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ABSTRACT

Why did the Federal Reserve let Lehman Brothers fail? Fed officials say they lacked the legal authority to rescue the firm, because it did not have adequate collateral to borrow the cash it needed. This paper summarizes a monograph that disputes officials' claims (Ball, 2016). These claims are incorrect in two senses: a perceived lack of legal authority was not why the Fed did not rescue Lehman; and the Fed did in fact have the authority for a rescue.

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A supplemental file is available at http://www.nber.org/data-appendix/w22410

1. INTRODUCTION

On Monday, September 15, 2008, at 1:45 AM, Lehman Brothers Holdings Inc. filed a bankruptcy petition in the United States Bankruptcy Court for the Southern District of New York. This action was the most dramatic event of the financial crisis of 2007-2009, and many economists believe it greatly worsened the crisis and the Great Recession that followed.

Why did Lehman Brothers fail? At one level, the answer is clear. Lehman suffered large losses on real estate investments in 2007-2008, which threatened its solvency. Other financial institutions lost confidence in Lehman, precipitating a liquidity crisis: the firm could not roll over short-term funding that supported illiquid assets. Lehman declared bankruptcy in the early hours of September 15 because it did not have enough cash to open for business that morning.

Yet one part of the story is less clear. Lehman was the only large financial institution to file for bankruptcy during the financial crisis. Others, such as Bear Stearns and AIG, also experienced liquidity crises and surely *would* have gone bankrupt if not for emergency loans from the Federal Reserve. Why didn't the Fed make another loan to rescue Lehman?

This question is controversial among students of the financial crisis. Some say that Fed officials bowed to political opposition to a "bailout" of Lehman. Others say that policymakers were concerned about moral hazard: they feared that rescuing Lehman would encourage excessive risk-taking by other firms. Yet another factor, according to many, is that policymakers underestimated the damage that Lehman's bankruptcy would do to the financial system and economy.

Yet Fed officials insist that none of these views is correct. The people in charge in 2008, from Ben Bernanke on down, have said repeatedly that they wanted to save Lehman, but could not do so because they lacked the legal authority. When the Fed lends to a financial institution, the Federal Reserve Act requires "satisfactory" collateral to protect the Fed if the borrower defaults. In

Lehman's case, according to Bernanke (Jackson Hole, 2009):

[T]he company's available collateral fell well short of the amount needed to secure a Federal Reserve loan of sufficient size to meet its funding needs. As the Federal Reserve cannot make an unsecured loan... the firm's failure was, unfortunately, unavoidable.

According to Bernanke (FCIC testimony, 2010):

[T]he only way we could have saved Lehman would have been by breaking the law, and I'm not sure I'm willing to accept those consequences for the Federal Reserve and for our systems of laws. I just don't think that would be appropriate.

In his 2015 memoirs (p. 288), Bernanke reiterates that Lehman did not have "sufficient collateral to back a loan of the size needed to prevent its collapse."

This paper seeks to set the record straight on why the Fed did not rescue Lehman Brothers. I conclude that the explanation offered by Fed officials is incorrect, in two senses: a perceived lack of legal authority was not the reason for the Fed's inaction; and the Fed did in fact have the authority to rescue Lehman. I base these broad conclusions on the following findings:

• There is a substantial record of policymakers' deliberations before the bankruptcy, and it contains no evidence that they examined the adequacy of Lehman's collateral, or that legal barriers deterred them from assisting the firm.

• Arguments about legal authority made by policymakers since the bankruptcy are unpersuasive. These arguments involve flawed interpretations of economic and legal concepts, and factual claims that do not appear to be accurate.

• From a *de novo* examination of Lehman's finances, it is clear that the firm had ample collateral for a loan to meet its liquidity needs. Such a loan could have prevented a disorderly bankruptcy, with negligible risk to the Fed.

• More specifically, Lehman probably could have survived by borrowing from the Fed's Primary Dealer Credit Facility on the terms offered to other investment banks. Fed officials prevented this outcome by restricting Lehman's access to the PDCF.

We will never know what Lehman Brothers' long-term fate would have been if the Fed rescued it from its liquidity crisis. Lehman might have survived indefinitely as an independent firm; it might have been acquired by another institution; or eventually it might have been forced to wind down its business. Any of these outcomes, however, would likely have been less disruptive to the financial system than the bankruptcy that actually occurred.

If legal constraints do not explain the non-rescue of Lehman, then what does? The available evidence supports the theories that political considerations were important, and that policymakers did not fully anticipate the damage from the bankruptcy. The record also shows that the decision to let Lehman fail was made primarily by Treasury Secretary Henry Paulson. Fed officials deferred to Paulson even though they had sole authority to make the decision under the Federal Reserve Act.

2. SUMMARY

The Lehman crisis and the Federal Reserve's response were complex. In Ball (2016), I examine the episode in considerable detail, with the goal of determining what happened as precisely as possible. The result is a monograph of over 200 pages. This NBER Working Paper gives a more concise summary of my long paper, which is posted as a supplementary document on the NBER web site.

Sources

Section 3 of the monograph surveys my sources of information. These include Lehman's financial statements, Federal Reserve records, official investigations of the financial crisis, accounts from people who were involved, and research by journalists.

The most important sources are two investigations: those of the Financial Crisis Inquiry Commission created by Congress, and of Anton Valukas, the Examiner appointed by the Lehman bankruptcy court. Both the FCIC and Valukas had subpoena power, and they gathered numerous documents and emails from Lehman executives and Fed officials. They also interviewed hundreds of people.

Even with this record, some aspects of the Lehman episode are hazy. At times, I must do my best to interpret fragmentary evidence, and to reconcile conflicting statements by different people. Nonetheless, the overall record shows clearly that a Federal Reserve rescue of Lehman would have been feasible and legal.

The Financial Crisis and Lehman's Failure

Section 4 reviews the basic history of the Lehman crisis and places it within the broader financial crisis of 2008. Other landmarks in 2008 include the Fed's rescues of Bear Stearns and AIG when liquidity crises threatened those firms. As many have pointed out, a satisfactory account of

Fed policy must explain why Lehman was treated differently from Bear and AIG.

Lehman's liquidity was wiped out by a run during the week of September 8. Over the weekend of September 13-14, Fed and Treasury officials tried to broker a sale of Lehman to a stronger firm, and they almost succeeded with the British bank Barclays. But this deal fell apart on September 14 for complex reasons involving British regulators. The central question in my research is what the Fed could have done after the Barclays deal failed to avert Lehman's bankruptcy on September 15.

An important detail of the story–one that is not widely appreciated–is that not all of the Lehman enterprise failed on September 15. The entity that Barclays almost purchased on the 14th, and which famously filed for bankruptcy on the 15th, was Lehman Brothers Holdings Inc. (LBHI), a corporation with many subsidiary companies. Most of these subsidiaries also entered bankruptcy immediately, but one did not: Lehman Brothers Inc. (LBI), which was Lehman's broker-dealer in New York. The Fed kept LBI in business from September 15 to September 18 by lending it tens of billions of dollars through the Primary Dealer Credit Facility; after that, Barclays purchased part of LBI and the rest was wound down. Another important question is why the Fed chose to assist LBI but not its parent, LBHI.

Section 13(3)

Section 5 examines the law governing lending by the Federal Reserve. Normally, the Fed lends only to depository institutions (traditional "discount" lending). However, under Section 13(3) of the Federal Reserve Act, the Fed can lend to non-depository institutions such as investment banks under "unusual and exigent circumstances." Almost everyone agrees that conditions in 2008 were unusual and exigent.

The legal controversy about Fed lending concerns the requirement under Section 13(3) that a loan be "secured to the satisfaction of the Reserve Bank" that makes the loan. Usually, security takes the form of collateral posted by the borrower. Nobody has given a precise definition of satisfactory security, but Fed officials have interpreted the concept to mean that the Fed cannot take on a significant risk of losses. For example, the General Counsel of the Board of Governors told the Financial Crisis Inquiry Commission, “You have to be pretty confident you will be repaid.”

Lehman’s Balance Sheet and Solvency

Section 6 begins a detailed analysis of LBHI’s finances before its bankruptcy. I review the firm’s balance sheet and examine the controversial issue of its solvency. Section 13(3), as it stood in 2008, did *not* require that recipients of Fed loans be solvent by any definition. However, examining Lehman’s solvency will help us understand what assistance the firm needed to survive its liquidity crisis, and also its longer-term prospects.

In a financial statement for August 31, 2008, LBHI reported assets of approximately $600 billion and liabilities of $572 billion. These figures imply that the firm was solvent, with stockholder equity of $28 billion.

It is generally agreed that Lehman valued some of its assets at more than their true market values. Yet the extent of overvaluation was not as great as some commentators suggest. About $60 billion of reported assets were questionable–primarily investments in real estate and private equity. Other financial institutions estimated that these assets were overvalued by $15 billion to $30 billion. If we subtract that amount from Lehman’s total assets, the firm’s equity falls from the reported level of $28 billion to something between -$2 billion and +$13 billion. Thus, with realistic asset values, Lehman was near the border between solvency and insolvency.

These calculations are based on mark-to-market valuation of Lehman’s assets. In the distressed markets of September 2008, the market values of many assets were below their fundamental values (as determined, for example, by likely recovery rates on loans). If Lehman was near the edge of solvency with mark-to-market valuation, then it was probably solvent based on its assets' fundamental values.

Fed officials have said repeatedly that Lehman was insolvent, but they have not supported this claim with an analysis of the firm's balance sheet. When pressed to back up the claim, officials have offered a number of flawed arguments. The flaws include confusion about the concepts of insolvency and illiquidity, and misinterpretations of statements by Lehman executives.

<u>Lehman's Liquidity Crisis</u>

After Bear Stearns nearly failed in March 2008, many commentators suggested that Lehman Brothers might also be in danger. Fears about Lehman grew over the Summer of 2008 as the firm suffered losses on its real estate investments. Eventually Lehman experienced a run: a self-reinforcing cycle of decreases in its share price, downgrades by rating agencies, and a flight of customers and counterparties.

The fatal part of this cycle was a liquidity crisis, which Section 7 describes in detail. This crisis involved a number of factors, such as collateral calls by derivatives counterparties, but the most important problems involved Lehman's repurchase agreements, or repos.

Repos are effectively short-term borrowings of cash with securities as collateral. In early 2008, Lehman's liabilities included more than $200 billion in repos, which it rolled over continuously. Investment banks believed that repos were a stable source of funding. Repos were safe for lenders of cash because their loans were overcollateralized, due to "haircuts" on the securities pledged by borrowers. Since lenders were protected, it was believed, they would not cut off a firm's repo funding during a crisis.

A surprising aspect of the 2008 crisis was that repo funding proved *not* to be reliable. Cash lenders abruptly cut off repos with Bear Stearns in March and then with Lehman in September. The reasons are not entirely clear. In any case, losses of repos were disastrous for Bear's and Lehman's liquidity. Lehman also experienced a related problem: demands for collateral from JPMorgan Chase, which was the clearing bank for Lehman's tri-party repos.

Lehman's loss of liquidity began during July and August of 2008, and accelerated sharply during the week of September 8. On Friday September 12, Lehman had almost no cash, and it was clear the firm would immediately default on obligations if it opened for business on Monday September 15.

<u>The Feasibility of Fed Liquidity Support</u>

Section 8 turns to the central question of my research: Could the Fed have kept Lehman in operation with a loan that was well-secured, and hence legal? This question turns on how much cash the firm needed to borrow, and how much collateral it had available.

I examine this issue in several ways:

A Simple Calculation One approach is to examine Lehman's balance sheet, which has two key features. First, as mentioned above, the firm's total assets and liabilities were approximately the same with reasonable valuations–each was about \$570 billion. Second, the liabilities included \$115 billion of unsecured long-term debt, meaning debt that was not due for 12 months or more. Together, these two facts imply that Lehman had enough collateral for any liquidity support it might have needed.

To see this point, consider a limiting case of a liquidity crisis, in which Lehman must immediately repay all its liabilities except its long-term debt. This scenario means, among other things, that the firm cannot roll over any short-term financing, must return all funds in customer accounts, and must cover all short positions. Assume also that Lehman cannot liquidate any of its assets. In this extreme scenario, the firm must borrow cash of \$570 billion (its total liabilities) minus

$115 billion (its long-term debt), or $455 billion. It has assets of $570 billion, which become unencumbered when it extinguishes its secured liabilities. Therefore, Lehman's available collateral exceeds its maximum liquidity needs by $115 billion, or about 25%.

A Likely Scenario In addition to considering the worst possible run, I estimate how much Lehman would actually have needed to borrow from the Fed to stay in operation. This exercise is speculative, but it is informed by detailed information on the liquidity drains the firm was experiencing at the time of its bankruptcy. I conclude that Lehman needed about $88 billion of assistance to stay in operation for a period of weeks or months.

Lehman could have borrowed $88 billion from an existing Fed facility, the Primary Dealer Credit Facility (PDCF). That was feasible because the firm had at least $131 billion of assets that were acceptable as PDCF collateral. This finding means policymakers probably could have rescued Lehman without a new 13(3) authorization. It also helps explain why policymakers restricted Lehman's access to the PDCF, as discussed below.

Comparison to Support for LBI Finally, I examine the Fed's actual lending to Lehman's New York broker-dealer, LBI, after the bankruptcy of its parent. LBI borrowed amounts ranging from $20 billion to $28 billion from the PDCF to operate from September 15 to September 18, when most of LBI was acquired by Barclays. This experience, I find, is consistent with my estimate that $88 billion could have sustained the entire Lehman enterprise for weeks or months.

Fed Discussions of Liquidity Support

Section 9 reviews discussions by Fed officials of liquidity support for Lehman–both discussions before the bankruptcy about possible support, and statements after the bankruptcy.

Discussions Before September 15 The staffs of the New York Fed and the Board of Governors extensively analyzed Lehman's liquidity risk and how the Fed might assist the firm. This analysis began after the Bear Stearns crisis and continued until September 13, and much of it was reported to senior policymakers. Discussions covered a number of policy options, including loans from the PDCF to replace Lehman's lost repos.

These discussions do not explain why, in the end, the Fed did not provide Lehman with the assistance it needed to survive. In the available record, there is little discussion of Lehman's collateral for a loan, and none at all of legal issues related to Section 13(3).

Bernanke on September 23 Ben Bernanke first discussed the Lehman bankruptcy eight days after it happened, in Congressional testimony. On that occasion he said that "the Federal Reserve and the Treasury declined to commit public funds" to Lehman because "the troubles at Lehman had been well known for some time" and "we judged that investors and counterparties had had time to take precautionary measures." Bernanke did not mention concerns about collateral or legal barriers to assisting Lehman.

Bernanke later disavowed his initial testimony about Lehman. In 2010 he told the FCIC, "I regret not being more straightforward there, because clearly it has supported the mistaken impression that in fact we could have done something [to save Lehman]." Bernanke makes a similar statement in his 2015 memoirs (p. 289).

Claims About Collateral Bernanke first claimed that Lehman had insufficient collateral for the loan it needed, making the loan illegal, in a speech on October 7, 2008. Since then he has repeated that position many times, as have other officials including Timothy Geithner and the General Counsels of the Board of Governors and the New York Fed. However, nobody has presented details about Lehman's finances to support the position.

Bernanke testified at a public hearing of the FCIC in 2010, and several Commissioners pushed him to back up his claims about Lehman. Bernanke said that the New York Fed analyzed Lehman's finances and reported to him that "the liquidity demands on the holding company [LBHI] were much greater than the collateral that they had available to meet those demands." The FCIC sent Bernanke a followup letter that asked pointedly for details of the New York Fed analysis, and for "the dollar value of the shortfall of Lehman's collateral" relative to its liquidity needs. Bernanke did not answer these questions.

Another witness at the FCIC hearing was Thomas Baxter, General Counsel of the New York Fed. Baxter also testified that Lehman's collateral was inadequate, but when pressed for details he deflected the question. He said that a loan to LBHI "was never seriously considered by the Federal Reserve," and that policymakers decided before LBHI's final weekend that it must declare bankruptcy unless it was acquired by a stronger firm.

Fed Actions to Ensure Lehman's Bankruptcy

Fed officials did not stand by passively as Lehman failed. They took actions to ensure that LBHI filed a bankruptcy petition, which are described in Section 10 of my monograph.

On the afternoon of Sunday, September 14, when it was clear that Barclays would not buy LBHI, officials of the New York Fed called Lehman executives to a meeting. According to multiple accounts, General Counsel Baxter announced, "We've come to the conclusion that Lehman has to go into bankruptcy," or words to that effect. Baxter said that LBHI should file a bankruptcy petition by midnight that night.

The Fed does not have the authority to order a corporation to file for bankruptcy. However, officials took actions to ensure that Lehman had no good alternative. Specifically, they prevented Lehman Brothers Inc. Europe (LBIE), the firm's London broker-dealer, from obtaining the cash it needed to meet obligations on September 15. Many of these obligations were guaranteed by LBHI, so LBHI was also forced into default. The LBHI Board of Directors decided that bankruptcy was preferable to defaulting and then trying to operate the firm.

Fed officials denied cash to LBIE through two actions. First, they refused a request from Lehman that LBIE, as well as the New York broker-dealer LBI, be allowed to borrow from the PDCF. This action contrasts starkly with the Fed's treatment of other investment banks when they experienced liquidity problems. Starting on September 21, the Fed granted PDCF access to the London broker-dealer subsidiaries of Goldman Sachs, Morgan Stanley, and Merrill Lynch.

Second, the Fed thwarted an effort by LBI to borrow enough to fund both itself and LBIE. This plan required that LBI gather collateral from other parts of Lehman to pledge to the PDCF. That was prevented by the "Friday criterion": the Fed only allowed LBI to pledge assets that were on its balance sheet on Friday, September 12. Policymakers have not given a clear rationale for this restriction.

Lehman's Long-Term Fate

An adequate loan from the Fed would have kept Lehman in business while the firm looked for long-term solutions to its problems. We will never know what the outcome would have been, but Section 11 outlines some possibilities.

One possibility is that the Barclays acquisition of LBHI–the plan on September 13–would have been consummated. This deal failed because British regulators would not approve it without a vote by Barclays shareholders, which would take a month or two to organize. Liquidity support from the Fed could have kept Lehman in operation until the vote was held.

Another possibility is that Lehman would have survived as an independent firm. That outcome would have been more likely if Lehman managed to remove some of its illiquid assets from its balance sheet. Before it failed, Lehman was planning to spin off illiquid assets to a real estate trust in early 2009. Alternatively, the Fed might have created a special purpose vehicle to buy the assets, like the Maiden Lane facilities that bought assets from Bear Stearns and AIG.

In the worst case, Lehman would eventually have had to declare bankruptcy. In that case, liquidity support from the Fed would have bought time for the firm to wind down or sell various businesses before bankruptcy, and that would have mitigated the disruption of the financial system. On September 14, Lehman executives began planning a wind down over a period of six months, but they abandoned the idea when they realized the Fed would not provide the necessary liquidity support.

Comparison to Other Cases

Many have asked why the Fed let Lehman fail but rescued other financial institutions during 2008. The Fed's answer is that, unlike Lehman, the firms it assisted had good collateral, making it safe to lend to them. As Section 12 discusses, this claim is yet another Fed position that does not survive scrutiny.

The Fed's assistance to some institutions was very similar to the assistance that Lehman needed and did not receive. In particular, Goldman Sachs and Morgan Stanley received large amounts of PDCF financing when their liquidity positions deteriorated after Lehman's failure. The PDCF lent to both the New York and London broker-dealers of Goldman and Morgan, and it accepted types of collateral–including speculative-grade securities and equities–that Lehman had in ample quantities.

In lending to Bear Stearns and AIG, the Fed took on *more* risk than it would have if it rescued Lehman. Lehman probably could have survived with overnight, overcollateralized loans from the PDCF. In rescuing Bear Stearns, the Fed provided long-term financing for illiquid assets, and might have taken substantial losses had financial markets not recovered as strongly as they did in 2009. In the case of AIG, the collateral accepted by the Fed included equity in privately-held insurance companies. The value of this collateral was highly uncertain, and might have been less than the amount lent by the Fed.

Section 12 also examines the Commercial Paper Funding Facility, which the Fed established in October 2008. Under this program, the Fed in effect bought unsecured commercial paper in return for an insurance fee. The Fed was exposed to considerable risk because the fee was based on dubious assumptions about default risk.

Why Did the Fed Let Lehman Fail?

My research establishes that inadequate collateral and lack of legal authority were *not* the reasons that the Fed let Lehman fail. What then were the real reasons?

To answer this question, we must first understand who decided that Lehman should fail. As discussed in Section 13, it appears that the primary decision maker was Treasury Secretary Henry Paulson–even though he had no legal authority over the Fed's lending decisions. Paulson traveled to New York on September 12 and took charge of the negotiations about Lehman at the New York Fed. Other officials on the scene, including Fed President Geithner, deferred to Paulson. Chairman Bernanke remained in Washington and received periodic reports on developments in New York.

Section 14 asks why Paulson insisted on Lehman's bankruptcy and Fed officials acquiesced. The available evidence supports the common theory that Paulson was influenced by the strong political opposition to financial rescues. He had been stung by criticism of the Bear Stearns rescue and the government takeovers of Fannie Mae and Freddie Mac, and ruled out assistance to Lehman because "I can't be Mr. Bailout."

Another factor is that both Paulson and Fed officials, although worried about the effects of a Lehman failure, did not fully anticipate the damage that it would cause. Since the bankruptcy, Ben Bernanke has said that he knew before the event that it would be a "catastrophe" and a "calamity" for the economy. But this claim is not consistent with what Bernanke and other officials said shortly before the bankruptcy, or with the discussion of Lehman at the September 16 meeting of the Federal Open Market Committee.

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