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Bank lending during the financial crisis of 2008 ☆

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Abstract

This paper shows that new loans to large borrowers fell by 47% during the peak period of the financial crisis (fourth quarter of 2008) relative to the prior quarter and by 79% relative to the peak of the credit boom (second quarter of 2007). New lending for real investment (such as working capital and capital expenditures) fell by only 14% in the last quarter of 2008, but contracted nearly as much as new lending for restructuring (LBOs, M&As, share repurchases) relative to the peak of the credit boom. After the failure of Lehman Brothers in September 2008, there was a run by short-term bank creditors, making it difficult for banks to roll over their short term debt. We find that there was a simultaneous run by borrowers who drew down their credit lines, leading to a spike in commercial and industrial loans reported on bank balance sheets. We examine whether these two stresses on bank liquidity led them to cut lending. In particular, we show that banks cut their lending less if they had better access to deposit financing and thus, they were not as reliant on short-term debt. We also show that banks that were more vulnerable to credit-line drawdowns because they co-syndicated more of their credit lines with Lehman Brothers reduced their lending to a greater extent.

Introduction

The banking panic in the fall of 2008 threw economies around the world into severe recession. The seeds of this panic were sown in the credit boom that peaked in mid-2007, followed by the meltdown of subprime mortgages and all types of securitized products. This meltdown, in turn, raised concerns about the solvency and liquidity of financial institutions, becoming a full-blown banking panic following the failures of Lehman Brothers and Washington Mutual, and government takeovers of Fannie Mae, Freddie Mac, and AIG. Although the panic subsided in the first half of October after a variety of government actions to promote the liquidity and solvency of the financial sector, the prices of most asset classes and commodities fell drastically, the cost of corporate and bank borrowing rose substantially, and financial market volatility rose to levels that have rarely, if ever, been seen.

The goal of this paper is to understand the effect of the banking panic on the supply of credit to the corporate sector. Towards this end, we examine data on syndicated loans—bank loans in which a lead bank "originates" a loan and lines up other financial institutions to share a portion of the loan. This market has evolved over the last 30 years as the main vehicle through which banks lend to large corporations. Importantly, it also includes other non-bank financial institutions—investment banks such as Goldman Sachs and finance companies such as GE Capital—as well as institutional investors such as collateralized loan obligations (CLOs), hedge funds, mutual funds, insurance companies, and pension funds. Thus, the syndicated loan market is part of the "shadow banking" system that has developed over the last three decades (Gorton, 2009).

We begin by showing that syndicated lending started to fall in mid-2007, with the fall accelerating during the banking panic that began in September 2008. Lending volume in the fourth quarter of 2008 (2008:Q4) was 47% lower than it was in the prior quarter and 79% lower than at the peak of the credit boom (2007:Q2). Lending fell across all types of loans: investment grade and non-investment grade; term loans and credit lines; and those used for corporate restructuring as well as those used for general corporate purposes and working capital.

While syndicated lending fell, commercial and industrial (C&I) loans reported on the aggregate balance sheet of the U.S. banking sector actually rose by about $100 billion from September to mid-October 2008, from a base of about $1.5 trillion (Chari, Christiano, and Kehoe, 2008). However, we show that this increase was not driven by an increase in new loans, but rather by an increase in drawdowns by corporate borrowers on *existing* credit lines (prior commitments by banks to lend to corporations at prespecified rates and up to prespecified limits). From news accounts alone, we are able to record $26.8 billion of credit-line drawdowns, which accounts for approximately 25% of the increase in C&I loans reported on bank balance sheets. In almost all instances, firms state that they drew on their credit lines to ensure that they had access to funds at a time when there was widespread concern about the solvency and liquidity of the banking sector. For example, Dana Corporation, a large vehicle parts manufacturer, describes its decision to draw on its credit line as "Ensuring access to our liquidity to the fullest extent possible at a time of ambiguity in the capital markets."[1]

These credit-line drawdowns were part of the "run" on banks that occurred at the height of the crisis. Unlike old-style bank runs, instigated by uninsured depositors when there was no deposit insurance, this bank run was instigated by short-term creditors, counterparties, and borrowers who were concerned about the liquidity and solvency of the banking sector.[2] Unsecured commercial paper holders refused to roll over their debt, while repo lenders and trading counterparties required more collateral to back their loans and trades, all of which drained liquidity from the system (Brunnermeier, 2009; Gorton, 2009). Borrowers who drew on their credit lines were also part of this run and also reduced the liquidity of the banking sector.

This paper examines the effect of this bank run on lending. Towards this end, we exploit variation in the structure of banks' liabilities to identify banks that were more vulnerable to the run. We focus on two factors: the extent to which a bank is financed by short-term debt rather than insured deposits, and its exposure to credit-line drawdowns.

We first establish that banks with more deposit financing cut their syndicated lending by less than did banks without as much access to this, more stable, source of funding. A bank with the median deposits-to-assets ratio reduced its monthly number of loan originations by 36% in the period between August and December of 2008, relative to the prior year. However, a bank with a deposits-to-assets ratio one standard deviation below the mean reduced its loan originations by 49%, while a bank with deposits ratio one standard deviation above the mean reduced its loan originations lending by only 21%. Given the history of bank runs driven by panicked withdrawals of demand deposits, it is ironic that banks with *more* deposits (though most of them now insured) were less adversely affected by the banking crisis.

Our second focus is on the effect of credit-line drawdowns or the threat of such drawdowns on new syndicated lending. Unfortunately, we do not directly observe credit-line drawdowns. The analysis is further complicated by the fact that banks that extend more credit lines are more prone to fund themselves with deposits. This has been shown in the theoretical and empirical work of Kashyap, Rajan, and Stein (2002) and Gatev and Strahan (2006). Thus, banks at greater risk of credit-line drawdowns are at less risk of a run by short-term creditors. This makes it difficult to identify an independent effect of credit-line drawdowns. Our approach is to examine the effect of *unexpected* credit-line drawdowns. In particular, we argue that banks that co-syndicated credit lines with Lehman Brothers were more likely to experience larger credit-line drawdowns after the Lehman failure. Commitments that would have been met by Lehman would then have to be met by other members of the syndicate, and credit lines with Lehman in the syndicate would be more likely to be drawn down. Indeed, we show that banks that co-syndicated a larger fraction of their credit lines with Lehman reduced their lending more. Interestingly, we do not find a bigger reduction in lending if a bank co-syndicated more term loans with Lehman, suggesting that it is the drawdowns or the threat of such drawdowns that drives the effect, not the relationship with Lehman, per se.

These findings are consistent with a decline in the supply of funding as a result of the bank run. At the same time, however, the recession—which the National Bureau of Economic Research dates to December 2007—as well as the prospect of an even deeper recession as the crisis erupted, also likely reduced the *demand* for credit. While such a decline in demand could explain the overall drop in lending during the crisis, it must also explain why more vulnerable banks cut lending more than others. One possibility is that these banks tend to lend to firms whose loan demand fell more during the crisis. For example, investment banks, which do not fund with deposits, may do more lending for acquisitions. If the demand for such financing fell more during the crisis, then our finding would be the result of a shock to demand rather than supply. However, we find that the result continues to hold for commercial banks and for loans not used for acquisitions. This is one of a number of possible alternative explanations that we explore. And while we present evidence that is inconsistent with these alternative explanations, we cannot prove that the supply shock is uncorrelated with loan demand.

This paper is organized as follows. Section 2 briefly describes the data. Section 3 presents the basic facts about aggregate bank lending for a variety of loan types, and it shows the importance of credit-line drawdowns. Section 4 presents the cross-sectional regressions and Section 5 concludes.

Section snippets

Data

The data for our analysis come from Reuters' DealScan database of large bank loans.[3]…

Basic facts

Panel A of Fig. 1 graphs the quarterly dollar volume of loan issues from 2000 through 2008. Because there appears to be a seasonal component to syndicated lending—with a marked increase in lending in the second quarter of each year—we also graph a seasonally adjusted series.[6] Panel B of Fig. 1 graphs the quarterly dollar amount and number of loan issues for 2007 and 2008, where we…

Determinants of bank lending during the banking panic

In this section, we examine the cross-sectional determinants of bank lending during the banking panic. Our main interest is in whether banks that were more vulnerable to the bank run that followed the failure of Lehman Brothers reduced their lending by more than others. We focus on two factors that, in theory, would make some banks more vulnerable than others: (i) the extent to which they were financed by short-term debt rather than insured deposits, and (ii) their exposure to credit-line…

Final remarks

New lending declined substantially during the financial crisis across all types of loans. Some of this decline could have reflected a drop in demand as firms scaled back expansion plans during a recession. However, we show that there may also have been a supply effect: banks with less access to deposit financing and at greater risk of credit-line drawdowns reduced their lending more than other banks.

A drop in the supply of credit has important implications. Without a drop in supply, there would …

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