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Clearinghouse loan certificates as a lender of last resort☆

Christopher Hoag*

Department of Economics, Trinity College, USA

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ABSTRACT

Looking across multiple panics of the nineteenth and twentieth centuries, this paper treats borrowing of clearinghouse loan certificates as borrowing from a lender of last resort. We evaluate individual bank use of clearinghouse loan certificates in New York City using bank balance sheet data. Bank capital ratios do not predict positive net borrowing. Lower pre-panic reserve ratios increased the probability of positive net borrowing of loan certificates. Bank borrowing behavior from a lender of last resort remained relatively constant across all three crises considered.

1. Introduction

Which banks borrow from a lender of last resort? With individual bank data on which banks borrow from a lender of last resort, we can evaluate questions about how to design central bank institutions. For example, banks could be reluctant to borrow from a lender of last resort (Peristiani, 1998), so that weaker banks with lower capital/asset ratios fear potential stigma of borrowing and are less likely to take advantage of lender of last resort facilities. In this scenario, perhaps the central bank should find ways to decrease the stigma of borrowing. Alternately, less liquid banks might borrow more from a lender of last resort during panics. In this case, perhaps the central bank should employ measures to improve bank liquidity. Do banks with stronger interbank deposit connections to other banks find themselves borrowing more from a lender of last resort? Large money center banks might be compelled to borrow from a lender of last resort when financial stress causes correspondent banks to draw down deposits on money centers. If so, perhaps the central bank should establish incentives such as increased capital charges for highly interconnected banks to disentangle themselves from other financial institutions.

The most recent financial crisis that took place during the Great Recession of 2007–9 sparked a resurgence of interest in how banks respond to offers of liquidity from a lender of last resort during financial crises. However, this particular recent event only represents one data point. Individual actions or particular institutional features may play an outsize role in influencing the lessons drawn from one episode. Occasionally, historians of financial crises are accused of focusing on the special historical circumstances of each panic and treating each panic as being different. Instead, we could examine multiple crises simultaneously to look for common themes in behavior across panics. Borrowing from a lender of last resort during a financial crisis should exhibit regularities across crises or else the case study method of each crisis as an individual event would be the best way to understand behavior during financial crises.

This paper takes advantage of abundant panics during the late nineteenth and early twentieth century to examine multiple crises

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* Address: Trinity College, 300 Summit Street, Hartford, CT 06106, USA.
E-mail address: Christopher.Hoag@trincoll.edu.

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simultaneously. For the most part, previous investigations of lender of last resort behavior consider one crisis at a time. A few exceptions consider multiple panics. For example, Gorton (1988), Donaldson (1992), and Hanes and Rhode (2013) evaluate time series models of macroeconomic variables during National Bank Era (1863–1913) crises but not individual bank behavior. Other exceptions consider multiple panics but do not involve econometrics, such as Bordo (1990), Calomiris and Gorton (1991), and Moen and Tallman (2015). Because we have access to data from multiple financial crises, we can consider bank behavior across crises: we should observe regularities in borrowing from a lender of last resort regardless of the particular historical events that surround each crisis. Further, because financial crises occurred in the nineteenth century at a relatively high frequency, we can consider behavior across crises without substantial variation in the organization of financial markets. The historical data have the advantage that the three crises considered occur within a generation, so that institutional structures remain similar over this period.

Instead of looking at modern data, this paper focuses on a pre-Federal Reserve version of a lender of last resort, clearinghouse loan certificates. This paper examines the borrowing of clearinghouse loan certificates across three crises, the panics of 1884, 1893, and 1907 in the financial center of New York City. Before the founding of the Federal Reserve, the New York Clearing House permitted member banks to borrow clearinghouse loan certificates on security collateral and substitute the loan certificates in place of reserves for payment in the daily clearings. These loan certificates resemble borrowing from a lender of last resort, and we can predict individual bank net borrowing of loan certificates using bank balance sheets.

Using a two-part or hurdle model, regression results indicate that banks with lower pre-panic reserve ratios were more likely to elect to borrow more loan certificates than they lent. The capital/asset ratio did not influence the decision to borrow net positive amounts of loan certificates. Further, large banks did not net borrow larger amounts of clearinghouse loan certificates per dollar of assets. The results present some evidence that the connectedness of the banks to correspondent networks did influence the decision to borrow loan certificates, though these results are strongest for 1907. In addition, banks respond roughly similarly across crises. The key coefficients from the econometric analysis are stable across crises, so bank behavior remains similar even when the historical circumstances of individual crises may vary.

2. Literature review

The most recent financial crisis led to increased opportunities to study borrowing from a lender of last resort at the individual bank level. Armantier, Ghysels, Sarkar, and Shrader (2015) describe which banks paid higher funding costs by borrowing through the Term Auction Facility (TAF) rather than through the Federal Reserve discount window to avoid stigma. Foreign banks and banks outside New York were willing to pay more to avoid borrowing from the discount window, and there is some evidence that weaker banks (as measured by quasi-market value of leverage) might be willing to pay more to borrow from the TAF alternative to the discount window. Acharya, Fleming, Hrung, and Sarkar (2014) show that weaker financial institutions (as measured by a more negative equity return and higher leverage) were more likely to borrow and borrowed greater amounts from the Primary Dealer Credit Facility (PDCF) and the Term Securities Lending Facility (TSLF). Turning to Europe, Drechsler, Drechsel, Marques-Ibanez, and Schnabl (2016) document how European banks with lower pre-crisis credit ratings borrowed more from the European Central Bank. Specifically in Germany, Fecht, Nyborg, Rocholl, and Woschitz (2016) argue that larger banks and banks with lower equity ratios also borrowed more. However, we should not necessarily presume that behavior in subsequent crises will mimic behavior in this one particular crisis of 2008–9, and for this reason it could be profitable to consider other lender of last resort borrowing behavior.

Outside of the most recent financial crisis, only a few papers consider empirical evaluation of borrowing from a lender of last resort on an individual bank basis. Peristiani (1994) describes how individual bank borrowing from the discount window responded to the discount rate-federal funds spread during the 1970s and 1980s. Peristiani (1998) shows that individual banks with lower capital/asset ratios and lower S&P ratings decided to borrow from the discount window less frequently during the 1980s, meaning that banks were "reluctant to borrow" from a lender of last resort. Using only aggregate data, Butkiewicz (1995) demonstrates that the Reconstruction Finance Corporation (RFC) slowed the rate of bank failures during the Great Depresssion. Mason (2001) argues that preferred stock purchases and not loans from the RFC improved bank survival rates. Calomiris, Mason, Weidenmier and Bobruff (2013) also find that RFC preferred stock purchases improved survival rates in Michigan. Okazaki (2007) considers which banks obtained accounts with the Bank of Japan during the 1920s and 1930s and finds that larger, better performing banks were more likely to obtain special loans from the Bank of Japan. Hoag (2012b) considers borrowing from a federal program, Aldrich-Vreeland certificates during the panic of 1914, which was modeled on clearinghouse loan certificates. Banks with lower capital to asset ratios were more likely to take out Aldrich-Vreeland certificates, contrasting with the reluctance to borrow phenomenon. However, banks with lower reserve ratios before the crisis borrowed greater amounts of emergency currency.

Several previous papers consider the specific example of clearinghouse loan certificates. Loan certificates might not be considered exactly a lender of last resort because they did not expand the monetary base. However, loan certificates allowed member banks to delay paying reserves to other banks during crisis conditions, so we can consider clearinghouse loan certificates as very similar to borrowing from a lender of last resort, even if loan certificates did not function in exactly the same way as borrowing from a central bank. Hoag (2012a) examines net borrowing of clearinghouse loan certificates in New York during the panic of 1893. After the crisis of 1873, New York Clearing House member banks ceased to pool their reserves and use them collectively to fight crises. One possible explanation advanced for the discontinuation of such a high level of cooperation was moral hazard, where safer banks with more conservative balance sheets resented providing reserves to risky banks who reaped profits during ordinary times but required assistance during crises. Pre-panic risk factors do not explain net borrowing, suggesting that moral hazard considerations did not drive loan certificate net borrowing. Tallman and Moen (2012) consider the issuance of loan certificates in 1907 and argue that the six largest national banks attempted to serve as a lender of last resort by providing liquidity to the system. For these six banks, gross