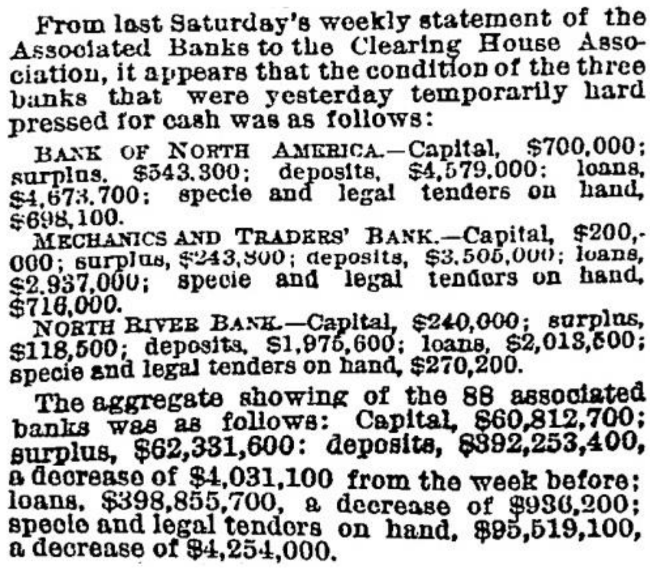
The suppression of bank statements was among the tools frequently used by the NYCH to mitigate the effects of bank panics throughout the National Banking Era (Gorton and Tallman 2016). In normal circumstances, NYCH disclosed key financial statistics of individual member banks in weekly reports often released in the press (Gorton and Tallman 2018, 38). To protect especially vulnerable banks from speculative deposit runs, the NYCH membership unliterally suppressed reports during panics. In the Panic of 1890, the NYCH ceased publishing these detailed financial statements for an extended period beginning on November 15, 1890, and ending on March 7, 1891, months after the Loan Committee stopped CLC issuance (Gorton and Tallman 2016).

Similarly, during panics, the NYCH often anonymized CLC usage, reporting borrowings in aggregate to hide the identity of recipients (Gorton and Tallman 2018, 38). In contrast to actions in other crises, during the panic of 1890, the NYCH disclosed lending data and borrower identities to the press. Following the decision to issue CLCs, the NYCH disclosed the identities of the three borrowers participating in the first round of CLCs. In the *New York Times* article discussing the roll out of CLCs, the NYCH stated the following:

> Besides Bank of North America, the North River Bank and the Mechanics & Traders' National Bank were at the beginning of the day unable to effect their exchanges, and had to be assisted in a small way by the associated banks. (NYT 1890a)

In addition to the borrowers' identities, the NYCH, in the same article, also disclosed the financial statics of the borrowers presented in Figure 4 (NYT 1890a):

Figure 4: The First Day of CLC Issuance, as Disclosed in the *New York Times*, November 12, 1890



From last Saturday's weekly statement of the Associated Banks to the Clearing House Association, it appears that the condition of the three banks that were yesterday temporarily hard pressed for cash was as follows:

BANK OF NORTH AMERICA.—Capital, $700,000; surplus, $543,300; deposits, $4,579,000; loans, $4,673,700; specie and legal tenders on hand, $698,100.

MECHANICS AND TRADERS' BANK.—Capital, $200,000; surplus, $243,800; deposits, $3,505,000; loans, $2,937,000; specie and legal tenders on hand, $716,000.

NORTH RIVER BANK.—Capital, $240,000; surplus, $118,500; deposits, $1,975,600; loans, $2,013,500; specie and legal tenders on hand, $270,200.

The aggregate showing of the 88 associated banks was as follows: Capital, $60,812,700; surplus, $62,331,600; deposits, $392,253,400, a decrease of $4,031,100 from the week before; loans, $398,855,700, a decrease of $936,200; specie and legal tenders on hand, $95,519,100, a decrease of $4,254,000.

Source: NYT 1890a.

The same article on November 12, 1890, also reported the aggregate volume of CLCs issued to the three banks, totaling $2 million (NYT 1890a). The day after the first round of CLC issues, representatives of the NYCH further revealed the amounts each of these three banks borrowed (NYT 1890b). These disclosures coincided with the failure of one of the borrowers, North River Bank (NYT 1890b).

Disclosures of sensitive information of borrowing banks appeared to undermine a mutual commitment through which all NYCH members were "honor bound not to mention the name of any banks" (NYT 1890c). Nevertheless, Gorton and Tallman (2016) offer the following explanation as to why the NYCH uniquely disclosed otherwise protected details of CLC borrowings during 1980: "without notable aggregate risk, the clearing house actions could deviate from standard routine."

19. Stigma Strategy: Due to the publication of borrowers' identities, the 1890 CLCs may have suffered disproportionately from stigma compared to CLCs issuance during other crises.

Stigma concerns surrounding CLC issuance appeared to be present, most notably in the initial rollout of certificates on November 12, 1890. Notably, the NYCH revealed identities of CLC borrowers during 1890, in contrast with the anonymized disclosures during other crises. Of the three troubled banks to receive CLCs that day, North River Bank and Mechanics & Traders' National Bank received $95,000 and $500,000 in certificates, respectively (NYT 1890b). While Mechanics & Traders' National Bank received $500,000 in CLCs as "a precautionary measure," North River Bank seemingly could have requested more CLCs but opted for a small allotment; considering that bank examiners closed North River Bank later in the day on November 12, it appeared odd for the bank to have requested such a small issuance package (NYT 1890b). As referenced in the Key Design Decision No. 18, Disclosure, the NYCH initially disclosed the aggregate CLC amount borrowed by the three banks on the first day of issues (NYT 1890a); the NYCH reported the individual borrowings only after the failure of North River Bank, the day after the bank received CLCs (NYT 1890b).

Sprague (1910, 143) additionally highlights the evidence of stigma in 1890, stating that there "seem[ed] to have been some hesitation among the banks to take out certificates from the fear that such action would have been regarded as a confession of weakness." One large bank, the Bank of Commerce, attempted to diminish this stigma perception by presenting a resolution on November 17, 1890, that commended the issuance of CLCs and encouraged banks in need to use such support measures (Sprague 1910, 143).

20. Exit Strategy: The NYCH did not set an exit strategy or date during the initial rollout of CLCs; however, the last certificates were issued on December 22, 1890.

In the November 11, 1890, announcement to authorize CLCs, the NYCH did not lay out a final issue date (NYT 1890a). Research could not determine if the NYCH provided any warning in advance of the final issuance by the Loan Committee on December 22, 1890 (Cannon 1910a). Additionally, it appears that the end of the CLC program on December 22 also coincided with a normalization of call loan rates, which had peaked at 186% and decreased to 6% days before the final CLC issues, as shown in Figure 5 (Sprague 1910, 145).

Figure 5: New York Bank Statements and Call Loan Rates, November 1–December 18, 1890

	Loans.	Reserve.	Deposits.	Surplus reserve.	Call-loan rates.
1890.					
Nov. 1	$399.8	$99.9	$396.3	$0.7	3 – 30
8	398.9	95.6	392.3	–2.6	3 – 25
15	393.3	95.8	386.6	– .8	2½– 186
22	387.3	95.5	381.7	.1	2 – 186
29	384.5	95.0	378.6	.4	2 – 8
Dec. 5	386.5	91.8	376.9	–2.4	3 – 15
11	386.0	94.8	376.7	.6	2 – 186
18	386.4	99.6	380.3	4.5	2 – 6

Source: Sprague 1910, 145.

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