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United States: New York Clearing House Association: the Crisis of 1914[1]

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Abstract

As World War I began in 1914 and European stock markets shuttered, foreign investors turned to removing gold from the United States, sparking fears of bank runs and suspension of convertibility. At the start of August 1914, the New York Clearing House Association (NYCH) again authorized the issuance of clearinghouse loan certificates (CLCs), which could be used by member banks as temporary interest-paying substitutes for money in the settlement of clearing balances. The membership of the NYCH jointly guaranteed CLCs and committed to accepting CLCs as payment during the Crisis of 1914. Unique to the Crisis of 1914, the US Treasury Department also played a significant role as a lender of last resort during 1914 through the utilization of the Aldrich-Vreeland Act to issue emergency currency. These two forms of liquidity provision helped to calm money markets and avoid a full-blown panic. The launch of the Federal Reserve also helped calm markets, although it was not operational during the acute phase of the crisis in August 1914. At peak issuance, NYCH banks had $109 million in outstanding CLCs, with all retired by the end of November 1914. This represented 5.5% of net deposits held by NYCH member banks, a sizable intervention.

Keywords: clearinghouse loan certificates, Crisis of 1914, emergency currency, New York Clearing House Association, private lender of last resort, World War I

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[1] This case study is part of the Yale Program on Financial Stability (YPFS) selection of New Bagehot Project modules considering broad-based emergency lending programs. Cases are available from the *Journal of Financial Crises* at
https://elischolar.library.yale.edu/journal-of-financial-crises/.

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Overview

As World War I spread in the summer of 1914, European stock exchanges closed and European investors sold assets on the New York Stock Exchange (NYSE), swapping the proceeds for gold (Sablik 2013; Silber 2008, 285). Since gold functioned as reserves for banks, a sudden and significant withdrawal in gold could spark fears of suspension and unleash bank runs. On August 1, the New York Clearing House Association (NYCH) reported that member banks' reserves had fallen $44 million in the previous week and were deficient by $17 million (OCC 1914). On August 3, the NYCH authorized the issuance of clearinghouse loan certificates (CLCs), as it had done in previous crises.

Member banks of the NYCH—which allowed trust companies starting in 1908 although none would join until 1911—could use CLCs as a temporary substitute for money when settling clearing balances with other members. This allowed members to defer cash payment, which would have required the costly liquidation of bank assets. Membership in the NYCH required the acceptance of CLCs as payment, punishable by expulsion from the NYCH, which would be a significant financial and credibility blow (Jacobson and Tallman 2015). The membership of the NYCH jointly guaranteed CLCs, with potential costs divided among member banks proportionately to their share of capital (Gorton and Tallman 2018, 43).

At the program's peak, member banks deposited $158 million, consisting of commercial paper, bonds and securities, and collateral loans, with the Loan Committee (OCC 1914). In return, the NYCH issued a total of $125 million in CLCs, with a peak outstanding at $109 million on September 25, 1914 (OCC 1915). CLCs carried an interest rate of 6%, in line with market pricing (OCC 1914). Eleven clearinghouses in other cities also issued CLCs, according to a US Office of the Comptroller of the Currency (OCC) survey (OCC 1915).

Key Terms

Purpose: To provide temporary liquidity to member banks of the NYCH and lessen their need to liquidate assets to settle clearing balances

Launch Dates	Announcement and issuance: August 3, 1914
Expiration Dates	Final issuance: October 15, 1914 Final cancellation: November 28, 1914
Legal Authority	Not applicable
Peak Outstanding	$109 million on September 25, 1914
Participants	Members of the NYCH, including trust companies
Rate	6% on circulating CLCs
Collateral	Commercial paper, bonds and other securities, and collateral loans
Loan Duration	Not applicable
Notable Features	Paired with Aldrich-Vreeland emergency currency
Outcomes	Panic subsided, and the Federal Reserve System began operating shortly thereafter

As in previous crises, member banks retired CLCs quickly after the crisis period subsided. In the words of *New York Times* financial editor Alexander Noyes (1916, 103), "[T]he clearing-house loan certificates disappeared automatically, as they have always done when panic has disappeared." The final cancellation of CLCs occurred on November 28, 118 days after the first issuance and 64 days after the peak outstanding in circulation (OCC 1915).

Unlike other NYCH uses of CLCs during the National Banking Era (1863-1913), the intervention in the Crisis of 1914 involved another active lender of last resort, the US Treasury Department. Under the Aldrich-Vreeland Act of 1908, the Treasury Department could authorize the issuance of additional national bank notes upon the receipt of eligible collateral. In 1914, banks utilized $386 million in emergency currency with $145 million in just New York City, outpacing the issuance of CLCs (Jacobson and Tallman 2015). See Fulmer (2022a) for a case study on emergency currency.

Summary Evaluation

The financial crisis of 1914 began with an exogenous event, rather than stresses or bubbles within the financial system. According to Jacobson and Tallman (2015), the issuance of CLCs by the NYCH proved to be helpful in alleviating the stress in the summer and fall of 1914. Specifically:

> We argue that clearing house loan certificates in 1914 [played] a secondary, but still consequential, role in forestalling financial panic . . . Clearing house loan certificates as a liquidity provision were particularly important for state banks and trust companies that did not have access to emergency currency.

Some criticism of CLCs focuses on their usage restrictions in comparison to the Aldrich-Vreeland emergency currency. For example, O.M.W. Sprague (1915) states, "[CLCs] served a useful purpose in this crisis, but fortunately the banks were not obliged to rely solely upon that imperfect device." CLCs did not grant member banks the ability to meet external obligations such as depositor withdrawals, but rather to "defer cash settlements" with other member banks (Sprague 1915). With the official introduction of the Federal Reserve during the later stage of the Crisis of 1914, the need for a private lender of last resort such as the NYCH began to disappear.

Context: New York Clearing House 1914–1915	
Total net deposits for New York City banks	$1.25 billion in 1914
Capital of NYCH membership	$175.3 million in 1914 $178.6 million in 1915
New York banks average reserves	25.37% million in 1914
Number of members in the NYCH	61 in 1914 61 in 1915
NYCH clearing transactions (annual)	$89.8 billion in 1914 $90.8 billion in 1915
Ratio of peak outstanding CLC issuance to net deposits of NYCH membership	5.5%
Sources: OCC 1914; OCC 1915.	

Key Design Decisions

1. **Purpose: The NYCH authorized the issuance of CLCs, following the onset of the First World War and the damaging gold outflows from the United States, to prevent a further erosion of bank reserves.**

As the First World War approached in 1914, European stock markets closed and investors turned to the United States, and the New York Stock Exchange in particular, to provide liquidity (Sablik 2013). These investors could liquidate their holdings rapidly and exchange the dollars for gold, which had a fixed value under the gold standard (Silber 2007). Depository institutions feared that outflows of gold, considered bank reserves, could spark bank runs within the United States. Although many of the same bankers had lived through the gold outflows of the Panic of 1907, the Crisis of 1914 would double that previous crisis in magnitude of gold outflows (Silber 2008, 72). On August 1, the NYCH statement showed that member banks' reserves had fallen by almost $44 million in the previous week, with a deficiency of $17 million (OCC 1914).

During previous crises in the National Banking Era, the NYCH typically issued clearinghouse loan certificates to member banks as a form of temporary liquidity to settle clearing balances in order to prevent a mass liquidation of call loans, which would have had deleterious knock-on effects for the stock market. However, Sprague (1915) notes that this order reversed during 1914. To halt the gold flows out of the country, Treasury Secretary William McAdoo requested that the NYSE close on July 31; it did and remained closed for stock trading until December 12 (Sablik 2013). As a result, member banks could not liquidate call loans on the stock market to raise cash (Sprague 1915). Therefore, CLCs were an essential form of alternative liquidity.

On August 2, Secretary McAdoo met with the NYCH membership and stated that the issuance of CLCs by the NYCH was essential for maintaining the gold supply of the United States. The next day, the NYCH voted to authorize the issuance of CLCs (*NYT* 1914c). Specifically, the resolution stated that "every means should be adopted to protect the gold supply . . . and it was, therefore, voted that at the present time the Clearing-House Association be placed upon a certificate basis" (*CFC* 1914).

Although the Federal Reserve Act had been signed in 1913, the Federal Reserve System was not operational at the time of the crisis outbreak at the start of August, with nominations to the board held up in Congress. The full contingent of members on the Federal Reserve Board was not sworn in until August 10, 1914, and the reserve banks did not open until November (Silber 2008, 120). As a result, the New York Clearing House Association and the Department of the Treasury had to take the initiative to support the banking sector. However, two Senate-confirmed members of the Federal Reserve Board joined McAdoo at the August 2 meeting with bankers, although the *New York Times* article covering this meeting does not provide further detail on their involvement at said meeting (*NYT* 1914b).

2. Legal Authority: The NYCH could issue CLCs as a private institution as long as they did not circulate outside its membership.

As a private institution, the NYCH had the ability to issue CLCs. However, it was legally necessary for the CLCs to circulate only within the membership. If CLCs could be used outside the NYCH, they risked becoming state bank notes, which bore a 10% tax as a legislative way to eliminate their existence (Jacobson and Tallman 2015).

The NYCH issued CLCs in multiple other crises throughout the National Banking Era for half a century without any significant legal questions from the Office of the Comptroller of the Currency. This precedent formed essentially an implicit approval of the practice, as the OCC dedicated entire sections of its annual report to detailing the issuance of CLCs in crisis periods, without mentioning that they were an illicit action. See Fulmer (2022c) for a detailed overview of the NYCH.

3. Part of a Package: The Department of the Treasury issued $386 million in Aldrich-Vreeland emergency currency, which some members of the NYCH could access; as in previous crises, the NYCH suppressed information about individual bank balance sheets.

After the Panic of 1907, Congress passed the Aldrich-Vreeland Act of 1908, which allowed the Treasury Department to issue up to $500 million in "emergency currency" to national banks as a lender of last resort (Sablik 2013). In addition to US bonds, national banks could, if approved by the Treasury secretary during an emergency, deposit privately issued securities with national currency associations and receive national bank notes in return, increasing their cash supply (Jacobson and Tallman 2015). National banks typically requested both emergency currency and CLCs, depending on their membership status in the Federal Reserve System and the NYCH. Though all depository institutions could join the Federal Reserve System, many state banks and trust companies refused to join due to its associated costs and therefore had access only to CLCs. In total, about $386 million in emergency currency was issued in the United States, with $145 million in New York City alone (Jacobson and Tallman 2015). While a contemporary newspaper reported that the NYCH allowed emergency currency to be used in clearing balances, Jacobson and Tallman (2015) cast doubt on this claim in practice and state that emergency currency was not used to settle clearing balances (*CFC* 1914).[3] See Fulmer (2022a) for a separate case study analyzing the Aldrich-Vreeland notes.

Interestingly, some members of the Clearing House Committee, an executive standing committee of the NYCH, also served on the Executive Committee of the New York national currency association, which issued the emergency currency previously discussed. Furthermore, the meetings of both committees took place in adjoining rooms, seemingly at the NYCH. This required these bankers to divide their time between CLC and emergency currency issuance deliberations, which implies a possibly high level of coordination (*NYT*

[3] The NYCH never allowed national bank notes to be used to settle clearing balances. Emergency currency was national bank notes with a looser collateral policy, which Jacobson and Tallman (2015) believe implies that the NYCH would not have accepted emergency currency.

1914c). Since this was the first usage of emergency currency, it likely required more intensive administrative work to issue emergency currency than CLCs, which had become a common crisis tool for the NYCH.

The nascent Federal Reserve also worked to alleviate the pressure on banks' reserves, albeit not until after the acute phase of the crisis occurred in August 1914. It organized a pool of banks across the country to buy $108 million worth of gold in September, allotting the resulting contributions to each clearinghouse district, and a $135 million cotton pool in October (Fed 1915a; Sprague 1915). Also, a provision in the Federal Reserve Act that took effect on November 16, on the establishment of the reserve banks, lowered member banks' reserve requirements. The change in reserve requirements released "a very considerable amount of funds which had previously had to be held idle by the banks in order to bring or keep themselves within the requirements of the law," according to the Fed's first annual report (Fed 1915a). Sprague (1915) says that the Federal Reserve's actions were "the most promising indications of the service which may be expected from the federal reserve banking system in future emergencies." It seems likely that CLCs and emergency currency served to prevent bank runs, while the Federal Reserve's early programs focused instead on restoring normal market conditions.

As in previous crises, the NYCH suppressed the release of individual bank balance sheets to disincentivize bank runs against weaker member banks. This lasted from August 1, 1914, to December 5, 1914 (Jacobson and Tallman 2015).

4. Management: The NYCH appointed a Loan Committee to manage the issuance of CLCs and the deposited collateral.

The NYCH executive committee met all day on August 2 and scheduled a vote for the next day to authorize the issuance of CLCs (Silber 2008, 73). The NYCH appointed a Loan Committee of five bankers that assessed the value of collateral deposited with the NYCH in exchange for the issuance of CLCs (*NYT* 1914c). This committee met and issued CLCs on a daily basis.

5. Administration: The Loan Committee issued CLCs, and member banks were required to accept them as temporary payment for settling clearing balances.

Member banks of the NYCH could request the issuance of CLCs from the Loan Committee dependent on their deposits of eligible collateral. Other member banks were required to accept CLCs as a temporary substitute for specie and legal tender payment for settling clearing balances between members. Refusing to accept a CLC could result in expulsion from the NCYH, which would have had significant consequences for the offending bank. Although CLCs could be used only to settle clearing balances, this freed up other funds for continued lending and limited the banks' need to liquidate assets (Jacobson and Tallman 2015). See Fulmer (2022c) for a deeper discussion of NYCH administration of CLCs.

When the NYCH issued CLCs to member banks, they were not charged an interest rate until they presented the CLCs to another member as substitute for payment. Therefore, member banks could borrow CLCs as a preventative measure and retire them if never needed, and thus avoid incurring the interest rate. During 1914, member banks circulated about 88% of the total NYCH-issued CLCs, implying that many member banks did use their issued CLCs. Jacobson and Tallman (2015) note that there is no information on how long these CLCs circulated, which could have been a matter of days rather than weeks. During the first day of issuance, a news report cited that the clearing balances (about $21 million) were "largely paid in certificates," although a "considerable part also was settled by the usual means" (*NYT* 1914c).

Notably, the NYCH's previous experience providing CLCs during crises is positively mentioned in the news media in the first days of the crisis. On August 4 (the day after World War I erupted), a news report stated that the response of the NYCH to the crisis at hand vastly outpaced that of the Treasury Department. Specifically, the process of issuing CLCs "had become familiar to the bankers in [the Panic of] 1907" (*NYT* 1914c). As a result, member banks were already using CLCs on the first day of authorization for settling clearing balances, while the emergency currency had not been issued yet. This indicates a positive benefit to the institutional crisis-fighting knowledge and experience held by the NYCH. Furthermore, the *New York Times* explicitly made the comparison between the NYCH's prompt action and the Treasury Department's slower rollout of relief through emergency currency (*NYT* 1914c).

6. Eligible Participants: Only the membership of the NYCH could access CLCs, which included national banks, state banks, and trust companies.

The NYCH issued CLCs only to the 61 member banks during the Crisis of 1914 (OCC 1915). These member banks included national banks, state banks, and trust companies (Jacobson and Tallman 2015). Although the NYCH allowed trust companies to join the membership in 1908, no trust companies were members in the NYCH until 1911 (Cannon 1910; Sprague 1915). If CLCs were issued or used outside the membership, they could qualify as state bank notes, which were penalized by a 10% tax (Jacobson and Tallman 2015).

Of the membership, 44 of the 61, or 72%, of the member banks requested CLCs (OCC 1915). National banks took out 60% of the CLCs issued in 1914, trust companies took out under 30%, and state banks received only 10% of the issuance (Jacobson and Tallman 2015).

When the crisis began, Congress passed an amendment to the Aldrich-Vreeland Act that allowed state banks and trust companies access to the emergency currency that national banks could utilize as an additional liquidity source. However, this amendment required state banks and trust companies to join the Federal Reserve System, which carried significant costs (Jacobson and Tallman 2015). Many of these institutions turned down joining the Federal Reserve System, and CLCs became their only possible source of liquidity provision (Jacobson and Tallman 2015). Only 17 trust companies and state banks joined the Federal Reserve System by May 1915, compared to 7,605 national banks (Fed 1915b).

7. Funding Source: The NYCH membership jointly guaranteed the payment of CLCs.

The entire membership of the NYCH funded the issuance of CLCs. If a borrowing bank failed to pay back its CLCs, the membership of the NYCH assumed the cost, proportionately to the individual bank's share of capital (Gorton and Tallman 2018, 43). Therefore, CLCs were jointly guaranteed by the NYCH. See the Fulmer (2022c) for a more detailed discussion of CLCs and their conditions.

8. Program Size: The NYCH issued about $125 million in CLCs in total, which equated to about 6% of the membership's net deposits.

The NYCH did not announce or predetermine an overall CLC issuance size when approving the action, unlike in previous crises such as the Panic of 1873 (Fulmer 2022b). In total, the NYCH issued almost $125 million in CLCs during the Crisis of 1914, with a peak outstanding of $109 million on September 25. This peak translated to 5.5% of total net deposits of clearinghouse member banks at the time. See Figure 1 for more scale comparisons of CLC issuance. All these comparisons are lesser than the NYCH's response to the Panic of 1907, likely as a result of the existence of the emergency currency as an alternative source of liquidity (OCC 1915).[4]

Figure 1: Comparison of CLC Issuance to Total Net Deposits, and Capital and Net Profits

	Compared with peak outstanding CLCs
Percent of total net deposits of member banks	5.5%
Percent of capital and net profits	22.9%

Source: OCC 1915.

The NYCH issued 3,128 CLCs during 1914, ranging in denominations from $5,000 to $100,000 (OCC 1915). See Figure 2 for a full breakdown of issuances during 1914.

Figure 2: Breakdown of CLC Issuance by Denomination

Denomination	Total issued	Aggregate value
$100,000	605	$60,500,000
$50,000	734	$36,700,000
$20,000	971	$19,420,000
$10,000	797	$7,970,000
$5,000	21	$105,000
	Total	$124,695,000

Source: OCC 1915.

[4] See Runkel (2022) for a Panic of 1907 case study.

9. Individual Participation Limits: It is unlikely that the NYCH implemented individual participation limits beyond member banks' eligible collateral.

No documents suggest that the NYCH limited individual levels of borrowing beyond member banks' eligible collateral.

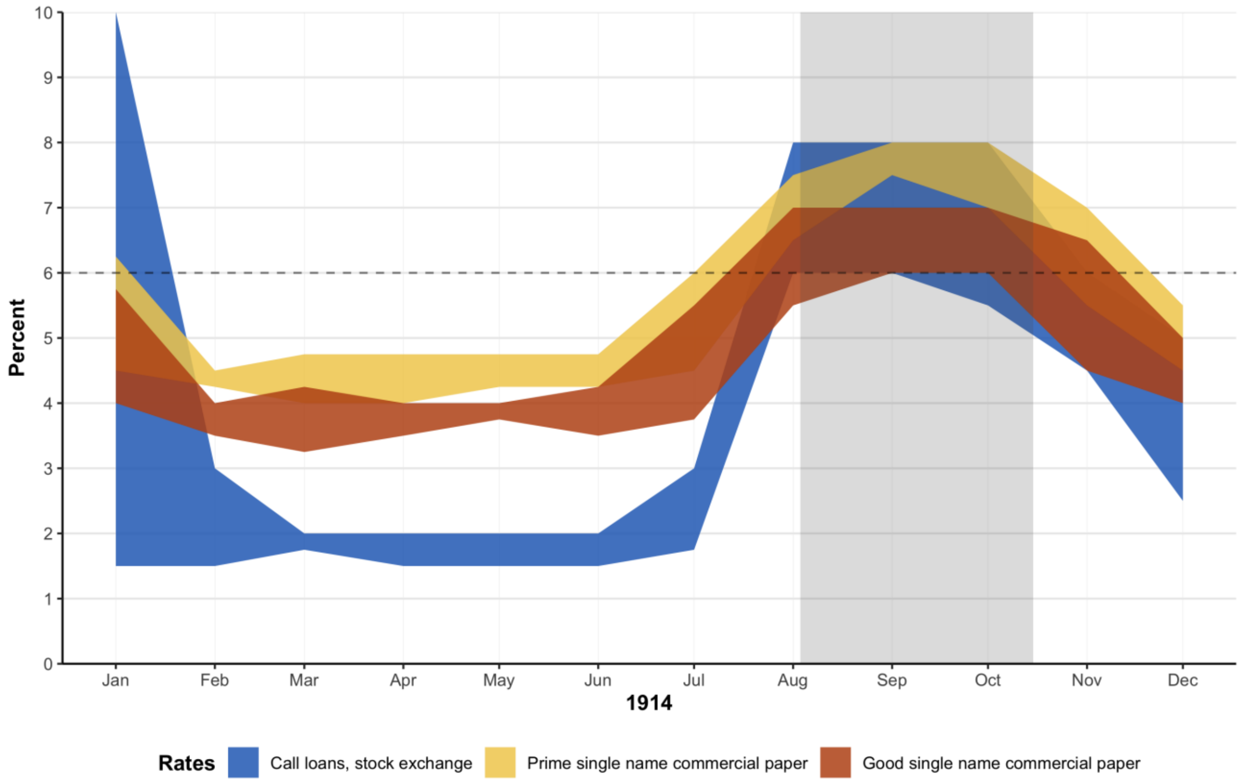
10. Rate Charged: The NYCH set an interest rate of 6%, which was in line with market rates but much higher than the 3% charged initially on emergency currency.

Borrowing member banks paid an interest rate of 6% on accepted CLCs. Over the crisis, borrowing banks paid almost $1.5 million in interest (OCC 1915).

In August and September 1914 while the stock exchange was closed, call loans ranged from 6% to 8%, with an average between 6% and 6.125%. However, the OCC noted that some banks in New York charged rates as high as 10% during these two months at the height of the crisis. As for commercial paper, rates ranged from 5.5% to 8%, depending on the quality and length of maturity (OCC 1914). This would seem to indicate that the 6% rate charged on CLCs did not function as a penalty rate but was rather in line with market prices. See Figure 3 for a visualization of market rates during the Crisis of 1914.

On the other hand, the rate charged on Aldrich-Vreeland notes was only 3% for the first three months before rising to 6%. Theoretically, this disparity in interest rates should have led banks eligible for both CLCs and emergency currency to only borrow in emergency currency, since both could be used to settle clearing balances (*CFC* 1914; Jacobson and Tallman 2015). However, research by Jacobson and Tallman (2015) determined that national banks in the NYCH took out significant amounts of both CLCs and emergency currency, which would indicate that there were certain benefits to borrowing CLCs that outweighed their higher cost. Additionally, it was not the case that national banks borrowed up to their limit in emergency currency, before turning to CLCs as a last resort. See Fulmer (2022a) for a study of emergency currency during 1914.

Figure 3: Range of Monthly Market Rates for Money in New York City throughout 1914



Note: Shaded gray column represents the period in which the NYCH issued CLCs. The dotted horizontal line shows the 6% rate charged on CLCs.

Source: Author's creation (OCC 1914; OCC 1915).

11. Eligible Collateral: The NYCH accepted commercial paper, bonds and other securities, and collateral loans as eligible collateral.

According to the resolution authorizing the NYCH to issue CLCs during the Crisis of 1914, member banks could deposit "bills receivable and other securities to be approved of by the [NYCH Loan Committee]" (OCC 1915). Additionally, the resolution states that the collateral deposited at the NYCH should receive a haircut of at least 25%. The NYCH had a general rule of implementing smaller haircuts on Treasuries and government bonds, but Jacobson and Tallman (2015) state that these assets were rarely used as collateral for CLCs. The Loan Committee had the ability to ask borrowing banks to substitute their collateral if it was maturing or insufficient for their CLC request (Gorton and Tallman 2018, 44).

New York banks deposited about $462 million in total collateral, with the peak amount deposited closer to $158 million. Of this total, the collateral breakdown was 50.7% ($234 million) in "commercial paper," 35.5% ($164 million) in "bonds and securities," and 13.8% ($64 million) in "collateral loans" (OCC 1914). At the peak of outstanding CLCs ($109 million), member banks had deposited $158 million in collateral, implying an overall haircut of 31% (OCC 1915).

12. Loan Duration: It is unclear if CLCs contained a set maturity or term.

According to Cannon (1910), borrowing banks retired their CLCs as soon as they were able to settle their clearing balances without the need for CLCs. Since the CLC operations conducted by the NYCH were mutually approved, it seems that there was no need to set a maturity for them. However, Gorton and Mullineaux (1987) mention that, in general, CLCs contained a "fixed maturity of, typically, one to three months."

13. Other Conditions: CLCs could be used only within the NYCH membership to settle clearing balances.

As in previous crises, CLCs could be used by member banks only to settle clearing balances with other member banks. They could not circulate outside the membership or serve as a general substitute for cash payments (Jacobson and Tallman 2015).

14. Impact on Monetary Policy Transmission: Although the NYCH was a private institution that reallocated liquidity amongst its members, the combination of CLCs and emergency currency effectively resulted in a money supply increase.

Jacobson and Tallman (2015) demonstrate that, in previous crises, the issuance of CLCs failed to increase the money supply. However, the combination of emergency currency and CLCs managed to create a "composite good that was a more complete substitute for legal tender money" (Jacobson and Tallman 2015). As a result, the NYCH's actions during the Crisis of 1914 likely resulted in an expansion of the money supply. Although each form of payment is an imperfect substitute for legal tender, it appears that the combination of the two served a complementary purpose and allowed the money supply to grow despite the lack of a central bank and the presence of the gold standard.

15. Other Options: The NYCH did not utilize reserve pooling, a tool last used in the Panic of 1873; individual direct loans, as in 1907; or widespread suspension of convertibility.

During the Panic of 1873, the NYCH implemented reserve pooling, transforming individual bank reserves into a collective pool (Fulmer 2022b). However, the NYCH did not implement this option for crises after the Panic of 1873. Previously, in 1907, the NYCH approved individual direct loans to three member banks to stabilize them prior to the issuance of CLCs. While these loans helped the individual banks recover from the crisis, they did not seem to have a wider effect on the market (Runkel 2022). Research did not uncover any individual loans to member banks in 1914.

Although it did so in previous crises, the NYCH seemingly did not implement any widespread form of suspension of convertibility in 1914 (Jacobson and Tallman 2015). That is, as a whole, the membership did not actively restrict withdrawals by depositors in New York City.

16. Similar Programs in Other Countries: Other clearinghouses in the United States issued $87.1 million in CLCs during the Crisis of 1914.

In total, 12 clearinghouses in the United States out of the 100 contacted by the OCC issued CLCs during 1914. These clearinghouses issued in aggregate about $212 million in CLCs, with a peak outstanding of $196 million (OCC 1915). Therefore, the NYCH issued 58%, or $124.7 million, of the total CLCs provided by clearinghouses during the Crisis of 1914. According to the Fed's first annual report, country banks (those outside New York City) hoarded cash, which limited the ability to respond to the crisis (Fed 1915a). As a result, it is likely that liquidity was tighter outside New York City.

17. Communication: The NYCH publicized its authorization of CLC issuance in newspapers.

Because the authorization of CLCs was a measure intended to forestall depositor runs by projecting confidence and action, the NYCH publicized its decision to issue CLCs during crises. Although the front pages of the newspapers were occupied by declarations of war, the first non-war-related articles typically covered the temporary liquidity measures of the NYCH and the Treasury Department (*NYT* 1914a; *NYT* 1914b; *NYT* 1914c; *NYT* 1914d).

18. Disclosure: The NYCH did not publish individual bank usage of CLCs or member bank balance sheets during the Crisis of 1914, to protect its weaker members.

During banking panics, the NYCH customarily suspended the weekly publication of individual member bank balance sheets, so as to not expose weaker member banks to depositor runs. The NYCH reported only data aggregated among all NYCH members from August 1 to December 5 (Jacobson and Tallman 2015). Although the NYCH publicized its authorization of CLC issuance, the *New York Times* specifically noted that the NYCH refused to announce the issuance amount on the first date (*NYT* 1914c). It is unclear if the NYCH later published aggregate amounts of CLC issuance.

19. Stigma Strategy: The NYCH likely did not need a stigma strategy for CLCs as their issuance was a mutually agreed upon strategy with no public disclosure of individual participation.

Because the issuance of CLCs was mutually agreed upon by the entire membership of the NYCH and individual usage was not published, it would be highly unlikely that the borrowing of CLCs would face serious stigma concerns. Member banks borrowed and circulated CLCs in large quantities, probably due to the fact that it was their choice to authorize the program.

20. Exit Strategy: The NYCH had a procedure by which member banks could retire their CLCs, which wrapped up on November 28, 1914.

Cannon (1910) provides a general overview of how the CLC cancellation process occurred prior to the Crisis of 1914. It is likely that the same process was followed in 1914. First, borrowing banks informed the Loan Committee of the NYCH that they wished to cancel some of their CLCs. The Loan Committee then informed the lending banks of this intention to retire the CLCs and set a specified date at which interest would stop accumulating. The lending banks sent the CLCs back to the Loan Committee for redemption, and the Loan Committee released the deposited collateral back to the borrowing banks (Cannon 1910).

The NYCH canceled the first and last CLCs on August 26 and November 28, 1914, respectively. One hundred eighteen days passed in between the NYCH's first issuance and the final cancellation (OCC 1915). The New York Stock Exchange reopened for limited bond trading on November 28 and stock trading on December 12 (Sprague 1915).

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