THE FED AND LEHMAN BROTHERS

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OUTLINE

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 this paper, I examine the episode in considerable detail, with the goal of determining what happened as precisely as possible. The result is a long document. This section gives a more concise summary of my main points.

Sources

Section 3 of this paper 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.

Lehman's Liquidity Crisis

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.

The Feasibility of Fed Liquidity Support

Section 8 turns to the central question of this paper: 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.

<u>Fed Discussions of Liquidity Support</u>

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 this paper.

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?

This paper argues 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.

3. SOURCES OF EVIDENCE

Here I describe the major sources of information for this study.

The Valukas Report

LBHI's bankruptcy petition was the first step in an extraordinarily complex bankruptcy case, which is ongoing in 2016 (In re Lehman Brothers Holdings Inc., Case No. 08-13555, U.S. Bankruptcy Court, Southern District of New York). At the outset of the case, the court appointed an Examiner, Anton Valukas, and charged him with writing a report on what happened to Lehman, including its interactions with the Federal Reserve. The report does not directly address whether the Fed could have rescued Lehman, but it contains a wealth of information that bears on the question.

Valukas is the Chairman of Jenner and Block, an international law firm based in Chicago. He was assisted by lawyers from his firm and elsewhere, and by the accounting firm of Duff and Phelps. Valukas's team had access to Lehman Brothers' records and computer systems, and also received documents from other financial institutions and the Fed. They interviewed more than 250 people. In March 2010, Valukas published a report of more than 2000 pages and 8000 footnotes, plus 24 Appendices.

The Valukas Report is available at jenner.com. In the online report, the footnotes include hyperlinks to most of the documents that are cited, including numerous emails, memos, and Power Point presentations from Lehman executives and Fed officials. When I discuss these documents, I will cite the footnotes in the report where they can be found.

The Financial Crisis Inquiry Commission

The FCIC was established by Congress to investigate the causes of the financial crisis and policymakers' responses. Like Valukas, the FCIC gathered numerous emails and other documents related to the Lehman failure. The FCIC staff interviewed scores of people involved in the episode, and some testified under oath at public hearings of the Commission. The FCIC issued its final report in January 2011.

Stanford Law School maintains a website, fcic.law.stanford.edu, with the FCIC report and the documents it cites. As with the Valukas Report, I will cite footnotes where documents are mentioned. The FCIC website also includes transcripts of Commission hearings and records of staff interviews, mostly in the form of audio recordings. Additional FCIC records are held at the National Archives, with some scheduled for public release in 2016.

For my purposes, the most important FCIC documents include testimony at a 2010 hearing by two people: Ben Bernanke and Thomas Baxter, the General Counsel of the New York Fed. Commissioners questioned Bernanke and Baxter aggressively, challenging their statements about the Lehman episode, and they sent follow-up questions that Bernanke and Baxter answered in writing. These exchanges produced the most detailed defenses of Fed actions that are available. Other top officials, such as Timothy Geithner, have not been questioned as closely about Lehman.

The FCIC's final report expresses some skepticism about the claim that rescuing Lehman would have been illegal. The report notes that Bernanke initially gave a different reason for inaction ("the market was prepared for the [bankruptcy]"), and it then says (p. 340):

> In addition, though the Federal Reserve subsequently asserted that it did not have the legal ability to save Lehman because the firm did not have sufficient collateral to secure a loan from the Fed under section 13(3), the authority to lend under that provision is very broad.

<u>Reports on LBI and LBIE</u>

When LBHI entered bankruptcy, LBIE, the broker-dealer subsidiary in London, entered a separate process of "administration"–a British version of bankruptcy. LBI, the New York broker-dealer, stayed in business for several days with Fed assistance, and part of it was sold to Barclays. However, on September 19 the rest of LBI entered a SIPA (Securities Investor Protection Act) liquidation, yet another version of bankruptcy for U.S. broker-dealers. Like the LBHI bankruptcy case, the LBIE administration and LBI liquidation are ongoing in 2016.

Both of these processes have produced reports roughly analogous to the Valukas Report on LBHI. The Joint Administrators of LBIE issued a Progress Report in 2009, and the LBI Trustee (James Giddens) has issued two reports: a Preliminary Investigation Report in 2010 and a Preliminary Realization Report in 2015. Each of these reports contains significant details about the Lehman episode that are not available elsewhere.

Reports on AIG

Two authorities issued reports on the AIG crisis: the Special Inspector General for the Troubled Asset Relief Program (TARP), and the Congressional Oversight Panel for TARP. Each of these reports describes Federal Reserve actions to assist AIG, as well government aid through TARP. This material is helpful when I compare the Fed's policies toward AIG and Lehman.

Lehman's Financial Statements

LBHI's annual and quarterly filings with the SEC, forms 10-K and 10-Q, include extensive information about the firm's finances. The last of these reports is the 10-Q for the second quarter of 2008, which ended on May 31 under Lehman's accounting calendar. Just before its bankruptcy, the firm issued a press release with preliminary results for the third quarter, ending August 31.

It appears that Lehman reported inflated values for some of its assets. Nonetheless, we can get a credible balance sheet for the firm by combining its statements with outside estimates of overvaluation.

Federal Reserve Records

The web sites of the Board of Governors and the New York Fed contain many relevant items. A section of the Board's site called "Credit and Liquidity Programs and the Balance Sheet" describes the Fed's responses to the financial crisis in detail. Other relevant material includes speeches and Congressional testimony by Fed officials; transcripts of FOMC meetings during 2008; and the balance sheets of the Maiden Lane LLC's that bought assets from Bear Stearns and AIG.

The web site of Bloomberg News contains daily data on Fed lending during the crisis, broken down by borrower. Bloomberg requested these data from the Board under the Freedom of Information Act (FOIA); the Board declined the request, but Bloomberg litigated the matter successfully and obtained the data in 2011. Reporters from Bloomberg and the Financial Times have analyzed these data, and I draw on their work.

Popular Books

There are many books on the financial crisis. For my purposes, the most informative is *Too Big to Fail*, by New York Times reporter Andrew Ross Sorkin (2009). This book includes a rich narrative of the Lehman crisis, focusing on the interactions among policymakers, Lehman executives, and others involved in the episode. Sorkin's account helps us understand who made decisions about Lehman and the reasons for the decisions.

An important qualification is that *Too Big to Fail* is based primarily on interviews with anonymous sources. It is therefore less authoritative than the carefully documented reports of the Lehman Examiner and the FCIC. On the other hand, many of Sorkins's accounts are corroborated by other sources, and I do not know of any allegations of major inaccuracies.

My research also draws on David Wessel's account of the crisis, *In Fed We Trust* (2009), and on the memoirs of Henry Paulson (*On the Brink*, 2010), Timothy Geithner (*Stress Test*, 2014), and Ben Bernanke (*The Courage to Act*, 2015).

Interviews

I sought interviews with people involved in the Lehman episode, with modest success. I talked off the record to several people with direct knowledge of events surrounding the bankruptcy or the investigations that followed. These interviews have helped me understand the Lehman episode, but the arguments in this paper do not rely on specific information from the interviews. All facts and opinions that I relate come from publicly available sources.

I sought interviews with a number of people who were Lehman executives at the time of the bankruptcy, both directly and through intermediaries known to the executives. None have been willing to speak to me, which is not surprising in light of Lehman's vilification in the media and the numerous lawsuits against its executives.

4. THE CRISIS OF 2008

To understand the Fed's actions during the Lehman crisis, we need quite a bit of background on that episode and the broader financial crisis of 2008. This section reviews the major events of the crisis, focusing on facts that are undisputed. Later parts of this paper will examine controversial details of the story

4.1 INVESTMENT BANKING ON THE EVE OF THE CRISIS

At the beginning of 2008, Lehman Brothers was one of the "big five" investment banks with headquarters in the United States. These firms, in order of assets, were Goldman Sachs, Morgan Stanley, Merrill Lynch, Lehman, and Bear Stearns. Over the course of 2008, all of the big five faced threats to their survival.

Vulnerabilities

Today, there is a broad consensus about how the big investment banks got into trouble. Three aspects of their businesses put them at risk.

First, in the early 2000s, all of the big five expanded their investments in real estate. The firms had units that originated home mortgage loans, created mortgage-backed securities, and financed commercial real estate projects. They sold parts of their investments to other institutions but kept a large share on their balance sheets. For a time, rising real estate prices made the investments highly profitable.

Second, the investment banks operated with high degrees of leverage. The ratios of assets to stockholder equity at the five firms ranged from 26 to 33, according to their 10-K's for 2007. Lehman's ratio was 31.

Third, short-term borrowings were an important source of funds for the firms. Indeed, sizable shares of their liabilities were overnight loans that needed to be rolled over each day.

In retrospect, we can see how this business model failed. As the real estate bubble deflated over 2006-2008, the investment banks took losses on their real estate assets. Because of thin equity cushions, the firms' losses caused market participants to question their solvency and viability. This loss of confidence led counterparties to cut off the firms' short-term funding, which produced severe liquidity crises.

The Role of Repurchase Agreements

A crucial detail is the nature of the investment banks' short-term funding. Some of this funding was unsecured commercial paper, but a much larger part was repurchase agreements, or "repos." We will see that unexpected losses of repo funding were central to the crises at investment banks.

In a repo, one financial institution sells a security to another and agrees to buy it back for a slightly higher price in the future–often the next day. In economic terms, a repo amounts to a collateralized loan: one party receives cash for the period of the agreement; its security serves as collateral; and the increase in the security's price is an interest payment.

In 2008, investment banks used repos to obtain hundreds of billions of dollars of cash from institutions such as mutual funds and commercial banks. The investment banks used their inventories of bonds, mortgage-backed securities, and equities as collateral.

The cash advanced in a repo is less than the value of the collateral. The purpose of this over-collateralization, or "haircut," is to protect the cash lender if the borrower defaults and the lender must liquidate the collateral. Haircuts are larger for securities that are less liquid or have volatile prices. According to a New York Fed analysis, typical haircuts in investment banks' repos in June 2008 ranged from about 1% for Treasury securities to 12% for high-yield convertible bonds (FCIC

Lehman Chronology, Tab 14).[1]

Repos have another feature that enhances their safety for cash lenders: their treatment under bankruptcy law. When a corporation declares bankruptcy, an automatic stay generally prevents its creditors from demanding cash or seizing collateral immediately. However, under a 2005 amendment to the bankruptcy code, repos are exempt from the automatic stay. If a cash borrower defaults on a repo, the lender can liquidate the collateral immediately.

Because repos are safe for cash lenders, their interest rates are low. During the Summer of 2008, overnight repo rates were close to the target federal funds rate of 2% (Copeland et al., 2010).

Before the financial crisis, the belief that repos were safe for lenders had a corollary: repos were a stable source of funds for investment banks. When lending is unsecured, a firm's funding may be cut off if it loses the confidence of counterparties. Indeed, a loss of funding can arise from self-fulfilling expectations, as in the Diamond-Dybvig (1983) model of bank runs. However, a firm theoretically should never lose repo funding, because lenders do not fear losses from default.

Another important nuance is that investment banks borrow primarily in the "tri-party" repo market. In 2008, a tri-party repo involved several transactions among the cash lender, the borrower, and a clearing bank–an institution where the other two parties hold cash and securities accounts. When a lender and borrower agreed on a repo, the clearing bank moved cash from the lender's account to the borrower's, and moved collateral in the opposite direction. The next morning, the clearing bank "unwound" the repo: it used its own cash to repay the lender, and returned the collateral to the borrower's account. In the afternoon, the borrower repaid the clearing bank, usually with cash from a new repo.

[1] The FCIC prepared a chronology of the Lehman crisis as a background document for a public hearing titled "Too Big to Fail" on September 1-2, 2010 (see FCIC web site).

These arrangements meant that a repo borrower received overnight credit from its cash lender, and intraday credit–between the morning unwind and the new repo in the afternoon–from its clearing bank. The intraday exposure of Lehman Brothers' clearing bank, JPMorgan Chase, proved to be an important problem during Lehman's crisis.

4.2 THE BEAR STEARNS CRISIS AND THE FED'S RESPONSE[2]

Bear Stearns, the smallest of the big five investment banks, was the first to suffer a loss of confidence and liquidity crisis. Bear's experience was similar in many respects to the subsequent crisis at Lehman.

The Crisis

Mortgage lending and securitization were large parts of Bear Stearns's business. An early landmark in the financial crisis was the failure in July 2007 of two hedge funds sponsored by Bear. In the fourth quarter of 2007, Bear became the first of the big investment banks to report a quarterly loss. Market participants lost confidence in the firm, leading to warnings by rating agencies, a falling stock price, and rising prices of credit default swaps for Bear's debt. These developments reduced confidence further, in a vicious circle.

In this environment, Bear had trouble issuing unsecured commercial paper. Its commercial paper outstanding fell from $21 billion at the end of 2006 to $4 billion at the end of 2007. However, Bear was able to replace commercial paper with repos, which grew from $69 billion to $102 billion.

Indeed, Bear seemed to have ample funding until a few days before its near-bankruptcy. In early March, the SEC reviewed Bear's liquidity position and found "no significant issues." Bear guarded

[2] This section draws from chapters 12, 15, and 16 of the FCIC Report.

against any loss of funding with a "liquidity pool" of cash and highly liquid securities. This pool ranged from $18-20 billion during the week of March 3, and it was still $18 billion on Monday, March 10.

Over the next several days, however, the erosion of confidence in Bear turned into a devastating run. An apparent trigger was rating downgrades of mortgage-backed securities issued by a special purpose vehicle that Bear had sponsored. Some of Bear's counterparties refused to roll over repos, and others imposed larger haircuts. Bear also received collateral calls from derivatives counterparties. All of these developments reduced the firm's cash.

On Thursday March 13, Bear's liquidity pool was down to $2 billion. The firm's executives told their board of directors that an additional $14 billion in repos were not going to roll, and "there was a reasonable chance that there would not be enough cash to meet [Bear's] needs." The firm told the SEC that it would be "unable to operate normally on Friday."

<u>Explaining the Run on Repos</u>

Bear's sudden loss of repo financing surprised both investment bankers and financial regulators. SEC Chair Christopher Cox discussed the episode in testimony before the Senate Banking Committee on April 3, 2008. Cox explained why the SEC's oversight of investment banks under the Consolidated Supervised Entities (CSE) program did not prevent the run on Bear:

> [T]he liquidity measurement has been designed to withstand the complete loss, for an entire year, of all sources of unsecured funding. But what neither the CSE regulatory approach nor any existing regulatory model has taken into account is the possibility that secured funding, even that backed by high-quality collateral such as U.S. Treasury and agency securities, could become unavailable. The existing models for both commercial and investment banks are premised on the expectancy that secured funding, albeit perhaps on less favorable terms than normal, would be available in any market environment. For this reason, the inability of Bear Stearns to borrow against even high-quality collateral on March 13th and March 14th–an unprecedented occurrence–has prompted the Federal Reserve's action to open the discount window to investment banks.

Even after the fact, it is not obvious why Bear's counterparties refused to roll over funding that seemed to be well-secured. Many explanations are vague. The FCIC report says (p. 293), "Lenders were reluctant to risk the hassle of seizing collateral, even good collateral, from a bankrupt borrower." The report also quotes an executive of State Street Bank: "We don't want to go through that uncomfortable process of having to liquidate collateral."

Copeland et al. (2010) and Duffie (2010) suggest that, despite haircuts, there was *some* risk that a repo lender would lose money if it liquidated collateral in a distressed market. Some of the lenders were money market funds that would have had to sell collateral immediately because they were legally forbidden to own it. Also, lenders may have feared litigation if they seized collateral, despite their apparent protection under bankruptcy law.

Some commentators cite "headline risk": financial institutions feared bad publicity from dealings with troubled firms. A piece of evidence comes from the later crisis at Lehman. In a September 11 memo, Jason Miu of the New York Fed Markets Group reported (FCIC Chronology, Tab 40):

> One [money market] fund did not roll about $1.5 billion in overnight positions for Treasury and agency-MBS repo. They stressed that they saw negligible risk in maintaining these positions, but found it easiest to eliminate the exposure in the face of inquiries from investors and senior management.

Counterparties did not need much incentive to cut off repos with Bear and Lehman, because they could invest their cash elsewhere. Duffie discusses possible risks of seizing collateral, and then says (p. 30): "The repo creditors can avoid these threats, and other unforeseen difficulties, simply by reinvesting their cash in new repos with other counterparties."

<u>The Rescue</u>

The Fed rescued Bear Stearns in two steps. The first was planned in a conference call among Ben Bernanke, Timothy Geithner, and Henry Paulson at 5:00 AM on Friday, March 14. The New

York Fed lent $12.9 billion to JPMorgan Chase, which in turn lent the money to Bear so it could meet its obligations on Friday. The Fed used JPMorgan as an intermediary because that firm, as a commercial bank, could borrow from the Fed's discount window and Bear could not. Bear pledged $13.8 billion in securities as collateral.

The news that Bear needed Fed assistance was a new blow to confidence in the firm. All three rating agencies downgraded Bear on March 14, and the firm's stock price fell by 47%. It was clear that Bear could not open for business on Monday, March 17 without some kind of rescue.

This crisis was resolved over the weekend of March 15-16, when Geithner and Paulson brokered the acquisition of Bear by JPMorgan Chase. JPMorgan agreed to pay $2 per share for Bear's stock, which had traded at $159 less than a year before. (The price was later raised to $10 to ensure approval by Bear's shareholders.) As part of the deal, JPMorgan announced an immediate guarantee of Bear's obligations, and that stopped the run on Bear.

The Bear Stearns deal also required Bear to sell approximately $30 billion of real estate assets that JPMorgan did not want. The Fed accommodated this requirement by creating a special purpose vehicle, Maiden Lane LLC, to purchase the assets. Maiden Lane was financed with a $29 billion loan from the New York Fed, collateralized by the $30 billion in assets, and a $1 billion subordinated loan from JPMorgan. The Board of Governors approved the New York Fed's loan, invoking its authority in "unusual and exigent circumstances" under Section 13(3).

The FCIC asked Ben Bernanke why the Fed acted to rescue Bear Stearns. Bernanke said the main reason was fear of the consequences if Bear defaulted on its repos (FCIC interview, pp. 21-22):

> [T]he collapse of Bear Stearns might bring down the entire tri-party repo market, which is a two-and-a-half trillion-dollar market, which was the source of financing for all the investment banks and many other institutions as well. Because if it collapsed, what would happen would be that the short-term overnight lenders would find themselves in possession of the collateral, which they would then try to dump on the market. You would have a big crunch in asset prices. And probably what would

have happened–our fear, at least–was that the tri-party repo market would have frozen up. That would have led to huge financing problems for other investment banks and other firms; and we might have had a broader financial crisis.

<u>The TSLF and PDCF</u>

During the Bear Stearns crisis, the Fed invoked Section 13(3) to take two additional actions: it created the Term Securities Lending Facility and the Primary Dealer Credit Facility. Both of these facilities lent to primary dealers in Treasury securities, which included the major investment banks. The purpose was to prevent crises like Bear's from occurring at other firms.

The Fed announced the TSLF on March 11, and it began operation on March 27 (too late to help Bear). The TSLF lent Treasury securities to primary dealers, accepting triple-A mortgage backed securities as collateral. These loans made it easier for investment banks to obtain repo financing, because Treasury securities were more widely accepted as repo collateral than MBSs were.

The Fed created the PDCF on March 16, the same day as the JPMorgan-Bear deal. This facility made overnight loans of cash. It accepted a broader range of collateral than the TSLF, including corporate bonds and MBSs with investment-grade ratings (triple-B and above). Haircuts on the collateral were a bit higher than typical haircuts in tri-party repos (compare "PDCF Margins Table" on the Board web site to market haircuts from FCIC Lehman Chronology, Tab 14).

The PDCF was meant to provide strong protection against runs on repos. If an investment bank could not roll a repo, it could pledge its collateral to the PDCF instead. And this backstop made runs less likely in the first place, because repo lenders knew the PDCF would help borrowers avoid default. In a June 17 email, William Dudley, then head of the New York Fed Markets Group, said (FCIC fn 16.15):

PDCF remains critical to the stability of some of the IBs [investment banks]. Amounts don't matter here, it is the fact that the PDCF underpins the triparty repo system.

The PDCF had some success in boosting confidence in investment banks, including Lehman. On March 28, Citi stock analysts upgraded Lehman from "Hold" to "Buy" (Valukas fn 5340). They argued that Lehman's stock was undervalued and that "reality will trump fear." They emphasized that "access to liquidity is a non-issue" because Lehman had "the ability to get access to over $200b in liquidity from the Fed's primary dealer credit facility." (The $200b figure is presumably based on Lehman's repo collateral.)

There was, however, a limit on PDCF lending: the facility did not accept *all* types of collateral used in tri-party repos. In particular, it did not accept speculative-grade securities or equities. As we will see, this restriction became important during the Lehman crisis, and it was relaxed on September 14.

4.3 LEHMAN'S CRISIS

At Lehman Brothers, serious signs of trouble starting appearing in March 2008, during the Bear Stearns crisis. Like Bear, Lehman experienced a gradual erosion of confidence that turned into a devastating run in the firm's final week.

Before the Bear Stearns Crisis

The Valukas Report (pp. 58-163) gives a history of Lehman from 2006 through early 2008. In 2006, the firm made a strategic decision to increase its principal investments, primarily in real estate and private equity. Lehman's total assets grew from $410 billion at the end of 2005 to $691 billion at the end of 2007, and peaked at $786 billion at the end of 2008 Q1.

One example of Lehman's investments, which became infamous, was its participation in a consortium that acquired Archstone, a real estate investment trust, in May 2007. Archstone owned 88,000 apartments across the United States. Lehman financed about half of the $22 billion acquisition with loans and equity investments.

In mid-2006 the U.S. real estate market began to weaken, with falling house prices and rising defaults on subprime mortgages. Some financial institutions became pessimistic about real estate and reduced their investments in that area, but Lehman continued to expand in real estate until early 2008. The firm's executives told its board of directors that "the current distressed environment provides substantial opportunities," and they were pursuing "a countercyclical growth strategy" that would yield high returns when markets normalized (Valukas fn 248).

In some cases, Lehman acquired real estate with the intention of reselling it quickly, but then could not. The firm planned to syndicate most of its investment in Archstone, but it was left with $6 billion of exposure when the Archstone deal closed in October 2007.

Nonetheless, before March 2008, Lehman did not appear distressed. In its 10-K for the 2007 accounting year, which ended on November 30, the firm announced record earnings for the fourth straight year. Management attributed this result to "a record first half and a reasonably successful navigation of difficult market conditions in the second half." In 2008 Q1, which ended February 29, earnings were lower but beat analysts' forecasts. Over January and February, Lehman's stock price fluctuated between $50 and $65.

Falling Confidence

Lehman's stock price fell as the Bear Stearns crisis escalated, reaching $32 on March 17, the day after the Bear rescue. On March 18, Lehman reported its better-than-expected earnings for Q1, and its stock rebounded to $46.

After that, however, confidence in Lehman eroded steadily. The media and market participants speculated that crises like Bear's could occur at other investment banks, and some singled out Lehman as endangered because of heavy exposure to real estate. Lehman's stock price fell and premiums rose for credit default swaps on its debt.

In late March and early April, the three rating agencies reduced their outlooks for Lehman, Moody's from positive to stable and Fitch and S&P from stable to negative. S&P explained on April 3 that its outlook reflected Lehman's liquidity risk. It said, "The company's excess liquidity position is among the largest proportionately of the U.S. broker-dealers," but cautioned, "we cannot ignore the possibility that the firm could suffer severely if there is an adverse change in market perceptions, however ill-founded" (Valukas Appendix 13, fn 16).

Lehman had reported equity of $25 billion at the end of Q1, but analysts suggested that this figure reflected unrealistic valuations of real estate assets. A prominent example was a speech in May by hedge fund manager David Einhorn, who was shorting Lehman's stock. Einhorn criticized Lehman's valuation methods, saying, "I suspect that greater transparency on these valuations would not inspire market confidence" (FCIC, p. 327).

Confidence suffered a major blow on June 12, when Lehman announced its earnings for Q2. The firm reported its first-ever quarterly loss, of $2.8 billion, caused largely by write-downs of real estate assets. Three days later, Lehman replaced its President, Joseph Gregory, and CFO, Erin Callan.

In June and July, all three rating agencies downgraded Lehman: S&P from A+ to A, Fitch from AA- to A+, and Moody's from A1 to A2. The agencies cited Lehman's earnings report and fears of further write-downs of real estate (Valukas Appendix 13, pp. 7-9). Lehman's stock price fell to $17 at the end of July.

Press coverage of Lehman was negative. On June 11, for example, Bloomberg Business published an article called "Lehman: Independent for How Long?" (Levisohn, 2008). It concluded with a quote from an analyst: "Lehman is next. When you have a pack of dinosaurs, the slowest get picked off."

Strains on Liquidity

Lehman held a liquidity pool consisting primarily of cash and government securities. The firm increased this pool from $34 billion on February 29 to $45 billion on May 31, the end of 2008 Q2. As noted above, Standard and Poor's said in April that Lehman's liquidity compared favorably to that of the other big investment banks.

However, as confidence in Lehman fell, the firm began to experience strains on its liquidity. During 2008 Q3, from May 31 to August 31, Lehman's outstanding commercial paper fell from $8 billion to $4 billion. The firm issued only $2 billion of new long-term debt, compared to $14 billion during Q2 (Valukas fn 6341). Some counterparties cut off repos, including Dreyfus and Federated Investors (FCIC p. 328).

These losses of liquidity were similar to those at Bear Stearns, but Lehman also experienced a problem that Bear did not. Starting in June, JPMorgan Chase became worried about its intraday exposure to Lehman's tri-party repos and demanded billions of dollars of collateral, on top of the collateral pledged to Lehman's repo lenders. JPMorgan insisted that much of the new collateral be cash or liquid securities, and so part of Lehman's liquidity pool became encumbered.

Despite these developments, Lehman's liquidity problems–like those of Bear Stearns–did not appear dire until the firm's last few days. Lehman's reported liquidity pool, which was $45 billion on May 31, was still $41 billion on Tuesday, September 9. This stability partly reflected gains in liquidity that offset losses. Lehman managed to find some new repo lenders, and to raise cash by issuing equity and selling illiquid assets.

However, Lehman's reported liquidity also reflected some dubious accounting. For example, the liquidity pool included some of the assets that were pledged as collateral to JPMorgan Chase.

Section 7.2 of this paper analyzes this issue in detail, and finds that one measure of true liquidity was only $22 billion on September 9.

Remedial Actions by Lehman

In early 2008, some Lehman executives started to worry about the firm's exposure to real estate and its thin equity cushion. After the Bear Stearns crisis, Lehman changed its strategy drastically: from March to September, it sought to raise capital and reduce its holdings of illiquid assets, and it considered merging with a stronger firm.

The Valukas Report includes a detailed narrative of Lehman's "survival strategies" (pp. 609-726 and Appendix 13); here, I review highlights. Some efforts to address Lehman's problems were successful, and others were not. Several actions were at the planning stage when Lehman declared bankruptcy, so we can only guess what their effects might have been.

New Capital On June 12, Lehman raised a total of $6 billion by issuing $4 billion in common stock and $2 billion in preferred stock. As a result, the firm's reported equity rose from about $26 billion at the end of Q2 to $28 billion at the end of Q3, despite Q3 net income of -$4 billion.

Sales of Illiquid Assets Lehman also sought to reduce its holdings of illiquid real estate assets, for the dual purpose of reducing risk and raising liquidity. By definition, those assets were difficult to sell, but Lehman reduced its total real estate assets, both commercial and residential, from $80.8 billion on February 29 to $64.7 billion on May 31 and $45.8 billion on August 31. These decreases reflected markdowns in valuations as well as asset sales (2008Q2 10-Q, pp. 61-65; Valukas fn 750).

The Search for a Strategic Partner Between March and September, Lehman executives sought a strategic partner that would take an equity stake in the firm or buy it entirely. The Valukas Report (Appendix 13) lists more than thirty prospects that Lehman approached, including investment banks around the world, private equity firms, sovereign wealth funds, and Warren Buffett and Carlos Slim.

Yet, after the June 12 stock issue, none of Lehman's efforts to raise capital was successful. Many commentators, including Henry Paulson and Ben Bernanke, have blamed this outcome on Lehman CEO Richard Fuld. Fuld, they say, did not appreciate the severity of his firm's problems, and demanded unrealistically high prices from potential partners.

One investor with serious interest in Lehman was the Korean Development Bank (KDB). Lehman and KDB began negotiations in June, and on August 31 KDB proposed a $6 billion investment. The two parties could not agree on terms, however, and KDB ended negotiations on September 9.

Spinco A centerpiece of Lehman's strategy was a plan to transfer $25-$30 billion of its real estate assets to a real estate investment trust (REIT). This entity, nicknamed Spinco, would be financed primarily by Lehman and owned initially by Lehman's shareholders, but it would be a separate publically-traded company. The SEC approved the plan, and on September 10 Lehman announced that Spinco, officially named REI Global, would be launched in the first quarter of 2009.

As discussed below, analysts reacted negatively to Lehman's announcement of REI Global. Yet it appears there was a good reason to separate some of Lehman's real estate assets from the rest of the firm. Under the accounting rules for REITs, REI Global could have valued its assets on a hold-to-maturity rather than mark-to-market basis, which would have been advantageous during the 2008 crisis. In any event, Lehman's plans became moot with the firm's bankruptcy.

Sale of IMD Finally, Lehman planned to sell a 55% stake in its Investment Management Division (IMD), which included the Neuberger Berman asset management business. Neuberger Berman was highly profitable–analysts called it the "crown jewel" of Lehman Brothers. Lehman announced its plans for IMD on September 10, along with the creation of REI global, and said it expected to raise $3 billion from the transaction.

September 9-12

In Lehman's crisis, as in Bear Stearns's, an erosion of confidence over several months culminated in a run that wiped out liquidity in a few days. The key events during the run are described in chronologies from Valukas (Appendix 15) and the FCIC. The following is a summary.

Two blows to confidence appear to have triggered the final run on Lehman. The first was the announcement on the morning of Tuesday, September 9 that the Korean Development Bank had ended negotiations about a Lehman investment. On September 9, Lehman's stock price fell from $14 to $8; CDS premiums on the firm's debt rose almost 200 basis points; and S&P and Fitch placed Lehman's rating on a negative watch.

The second blow occurred on the morning of Wednesday, September 10, when Lehman announced its earnings for Q3 and its plans for REI Global and IMD. Lehman executives hoped these announcements would boost confidence in the firm, but the reaction was negative. Analysts expressed doubts that REI Global would be viable, and disappointment that Lehman had not raised new capital.

On the afternoon of September 10, Moody's put Lehman's rating on a negative watch, threatening a two-notch downgrade if Lehman did not find a strategic partner by September 15. Fitch took a similar position on September 11. Lehman's stock price fell to $4 at the end of September 11.

As confidence in Lehman collapsed, the firm rapidly lost liquidity. About $20 billion of repo agreements did not roll. On September 9, JPMorgan Chase demanded an additional $5 billion of collateral to clear tri-party repos, and derivatives counterparties also made collateral calls. Overall, as detailed in Section 7 of this paper, Lehman's liquidity fell from $22 billion on September 9 to $1.4 billion on Friday, September 12.

At that point, it was clear that many other repos would not roll on Monday, September 15, and liquidity would quickly hit zero. Lehman's executives knew the firm could not meet its obligations on Monday unless it was rescued by an acquirer or the Fed.

The Role of Self-Fulfilling Expectations

Lehman's last week is a textbook example of a liquidity crisis driven by self-fulfilling expectations. Lehman's experience, like Bear Stearns's, was essentially a classic bank run, with the twist that the run extended to secured funding. The episode bore out S&P's warning in April that Lehman could experience a crisis "if there is an adverse change in market perceptions, however ill-founded."

Key aspects of Lehman's crisis included a falling stock price and rating downgrades, which reinforced each other in a vicious circle. For example, on September 9, S&P put Lehman on a negative watch based on "the precipitous decline in its share price in recent days" (Valukas Appendix 15 fn 89). This warning and those of Moody's and Fitch helped cause the share price to decline further over September 10-12.

Stock analysts recognized the self-fulfilling nature of Lehman's crisis. On September 11, the Buckingham Research Group downgraded Lehman from "strong buy" to "neutral," saying the firm was undervalued based on fundamentals but threatened by "rating agency risk." According to Buckingham (Valukas fn 5438):

> [I]t does not appear that the rating agencies are willing to give LEH the time it needs to execute its strategic initiatives. And while we strongly disagree with the rating agencies' stance, perception is reality in this business and a significant downgrade would be very onerous on LEH's trading business.

Also on September 11, an analyst at Sanford Bernstein wrote to colleagues about Lehman's situation (Valukas Appendix 15 fn 117). The analyst listed questions and answers, which included the following:

5. What does Lehman's liquidity look like? Can there be a run on the Bank?

Lehman's liquidity profile appears fine, especially with the Fed backstopping the firm. After Tuesday's market close, every major market dealer has announced they continue to trade with the firm and we believe it is likely the Fed is encouraging other firms to continue to trade with Lehman to avoid a funding run.

6. How can Lehman really blow up?

Lehman's stock price could fall to $1 or rise to $20 and the firm will be able to go about business as usual as long as firms continue to lend to it. The Fed's facilities are certainly helping to keep these lines open.

But if a large counterparty decides to pull lines and other firms catch wind and pull their lines, then the Fed will have to decide what to do because Lehman would look to it for funding. It's a massive game theory. No large counterparty wants them to fail, so as long as people lend, it won't.

This analysis recognizes that there are multiple equilibria for Lehman ("a massive game theory"), with funding maintained or withdrawn. The analyst hopes that Lehman will survive because counterparties coordinate on the better equilibrium and/or the Fed steps in, but neither of those things happened.

4.4 THE FINAL WEEKEND

Lehman's fate was determined over the weekend of September 13-14. Fed and Treasury officials tried to broker an acquisition of Lehman by Bank of America or Barclays, but these efforts failed. Lehman did not have enough cash to operate on Monday September 15, so late on the 14th the firm's board of directors voted to file a bankruptcy petition.

Two Possible Acquirers

Over the Summer of 2008, Lehman explored mergers with a number of possible partners, as discussed above. By September, the only firms with interest were Bank of America and the British bank Barclays.

Lehman had approached Bank of America about a deal in July and again in August, but BoA executives were lukewarm. In early September, Treasury Secretary Paulson called Bank of America's CEO, Kenneth Lewis, and "asked him to take another look at acquiring Lehman, assuring him that Fuld was ready to deal" (FCIC p. 332). Bank of America began a due diligence review of Lehman's finances around September 9 (Valukas p. 698).

Lehman had also approached Barclays over the Summer. Barclays CEO Robert Diamond told Fuld he was not interested in a merger because "there was too much overlap" between the two firms (Valukas Appendix 15 fn 167). However, Diamond later said that a Lehman acquisition appealed to Barclays as a way to expand its business in North America. On balance, Barclays thought an acquisition might be profitable if Lehman experienced a crisis and was therefore available at a "very, very distressed price" (Diamond FCIC interview c. 32:00).

As Lehman entered its final week, it appeared that the firm *would* be available at a distressed price. Geithner and Paulson contacted Diamond and encouraged him to consider a Lehman deal. Barclays began due diligence on Friday, September 12.

Around the same time, Bank of America lost interest in Lehman Brothers. It believed that a large fraction of Lehman's assets were overvalued, and it discovered a more attractive opportunity to buy an investment bank. The CEO of Merrill Lynch, John Thain, saw the run on Lehman and feared a similar fate for his firm, so he called BoA's Lewis on September 13. The two men quickly reached a deal for BoA to acquire Merrill, and that left Barclays as the only bidder for Lehman.

<u>The Near Deal</u>

On Friday September 12, Treasury Secretary Paulson traveled to New York. He spent the weekend at the New York Fed, along with President Geithner and SEC Chairman Cox. From Friday until Sunday, Paulson and colleagues tried to broker an acquisition of Lehman Brothers by Barclays.

An obstacle was that Barclays did not want to acquire some of Lehman's illiquid assets, specifically its commercial real estate and private equity. Like JPMorgan Chase when it bought Bear Stearns, Barclays demanded that someone else finance the assets it did not want. In the Lehman case, the Fed did *not* create an entity like Maiden Lane to purchase the assets. Instead, policymakers sought financing from a consortium of Wall Street firms, an approach modeled on the 1998 rescue of the hedge fund Long Term Capital Management.

To organize a consortium, policymakers invited the CEOs of twelve financial institutions to meet at the New York Fed. The group convened on Friday evening and worked through the weekend. Paulson and Geithner asked the CEOs to help devise a plan to rescue Lehman, and told them that the Fed would not contribute any money to the deal.

On Saturday, September 13, a tentative deal was reached among Lehman, Barclays, and the Wall Street consortium. The deal is outlined in the minutes of a Lehman board meeting at 5:00 PM on the 13th (Valukas Appendix 15 fn 283). Barclays would pay $3 billion and acquire all of the Lehman enterprise–all of LBHI–except for a pool of illiquid assets valued at $40 billion. Those assets–commercial real estate, private equity, and investments in hedge funds–would be financed by the consortium. LBHI would remain as an independent corporation, but its only assets would be those rejected by Barclays, plus the $3 billion paid by Barclays. Its liabilities would be $40 billion in debt to the consortium.

According to the minutes: "The proposed structure was summarized as Barclays gets the 'good bank' and [Lehman's] stockholders get the 'bad bank.'" The bad bank was somewhat similar to the "Spinco" that Lehman had previously planned: it was a vehicle that would hold illiquid assets.

On the night of September 13, it appeared that the proposed deal would be completed the next day. On the morning of the 14th, however, the deal was derailed by a problem that nobody seems to have anticipated. To approve the deal, the New York Fed required that Barclays immediately guarantee all of Lehman's obligations–just as JPMorgan Chase had guaranteed the obligations of Bear Stearns. But under British law, such a guarantee required a vote by Barclays shareholders, which would take 30-60 days to organize.

Geithner and SEC Chair Cox appealed to Britain's Financial Services Authority (FSA) to waive the requirement of a shareholder vote, but the FSA refused. The Fed continued to insist on an immediate guarantee by Barclays. Secretary Paulson called the Chancellor of the Exchequer, Alistair Darling, but they failed to resolve the impasse. By 11:00 AM in New York, it was clear that the Lehman-Barclays deal would not go forward (see FSA statement, Valukas fn 5918).

<u>The Final Hours</u>

On the afternoon of September 14, Lehman executives tried desperately to save their firm. Fuld called the CEO of Morgan Stanley, John Mack, and asked for some kind of help, but he was rebuffed (Valukas Appendix 13 p. 57). Sorkin (pp. 361-362) reports that George Walker, a Lehman executive who was a second cousin of President Bush, called the White House and asked to speak to the President. His call was not returned.

A group of Lehman executives and lawyers met at the New York Fed with Fed officials led by General Counsel Thomas Baxter. Baxter announced that the Fed would not assist the broad Lehman enterprise, LBHI, and strongly advised LBHI to file for bankruptcy. Baxter said the Fed *would* assist LBI, Lehman's broker-dealer in New York, to keep that unit in operation (see details below).

LBHI's board of directors met on Sunday evening. With neither a Barclays deal nor adequate Fed assistance, it was clear the firm could not operate the next day. After a lengthy discussion (see section 7.4), the directors voted to declare bankruptcy. Lehman's attorneys at Weil, Gotschal, and

Manges rushed to prepare a bankruptcy petition, which was submitted to the court at 1:45 AM on September 15. It was 6:45 AM in London, where Lehman was scheduled to open at 9:00.

<u>The Fed's Damage Control</u>

Fed officials were worried that LBHI's bankruptcy would disrupt the financial system. Starting on September 14, policymakers took a number of actions to minimize the damage.

Expansion of the PDCF and TSLF The Fed created the PDCF and TSLF during the Bear Stearns crisis to maintain confidence in the tri-party repo market. Officials feared that Lehman's bankruptcy would be a new blow to confidence, which could trigger runs on the repos of other investment banks. They responded by broadening the types of collateral accepted by the two lending facilities.

Collateral for the PDCF was expanded "to closely match the types of collateral that can be pledged in the tri-party repo systems of the two major clearing banks" (Board press release, September 14). This change meant the PDCF started accepting speculative-grade securities, equities, and whole loans. Haircuts on those types of collateral ranged from 7% to 12% for most borrowers, somewhat lower than market haircuts at the time (see Section 12.1).

The purpose of PDCF expansion was to protect investment banks completely from losses of repo funding. Now, *any* repos that did not roll could be replaced by PDCF loans, using whatever collateral the repo counterparties stopped accepting (Dudley FCIC interview c. 31:00).

The TSLF, which lent Treasury securities to primary dealers, was expanded at the same time as the PDCF. Previously, the TSLF accepted only triple-A mortgage backed securities as collateral. Starting September 14, it accepted all investment-grade securities.

Support for LBI Lehman Brothers Inc. (LBI), Lehman's broker-dealer in New York, was a subsidiary of LBHI. On September 14, Fed officials wanted LBHI to file for bankruptcy, but they wanted LBI to stay in business for some time. According to General Counsel Baxter, officials sought "to enable the broker-dealer to wind down its trading book in an orderly manner–thereby mitigating to some degree the impact of the failure on financial markets and the economy" (FCIC prepared testimony, p. 11).

LBI was one part of LBHI that lacked enough cash to operate on September 15. To keep LBI open, the Fed allowed it to borrow from the PDCF for a period up to two weeks. LBI could pledge the same types of collateral as other borrowers, but with larger haircuts–20% for many securities.

Why did the Fed assist LBI, but not the rest of LBHI? This crucial question is addressed in later parts of this paper.

Netting Derivatives LBHI had millions of derivatives contracts, which it defaulted on when it filed for bankruptcy. To mitigate the effects on other financial institutions, the New York Fed hosted a special session for trading derivatives on Sunday afternoon. Some firms were able to take positions that reduced their exposure to Lehman.

4.5 AFTER THE BANKRUPTCY

The U.S. financial crisis intensified after the Lehman bankruptcy, and so did efforts by the Fed and Treasury to contain the damage. I summarize the parts of the story that are relevant for this paper.

The Resolution of LBI

As expected, LBI needed assistance from the PDCF after LBHI filed for bankruptcy. LBI received overnight loans for three days: approximately $28 billion on September 15, and $20 billion on September 16 and 17 (Valukas fn 5992).

When LBHI entered bankruptcy, Barclays expressed interest in purchasing LBI from the bankruptcy estate. On September 16, Barclays and the estate agreed on a complex transaction in which Barclays acquired LBI's broker-dealer operations and some but not all of LBI's assets and customer accounts. This deal was approved by the LBHI bankruptcy court on September 19.

On September 18, Barclays agreed to provide liquidity to LBI as part of its takeover of LBI's operations. Barclays lent $50 billion to LBI through a tri-party repo, and LBI stopped borrowing from the PDCF.

After the Barclays transaction, LBI was still a corporate entity with billions of dollars in customer accounts. On September 19, it entered liquidation under the Securities Investors Protection Act (SIPA)–a special kind of bankruptcy for regulated broker-dealers.

The AIG Crisis and Rescue

Like the big investment banks, AIG bet heavily on real estate during the housing bubble. It purchased large quantities of mortgage backed securities, and it sold credit default swaps on MBSs. As MBS prices fell, AIG suffered losses and markets lost confidence in the firm. The effects were the same as those experienced by Bear Stearns and Lehman: a falling stock price, warnings from rating agencies, and a loss of liquidity.

Like Bear and Lehman, AIG lost liquidity largely because it could not roll over short-term funding. In AIG's case, this funding was mostly unsecured commercial paper, not repos. Collateral calls on CDS contracts were another important liquidity drain.

AIG's crisis, like Lehman's, became acute in September 2008. On September 12, AIG executives met with New York Fed officials to request help. According to a Fed summary of the meeting, AIG had "5-10 days before they are out of liquidity" (FCIC fn 19.26). By Tuesday September 16, AIG's funding had broken down completely; as the firm's CEO later put it, "nobody would lend us lunch money" (quoted in LaCapra, 2009). Once again, a major financial institution was on the brink of bankruptcy.

As in the Lehman crisis, policymakers tried to broker a private-sector solution involving a Wall Street consortium. On September 15, President Geithner met with a group of financial institutions led by Goldman Sachs and JPMorgan Chase, and tried to arrange an AIG rescue. The financial institutions prepared a term sheet for a $75 billion loan to AIG, but then, on the evening of the 15th, they pulled out of the deal. One factor deterring the potential lenders was the panic in financial markets following the Lehman bankruptcy (Congressional Oversight Panel, pp. 65-68).

On September 16, the Fed stepped in to rescue AIG. Citing Section 13(3), the Board of Governors authorized the New York Fed to provide an $85 billion line of credit to AIG. According to the Board's press release:

> The purpose of this liquidity facility is to assist AIG in meeting its obligations as they come due. This loan will facilitate a process under which AIG will sell certain of its businesses in an orderly manner, with the least possible disruption to the overall economy.

The loan was collateralized by "all the assets of AIG," including the stock of AIG's insurance subsidiaries. Other loan conditions were harsh: the interest rate was LIBOR plus 850 basis points, and the U.S. government received an 80% equity interest in AIG.

The Fed's initial loan was not sufficient to stabilize AIG. On October 6, the Fed granted the firm an additional credit line of $38 billion. On November 10, the Fed created Maiden Lane II to buy MBSs from AIG, and Maiden Lane III to buy credit default swaps issued by AIG. Also on November 10, the Treasury invested $40 billion in AIG under the Troubled Asset Relief Program (see below).

<u>The Money Market Crisis</u>

The Lehman failure led directly to another part of the financial crisis: the run on money market mutual funds (FCIC report, pp. 356-360) . One large fund, the Reserve Primary Fund, held $785 million of LBHI's commercial paper, which was about one percent of the fund's assets. This commercial paper became almost worthless on September 15, and that caused the Reserve Primary Fund to "break the buck": it repriced shares that it had sold for $1.00 at $0.97.

This event shook confidence in money market funds, which savers had come to regard as riskless. Over several days, the funds' customers withdrew about $350 billion, or 10% of the funds' assets, setting off a chain reaction that disrupted the economy. As the funds lost cash, they reduced their purchases of commercial paper; that made it difficult for corporations to raise working capital; and that led the corporations to reduce production and lay off workers.

Policymakers eventually contained the money market crisis through several actions. On September 19, the Treasury temporarily guaranteed the $1 value of money market shares. On the same day, the Fed created the Money Market Investor Facility, which lent money to banks that purchased commercial paper. Finally, on October 7, the Fed created the Commercial Paper Funding Facility, which purchased commercial paper directly from issuers.

Goldman Sachs and Morgan Stanley

After Lehman failed and Merrill Lynch was acquired by Bank of America, two of the big-five investment banks were left: Goldman Sachs and Morgan Stanley. These firms had also suffered losses on real estate, and market participants started to question their viability. John Mack, Morgan Stanley's CEO, told the FCIC (p. 360):

> As soon as we come in on Monday [September 15], we're in the eye of the storm with Merrill gone and Lehman gone.... Now we're the next in line.

Yet again, a loss of confidence produced a loss of repo financing and other liquidity drains, which threatened the survival of Goldman and Morgan. According to Ben Bernanke (FCIC p. 362):

> [W]hen that huge funding crisis hit all the investment banks, even Goldman Sachs, we thought there was a real chance that they would go under.

Goldman Sachs and Morgan Stanley offset their liquidity drains by borrowing from the PDCF and TSLF. Much of this borrowing was collateralized with equities and speculative-grade securities, as allowed by the September 14 expansion of the PDCF. Goldman's total borrowing from Fed facilities peaked at $69 billion on December 31, and Morgan Stanley's at $107 billion on September 29 (data from Bloomberg News). Morgan Stanley borrowed far more than 100% of its liquidity pool, which was $55 billion in mid-September (FCIC fn 20.55). This fact suggests that Morgan Stanley would have run out of cash if not for Fed assistance.

Goldman and Morgan Stanley also took steps to restore confidence in their firms. Both applied to become bank holding companies (BHCs), and the Fed approved their requests on September 21. BHC status seems to have boosted confidence because it implied greater oversight by the Fed, and access to the discount window for commercial banks.

In addition, the two firms raised new capital. Goldman received $5 billion from Berkshire Hathaway on September 23, and Morgan Stanley received $9 billion from Mitsubishi UFJ on September 29. Both firms also received capital from the government through TARP, which is discussed next.

<u>TARP</u>

In late September, Congress voted to establish the Troubled Asset Relief Program, and President Bush signed the legislation on October 3. TARP allocated $700 billion to the Treasury department to aid troubled financial institutions. Over the next several months, the Treasury purchased equity stakes in most of the large U.S. financial institutions, including Goldman Sachs, Morgan Stanley, and AIG.

The financial system began to stabilize in 2009. Over 2009-2011, the Treasury sold most of the equity it had bought under TARP, and the Fed closed most of its lending facilities. The PDCF and

TSLF closed in February 2010.

The Great Recession

The financial crisis caused a credit crunch throughout the U.S. economy. Banks cut lending sharply, loan securitization came to a halt, risk premia on corporate debt spiked upward, and firms had trouble issuing commercial paper. The crisis also produced a 50% fall in the stock market, a depressed housing market, rising foreclosures, and record lows in consumer confidence. All of these factors reduced consumption and investment spending, leading to the Great Recession of 2008-2009.

The recession has done long-term damage to the economy. Estimates of potential output have fallen five or ten percent below the path that potential was following before 2008 (Reifschneider et al., 2013; Ball, 2014).

5. LEGAL CRITERIA FOR FED ASSISTANCE

The central question of this paper is whether a Federal Reserve rescue of Lehman Brothers would have been legal. Here, I examine the relevant law.

5.1 SECTION 13(3)

Section 10B of the Federal Reserve Act authorizes the Fed to lend to depository institutions through the "discount window." Ordinarily, the Fed may *not* lend to non-depository institutions such as investment banks and insurance companies. However, Section 13(3) of the Federal Reserve Act allows loans to these institutions (and even non-financial firms and individuals) under special circumstances.

Section 13(3) was added to the Federal Reserve Act in 1932, and it has been amended three times: in 1935; in 1991, as part of the FDIC Improvement Act; and in 2010, as part of the Dodd-Frank Wall Street Reform Act. What matters for our purposes is Section 13(3) as it stood in 2008, before the 2010 amendments.

Under 13(3), a Federal Reserve Bank can make a loan if it is authorized to do so by five members of the Fed's Board of Governors. In 2008, the Board could authorize a loan if three requirements were met:

- The Board must find that "unusual and exigent circumstances" exist.
- The Reserve Bank must "obtain evidence that [the borrower] is unable to secure adequate credit accommodations from other banking institutions."
- The loan must be "indorsed or otherwise secured to the satisfaction of the Reserve Bank."

Between 1932 and 1936, the Board of Governors invoked Section 13(3) to authorize a total $1.5 million in loans by various Reserve Banks. Then Section 13(3) was dormant for more than 70 years, until March 2008, when the Board invoked it to establish the TSLF and PDCF and to authorize the New York Fed's loan to Maiden Lane LLC. In the Fall of 2008, the Fed used 13(3) to create several more lending programs and to support AIG. The web site of the Board of Governors describes these actions on its page on "Credit and Liquidity Programs."

In 2008, few questioned that the financial crisis had created unusual and exigent circumstances, the first requirement for lending under 13(3). The second requirement, that borrowers be unable to secure other credit, was also generally satisfied. The Fed lent to firms that lost their normal sources of funds, such as investment banks that could not roll repos and corporations that could not issue commercial paper. Clearly, Lehman Brothers also was unable to secure adequate credit–that was why it declared bankruptcy.

The tricky part of Section 13(3) is the requirement of satisfactory security for a loan. Fed officials have asserted that this condition was met for all the loans they approved, but could not have been met for a loan that rescued Lehman. I will carefully examine the concept of satisfactory security in what follows.

Before tackling that issue, we should note two other features of Section 13(3) as it stood in 2008. First, 13(3) did *not* include any requirement concerning a borrower's overall financial condition, such as solvency in any sense. Second, authority over lending decisions rested solely with the Federal Reserve System: Reserve Banks could make loans with the approval of the Board of Governors.

Both of these features of 13(3) were changed by the Dodd-Frank Act of 2010. The law now prohibits loans to "borrowers that are insolvent" or to "a failing financial company." It also requires approval of loans by the Secretary of the Treasury. Because of these new restrictions, some loans that were legal in 2008 might not have been legal under current law.[3]

5.2 SATISFACTORY SECURITY

The requirement that a loan be "secured to the satisfaction of the Reserve Bank" is vague. The legislative history of Section 13(3) does not clarify the term (Todd, 1993), and it has not been interpreted by courts. However, two sources shed light on the Fed's definition of satisfactory security in 2008: a memo written by the Board's Legal Division, and statements by Ben Bernanke about lending decisions. Apparently, the Fed interpreted satisfactory security to mean simply that a loan was likely to be repaid.

The Legal Division's Memo on the CPFF

Each time the Board of Governors authorized a loan under Section 13(3), its Legal Division, led by General Counsel Scott Alvarez, wrote a memo about the loan. One of these memos–the one on the Commercial Paper Funding Facility established in October 2008–was released by the FCIC (FCIC fn 18.135). This memo is the only publicly available document in which the Legal Division formally interprets Section 13(3).[4]

The CPFF memo includes a general discussion of security for 13(3) loans. It describes several

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[3] The requirements for Fed lending in 2008 were similar to those advocated by Bagehot in his classic work on central banking (1873, chapter 7). Bagehot also stresses the security of loans, saying that a central bank should lend against "good banking securities" and that "no advances need be made by which the Bank will ultimately lose." Bagehot does not mention the solvency of borrowers, although commentators sometimes say that he does (see Goodhart 1999).

[4] Alvarez mentions the memos on 13(3) authorizations in his interview with the FCIC staff (approximately 1:15 in the audio recording). It is not clear why the CPFF memo has been released and others have not. I sought the memos on Maiden Lane and AIG in an unsuccessful FOIA request to the Board (see Section 12.3).

types of security. “Indorsement,” which Section 13(3) mentions explicitly, is a guarantee of repayment by a party other than the borrower. Collateral is another type of security. A third type is an insurance fee, which was the security for loans from the CPFF (see Section 12.4).

In discussing these types of security, the Legal Division emphasizes that “the scope of the Reserve Bank’s discretion in deciding what will be ‘satisfactory’ to it in connection with section 13(3) lending is extremely broad.” In keeping with this theme, the memo focuses more on what is *not* required for satisfactory security than what *is* required. For example, the memo points out that 13(3) does not limit the types of assets that can serve as collateral. In this respect, lending under 13(3) differs from other kinds of Fed lending, which require specific types of collateral.

In many credit markets, the value of collateral for a loan must exceed the loan (i.e., lenders impose haircuts). However, for a 13(3) loan, the Legal Division says the value of collateral can be *less* than the loan:

The [Federal Reserve] Act could have provided that section 13(3) credit must be secured solely by collateral whose fair market value at the time credit is extended is at least equal to the amount of credit extended..... Congress imposed no such limitations under section 13(3). Therefore, the Reserve Bank has the discretion to accept as collateral securing [a loan] collateral of any value, including collateral that at the time of the extension of credit may have a current market value that is less than the amount of credit extended....

At only one point does the memo hint at an affirmative requirement concerning collateral:

[T]he language of section 13(3) imposes no requirements on the amount or type of security obtained by a Reserve Bank in connection with [a loan] other than that the credit be secured “to the satisfaction of the Reserve Bank.” This requirement has traditionally been met by collateral that secures the repayment of the credit.

The last sentence borders on the tautological, but we might interpret “secures repayment” as meaning that the Fed will not lose money on a loan.

This interpretation is consistent with a comment by General Counsel Alvarez in his 2010 FCIC interview. Asked about the CPFF memo, Alvarez summarizes its definition of satisfactory security as, "You have to be pretty confident you will be repaid" (c. 1:17).

Statements by Ben Bernanke

In explaining why the Fed did not assist Lehman Brothers, Ben Bernanke often referred to the requirement of satisfactory security. Bernanke's working definition of this term appears similar to Alvarez's.

One example is Bernanke's speech to the National Association of Business Economists on October 7, 2008. On that occasion, Bernanke says a Lehman rescue would have been unlawful because it "would have involved the assumption by taxpayers of billions of dollars of expected losses." He adds,

> [T]he Federal Reserve's loans must be sufficiently secured to provide reasonable assurance that the loan will be fully repaid. Such collateral was not available in [Lehman's] case.

Bernanke contrasts this situation with the case of AIG, in which "the Federal Reserve was able to provide emergency credit that was judged to be adequately secured by the assets of the company."

Similarly, in an October 15 speech at the Economic Club of New York, Bernanke says

> A public-sector solution for Lehman proved infeasible, as the firm could not post sufficient collateral to provide reasonable assurance that a loan from the Federal Reserve would be repaid....

He again says that the Fed's loan to AIG was "adequately secured."

Bernanke made a similar statement to the Bankruptcy Examiner in December 2009. His exact words are not recorded, but the Valukas Report summarizes (pp. 1503-1504):

> Bernanke did not believe that the Fed had the legal authority to bail out Lehman in September 2008. He noted that a Federal Reserve Bank such as the FRBNY could make a loan only if it was satisfactorily secured, that is, that the bank could reasonably expect a 100 percent return.

Bernanke said this condition was not satisfied because Lehman lacked adequate collateral.

Bernanke's requirement of a "reasonable assurance" of repayment is somewhat imprecise, but it is similar to Scott Alvarez's view that the Fed must be "pretty confident" of repayment.

6. LEHMAN'S BALANCE SHEET AND SOLVENCY

Here I begin to examine the financial condition of Lehman Brothers in detail. This section gives an overview of Lehman's business and then analyzes its balance sheet, the evidence on overvaluation of assets, and the firm's solvency. I also discuss the destruction of value caused by Lehman's bankruptcy.

As discussed above, in 2008 solvency was not a requirement for Fed assistance under Section 13(3). Lehman's solvency is relevant, however, to the type of liquidity support the firm needed, and to its long-term viability. Solvency is also important because Fed officials have emphasized the issue in explaining why they did not rescue Lehman.

6.1 AN OVERVIEW OF LBHI

Here I outline the structure and activities of Lehman Brothers Holdings Inc. Like many financial firms, LBHI was organized along two dimensions, by business line and by legal entity.

<u>Lehman's Businesses</u>

LBHI was organized into three "business segments," each of which operated around the world. The firm described these business segments in its filings with the SEC (forms 10-Q and 10-K).

The Investment Banking segment provided services such as underwriting and advising to corporations and governments. The Investment Management segment was an asset manager for institutions and wealthy individuals, and also invested in private equity and hedge funds.

The third business segment, Capital Markets, operated in markets for fixed-income securities, equities, and derivatives. It served as an intermediary, buying or borrowing securities from clients and selling or lending them to other clients; it served as a prime broker for hedge funds; and it took proprietary positions. Capital Markets also included divisions that originated mortgages and invested in commercial real estate.

Lehman's Corporate Structure

Lehman had a complex corporate structure that did not align with its business segments. This structure was based partly on geography, and it was influenced by taxation and capital requirements in various countries.

Lehman Brothers Holdings Inc. (LBHI) was at the top of the corporate structure. LBHI directly owned assets including real estate and securities, and it had sixteen subsidiaries. These subsidiaries included broker-dealers in New York, London, and Tokyo: Lehman Brothers Inc. (LBI), Lehman Brothers Inc. Europe (LBIE), and Lehman Brothers Inc. Japan (LBIJ). Other important subsidiaries included the investment management firm Neuberger Berman, and Lehman Brothers Bankhaus, a German commercial and investment bank.

The subsidiaries of LBHI had subsidiaries of their own. For example, LBI owned Lehman Derivative Products Inc. and Lehman Commercial Paper Inc. Altogether, the Lehman enterprise included 36 corporate entities in 2007 (Valukas fn 7362).

LBHI and several subsidiaries issued long-term debt and commercial paper. Repo financing occurred mainly at LBI and LBIE, the New York and London broker-dealers. LBHI managed liquidity throughout its enterprise: it collected excess cash from subsidiaries and sent cash to subsidiaries with shortages (Valukas, pp. 1551-1553).

LBHI's quarterly and annual financial statements (Forms 10-Q and 10-K) reported a consolidated balance sheet for the firm and its subsidiaries. The annual statements also reported unconsolidated balance sheets for LBHI, LBI, and "other subsidiaries." In this accounting, LBHI held equity in its subsidiaries, and LBHI and the subsidiaries had debts to each other. All of these items netted to zero on the consolidated balance sheet.

Before LBHI's bankruptcy, its corporate structure was not salient to its senior managers, who ran the firm as a single business. Corporate structure suddenly became important when LBHI entered bankruptcy, because many Lehman subsidiaries entered separate wind-downs in various countries. This break-up disrupted Lehman's operations, and it produced extensive litigation between different parts of the firm.

6.2 LEHMAN'S BALANCE SHEET

Exhibit 1 is LBHI's consolidated balance sheet for May 31, 2008, the end of 2008 Quarter 2 in the firm's accounting calendar. This balance sheet is reproduced from LBHI's 10-Q for the quarter, the last 10-Q filed before the bankruptcy. Exhibit 2 is a preliminary financial statement for August 31, the end of Quarter 3, which LBHI released on September 10 (Valukas fn 750).

LBHI's balance sheets were based on complex accounting conventions, which are described in lengthy notes in its 10-Q. Here I review the most important items on the balance sheets, starting with 2008 Q2.

Assets on May 31

The first page in Exhibit 1 summarizes LBHI's assets on May 31 and compares them to assets on November 30, 2007. Total assets on May 31 were $639 billion, down from $691 billion. This decrease reflects Lehman's efforts to sell illiquid assets.[5]

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[5] A major finding of the Valukas Report (Volume 3 and Appendix 17) is that Lehman's balance sheet was distorted by an accounting trick called "Repo 105." Under normal accounting rules, a firm's repos are treated as collateralized borrowings, and the collateral is included in the firm's assets. Under Repo 105, some repos were counted as true sales, removing the collateral from Lehman's balance sheet. The purpose was to reduce the firm's reported ratio of assets to equity, a widely watched indicator of its financial health. On May 31, Lehman used Repo 105 to reduce its measured assets by $44.5 billion. [continued on p. 59]

Exhibit 1

LEHMAN BROTHERS HOLDINGS INC.
Consolidated Statement of Financial Condition
(Unaudited)

In millions	**At May 31, 2008**	**At Nov 30, 2007**
Assets		
Cash and cash equivalents	$ 6,513	$ 7,286
Cash and securities segregated and on deposit for regulatory and other purposes	13,031	12,743
Financial instruments and other inventory positions owned (includes $43,031 in 2008 and $63,499 in 2007 pledged as collateral)	269,409	313,129
Collateralized agreements:		
Securities purchased under agreements to resell	169,684	162,635
Securities borrowed	124,842	138,599
Receivables:		
Brokers, dealers and clearing organizations	16,701	11,005
Customers	20,784	29,622
Others	4,236	2,650
Property, equipment and leasehold improvements (net of accumulated depreciation and amortization of $2,697 in 2008 and $2,438 in 2007)	4,278	3,861
Other assets	5,853	5,406
Identifiable intangible assets and goodwill (net of accumulated amortization of $361 in 2008 and $340 in 2007)	4,101	4,127
Total assets	$639,432	$691,063

See Notes to Consolidated Financial Statements.

LEHMAN BROTHERS HOLDINGS INC.
Consolidated Statement of Financial Condition (Continued)
(Unaudited)

In millions, except share data	At May 31, 2008	At Nov 30, 2007
Liabilities and Stockholders' Equity		
Short-term borrowings and current portion of long-term borrowings		
(including $9,354 in 2008 and $9,035 in 2007 at fair value)	$ 35,302	$ 28,066
Financial instruments and other inventory positions sold but not yet purchased	141,507	149,617
Collateralized financings:		
Securities sold under agreements to repurchase	127,846	181,732
Securities loaned	55,420	53,307
Other secured borrowings		
(including $13,617 in 2008 and $9,149 in 2007 at fair value)	24,656	22,992
Payables:		
Brokers, dealers and clearing organizations	3,835	3,101
Customers	57,251	61,206
Accrued liabilities and other payables	9,802	16,039
Deposit liabilities at banks		
(including $10,252 in 2008 and $15,986 in 2007 at fair value)	29,355	29,363
Long-term borrowings		
(including $27,278 in 2008 and $27,204 in 2007 at fair value)	128,182	123,150
Total liabilities	613,156	668,573
Commitments and contingencies		
Stockholders' Equity		
Preferred stock	6,993	1,095
Common stock, $0.10 par value:		
Shares authorized: 1,200,000,000 in 2008 and 2007;		
Shares issued: 612,948,910 in 2008 and 612,882,506 in 2007;		
Shares outstanding: 552,704,921 in 2008 and 531,887,419 in 2007	61	61
Additional paid-in capital	11,268	9,733
Accumulated other comprehensive loss, net of tax	(359)	(310)
Retained earnings	16,901	19,698
Other stockholders' equity, net	(3,666)	(2,263)
Common stock in treasury, at cost		
(60,243,989 shares in 2008 and 80,995,087 shares in 2007)	(4,922)	(5,524)
Total common stockholders' equity	19,283	21,395
Total stockholders' equity	26,276	22,490
Total liabilities and stockholders' equity	$639,432	$691,063

See Notes to Consolidated Financial Statements.

Exhibit 2

LEHMAN BROTHERS HOLDINGS INC.
SELECTED STATISTICAL INFORMATION
(Preliminary and Unaudited)
(Dollars in millions, except share data)

	At or for the Quarter Ended				
	Aug 31, 2008	May 31, 2008	Feb 29, 2008	Nov 30, 2007	Aug 31, 2007
Income Statement					
Net Revenues	$ (2,903)	$ (668)	$ 3,507	$ 4,390	$ 4,308
Non-Interest Expenses:					
Compensation and Benefits	1,950	2,325	1,841	2,164	2,124
Non-personnel Expenses	971	1,094	1,003	996	979
Income before provision for income taxes	(5,824)	(4,087)	663	1,230	1,205
Net Income	(3,927)	(2,774)	489	886	887
Net Income Applicable to Common Stock	(4,090)	(2,873)	465	870	870
Earnings per Common Share:					
Basic	$(5.92)	$(5.14)	$0.84	$1.60	$1.61
Diluted	$(5.92)	$(5.14)	$0.81	$1.54	$1.54
Financial Ratios (%)					
Return on Average Common Stockholders' Equity (annualized) [(a)]	NM	NM	8.6%	16.6%	17.1%
Return on Average Tangible Common Stockholders' Equity (annualized) [(b)]	NM	NM	10.6%	20.6%	21.1%
Pre-tax Margin	NM	NM	18.9%	28.0%	28.0%
Compensation and Benefits/Net Revenues	NM	NM	52.5%	49.3%	49.3%
Effective Tax Rate	32.6%	32.1%	26.3%	27.9%	26.4%
Financial Condition					
Total Assets	$600,000	$639,432	$786,035	$691,063	$659,216
Net Assets [(c)(i)]	310,915	327,774	396,673	372,959	357,102
Common Stockholders' Equity [(d)]	19,450	19,283	21,839	21,395	20,638
Total Stockholders' Equity [(d)]	28,443	26,276	24,832	22,490	21,733
Total Stockholders' Equity Plus Junior Subordinated Notes [(e)]	33,362	31,280	29,808	27,230	26,647
Tangible Equity Capital [(e)]	29,277	27,179	25,696	23,103	22,164
Total Long-Term Capital [(f)]	143,043	154,458	153,117	145,640	142,064
Book Value per Common Share [(g)]	27.29	34.21	39.45	39.44	38.29
Leverage Ratio [(h)]	21.1x	24.3x	31.7x	30.7x	30.3x
Net Leverage Ratio [(i)]	10.6x	12.1x	15.4x	16.1x	16.1x
Other Data (#s)					
Employees	25,935	26,189	28,088	28,556	28,783
Assets Under Management (in billions)	$ 273	$ 277	$ 277	$ 282	$ 275
Common Stock Outstanding (in millions)	689.0	552.7	551.4	531.9	529.4
Weighted Average Shares (in millions):					
Basic	691.2	559.3	551.5	542.6	540.4
Diluted	691.2	559.3	572.8	563.7	565.8

See Footnotes to Selected Statistical Information on page 11.

The bulk of Lehman's assets–$606 billion out of $639 billion–belonged to three broad categories:

- *Financial instruments and other inventory positions owned* ($269 billion): This category includes securities, derivative contracts with positive market values, private equity, commercial real estate, and whole mortgage loans.[6]

- *Collateralized agreements* ($295 billion): This category has two sub-categories: "securities purchased under agreements to resell," also known as reverse repos, and "securities borrowed." These two types of assets are similar in economic terms: both reflect transactions in which Lehman temporarily provides cash to customers in exchange for securities. The cash due back to Lehman is counted among the firm's assets. (The securities due back to counterparties do not appear on either side of the balance sheet.)

- *Receivables* ($42 billion): This category includes cash due to Lehman as a result of various transactions. It also includes assets that Lehman posted as collateral for derivative contracts.

<u>Liabilities and Equity on May 31</u>

The second page in Exhibit 1 summarizes LBHI's liabilities and equity. Total liabilities on May 31 were $613 billion, with four categories comprising $538 billion:

[continued] The Valukas Report argues that the use of Repo 105 "materially misrepresented Lehman's true financial condition" (p. 747). Yet Repo 105 is not important for the issues examined in this paper. The assets removed from the balance sheet were safe and liquid: 91% were Treasury and agency securities, and over 99% were investment grade (Valukas Appendix 17 pp. 12-14) . If we put those assets back on the balance sheet, along with the corresponding liabilities to repo counterparties, this adjustment does not significantly affect my analysis of Lehman's solvency, its liquidity needs, or whether it had adequate collateral for a Fed loan.

[6] The 10-Q reports that $43 billion of these assets are "pledged as collateral." This figure is determined by complex accounting rules that count some but not all of the collateral for Lehman's repos (see King, 2008).

• *Financial instruments and other inventory positions sold but not yet purchased* ($142 billion). This category covers Lehman's short positions, including derivative contracts with negative market values.

• *Collateralized financings* ($208 billion): This category is the opposite of collateralized agreements on the asset side of the balance sheet. It reflects transactions such as repos and securities loans, in which Lehman temporarily receives cash in exchange for securities. The cash owed by Lehman is a liability of the firm. (The securities due back are included in financial instruments on the asset side.)

• *Payables* ($61 billion): This category includes cash due from Lehman in various transactions; collateral posted to Lehman by derivatives counterparties; and customer balances in prime brokerage accounts.

• *Long-Term Borrowings* ($128 billion): This category comprises unsecured debt that is not due for a year or more. Of the total, $110 billion is senior unsecured debt and $18 billion is subordinated debt (p. 38 of the 10-Q).

Notice that commercial paper was not a major part of Lehman's liabilities. The balance sheet includes $35 billion of "short-term borrowings and current portion of long-term borrowings." Only $8 billion of this total is commercial paper; most of the rest is long-term debt coming due within a year (p. 38).

With $639 billion in assets and $613 billion in liabilities, Lehman reported stockholder equity of $26 billion on May 31.

Developments in 2008 Quarter 3

Exhibit 2 was part of a press release from Lehman on September 10, five days before its bankruptcy. The firm pre-announced its earnings for 2008 Q3, which ended August 31, and it reported some balance-sheet items. Lehman never filed a 10-Q for 2008 Q3.

Lehman's total assets fell from $639 billion on May 31 to $600 billion on August 31, as the firm continued to sell illiquid assets. The firm's exposure to real estate fell by $19 billion (p. 2 of the press release).

The decline in assets included net revaluations of -$5.6 billion. Net income including revaluations was -$3.9 billion–Lehman's second straight quarterly loss. Despite this loss, stockholder equity rose from $26.3 billion to $28.4 billion because Lehman issued $6 billion of stock in June.

6.3 ASSET VALUATION AND SOLVENCY

Economists usually define a solvent institution as one with assets greater than liabilities, or equivalently, with positive equity. The definition of solvency is the same in bankruptcy law (Valukas, p. 1570). According to Lehman's financial statements, the firm was solvent before its bankruptcy.

Yet many analysts have questioned Lehman's solvency. They suggest that Lehman inflated the values of its assets, and that more reasonable valuations imply negative equity. Discussions of the Lehman episode often take it as given that the firm was insolvent. For example, Adrian et al. (2013) say the PDCF could not save Lehman because a liquidity facility "cannot prevent credit events due to solvency problems."

Here I examine the evidence on Lehman's solvency. With mark-to-market valuation of assets, solvency is a close call: it appears that Lehman's true equity was near zero. With valuation based on fundamentals, Lehman was probably solvent.

Lehman's Valuations

As a first step, I review the methods that Lehman used to value its assets. I seek to determine how extensively the firm used subjective methods that one can reasonably question. My information comes from Lehman's 10-Q for 2008 Q2.

Most of Lehman's assets fall under one of three categories: collateralized agreements; receivables; and financial instruments and other inventory positions owned (see Exhibit 1). Assets in the first two categories are primarily cash owed to Lehman, which does not require subjective valuation. To my knowledge, nobody has questioned these parts of Lehman's balance sheet.

Discussions of overvaluation, such as the famous speech by David Einhorn, have focused on assets in the category of financial instruments and other inventory positions. This category includes real estate assets, corporate debt and equity, government securities, and derivatives. Lehman valued these assets at a total of $269 billion at the end of 2008 Q2.

Of this $269 billion in assets, a total of $249 billion was reported at "fair value," as defined by the Financial Standards Accounting Board (FSAB). In 2008, the FSAB's definition was "the price at which an asset could be exchanged in a current transaction between knowledgeable, willing parties" (10-Q, p. 26). This concept of fair value is also known as "mark to market."

Following FSAB guidelines, Lehman determined the fair value of assets with three types of "inputs" (10-Q, p. 26). Level I inputs are prices in active markets, such as stock prices on an exchange. Level II inputs are "alternative pricing sources with reasonable levels of price transparency," such as dealer price quotes or market prices for similar but not identical assets. Level III inputs are the most subjective, and are used only when Level I and II inputs are unavailable. Level III inputs "reflect the Company's assumptions that it believes market participants would use in pricing the assets," and may be derived from proprietary data and asset-pricing models.

I will assume that asset valuations based on Level I or II inputs are reasonable. As discussed below, this assumption appears consistent with assessments of Lehman's valuations by other financial institutions. Valuations based on Level III inputs, on the other hand, might be inflated.

Exhibit 3 is a table from Lehman's 10-Q for 2008 Q2 (p. 28). It breaks down the firm's $249 billion of assets at fair value by type of asset and by level of inputs used for valuation. According to the table, a total of $41.3 billion of assets were valued with Level III inputs. These assets were mostly mortgage-related assets ($20.6 billion) and private equity ($10.2 billion).

A complication: Out of Lehman's $269 billion of financial instruments and inventory, $20.7 billion is not included in Exhibit 3. These assets are "real estate held for sale," which were reported at "the lower of carrying amount or fair value less cost to sell" (10-Q, p. 25). The 10-Q does not give details about the valuation of these assets, but presumably it involved judgments that are open to question.

To summarize, the questionable assets are $41.3 billion valued with Level III inputs, plus $20.7 billion of real estate held for sale. The total is $62.0 billion. The true value of these assets was presumably positive, but less than Lehman reported. Therefore, total overvaluation was somewhere between zero and $62 billion at the end of 2008 Q2.

We have less detail about Lehman's assets at the end of 2008 Q3. It appears, however, that the level of questionable assets fell during Q3, because Lehman sold some of the assets and wrote down others. Questionable assets were probably less than $62 billion at the end of Q3.

Analyses by Other Financial Institutions

The most credible assessments of Lehman's valuations come from other financial institutions that examined Lehman's balance sheet before its bankruptcy. Two of these firms, Bank of America and Barclays, examined Lehman as they considered whether to acquire the firm. Another assessment

LEHMAN BROTHERS HOLDINGS INC.
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(Unaudited)

methodology adopted to allocate valuation adjustments on a portfolio to individual positions is reasonable and consistently applied during the periods presented.

Fair Value on a Recurring Basis

Assets and liabilities measured at fair value on a recurring basis and which were categorized as Level 3 at May 31, 2008 and November 30, 2007 were approximately $37.9 billion, compared to $38.9 billion at November 30, 2007.

In millions	At May 31, 2008	At Nov 30, 2007
Level 3 assets	$ 41,344	$ 41,979
Less: Level 3 derivative liabilities	(3,433)	(3,095)
Level 3 assets (net derivatives)	$ 37,911	$ 38,884

Assets and liabilities measured at fair value on a recurring basis are categorized in the tables below based upon the lowest level of significant input to the valuations.

In millions	Assets at Fair Value as of May 31, 2008			
	Level 1	Level 2	Level 3	Total
Mortgage and asset-backed securities[(1)]	$ 347	$ 51,517	$ 20,597	$ 72,461
Government and agencies	11,002	15,986	-	26,988
Corporate debt and other	77	44,332	5,590	49,999
Corporate equities	26,785	10,606	10,158	47,549
Commercial paper and other money market instruments	4,757	-	-	4,757
Derivative assets[(2)]	2,597	39,395	4,999	46,991
	$ 45,565	$ 161,836	$ 41,344	$ 248,745

In millions	Liabilities at Fair Value as of May 31, 2008			
	Level 1	Level 2	Level 3	Total
Mortgage and asset-backed securities	$ -	$ 351	$ -	$ 351
Government and agencies	60,689	3,042	-	63,731
Corporate debt and other	5	8,339	-	8,344
Corporate equities	42,356	828	-	43,184
Commercial paper and other money market instruments	12	-	-	12
Derivative liabilities[(2)]	1,799	20,653	3,433	25,885
	$ 104,861	$ 33,213	$ 3,433	$ 141,507

(1) Includes loans transferred to securitization vehicles where such transfers were accounted for as secured financings rather than sales of approximately $11.7 billion at May 31, 2008. The securitization vehicles issued securities that were distributed to investors. The Company does not have economic exposure to the underlying assets in those securitization vehicles beyond the Company's retained interests. The loans are reflected as an asset within Mortgages and asset-backed positions and the proceeds received from the transfer are reflected as a liability within Other secured borrowings. These loans are classified as Level 2 assets.

(2) Derivative assets and liabilities are presented on a net basis by level. Inter- and intra-level cash collateral, cross-product and counterparty netting at May 31, 2008 were approximately $45.6 billion and $43.4 billion, respectively.

comes from the consortium organized by the Fed to help rescue Lehman. Three members of this group–Citi, Goldman Sachs, and Credit Suisse–were tasked with reviewing Lehman's valuations by President Geithner.

B of A, Barclays, and the consortium reached similar conclusions on some major points. They all found that about $50-$70 billion of Lehman's reported assets had questionable valuations, and that these assets were primarily real estate and private equity. These findings confirm my analysis of Lehman's 10-Q.

The different assessments also produced similar estimates of how much Lehman overvalued the questionable assets. Taken together, the evidence suggests that the assets' reported values exceeded their true mark-to-market values by a total of roughly $15-$30 billion.

Recall that Lehman reported equity of $28 billion at the end of 2008 Q3. If the firm overvalued its assets by $15-$30 billion, then its true equity was between -$2 billion and +$13 billion.

The analyses of overvaluation were done hurriedly, so it is not certain they were accurate. We will never know for sure whether Lehman's equity based on ideal fair-value accounting was positive or negative. But either way, it appears that equity was small relative to Lehman's $600 billion in assets. Lehman was near the border between solvency and insolvency.

Lehman's liabilities included $18 billion in subordinated debt (when last reported, for Q2). If the firm's equity was between -$2 billion and $13 billion, then the sum of equity and subordinated debt was between $16 billion and $31 billion. It seems likely, therefore, that this sum was positive. This suggests that a resolution of Lehman was possible in which losses to creditors, if any, were absorbed by holders of subordinated debt, and senior unsecured debt was repaid fully.

The following are details of the analyses by Barclays, Bank of America, and Citi/Goldman/Credit Suisse.

• *Barclays*: A memo on Lehman's asset valuations was circulated within Barclays on September 13. The Bankruptcy Examiner made this memo public (Valukas fn 7788), and Exhibit 4 shows the first page. In the memo, "Long Island" or "LI" is a code name for Lehman Brothers; Barclays is called "Baltimore."

The memo summarizes the asset write-downs needed to "bring L.I. marks in line with Baltimore's valuation policies"–in other words, the amounts by which Barclays thought Lehman overvalued its assets. A previous Barclays analysis found total overvaluations of $7.5 billion, but the September 13 memo raises that figure to $23-27 billion. The Barclays analysts, like others, found that most of the assets with inflated values were real estate and private equity.[7]

• *The Consortium*: The analysis by Citi, Goldman, and Credit Suisse is summarized in an email circulated among New York Fed staff in the early hours of September 14 (Valukas fn 4875). According to this report, the consortium had identified a total of $58 billion of real estate assets that were overvalued by $19-$22 billion, with $8 billion of the overvaluation in residential real estate and $11-$14 billion in commercial real estate. The consortium had not yet examined Lehman's private equity or derivatives positions.

Other sources give broadly similar summaries of the consortium's findings. Treasury Secretary Paulson (p. 206) says that the consortium identified a total of $52 billion of "bad real estate and private equity investments" that were overvalued by $22-$25 billion. Merrill Lynch CEO John Thain told the FCIC (p. 335) that the consortium identified total overvaluation between $15 and $25 billion.

[7] The memo says, "Analysis on Leveraged & Corporate Lending and Muni portfolios are still in progress and excluded from current write-down estimate." These types of assets were *not* among those that Barclays refused to take in its tentative deal with LBHI, so I will presume they were not significantly overvalued.

Long Island key exposures – key due diligence findings

Key exposures

- In the previous report to the Board, we estimated a total of $7.5bn in further write-downs to Long Island assets based on a high level analysis of the risks of the valuation of key assets
  - The largest components of this estimate were a further 15% write-down of L.I.'s commercial mortgage portfolio and Real Estate held for sale ($5bn) and a 5-10% write-down of their RMBS assets ($2bn)
- Based upon due diligence undertaken in the last 24 hours, this estimate of the further immediate write-downs to L.I.'s book has increased significantly to $23bn - $27bn, the largest components being:
  - $16bn write-down to the $32bn exposure to Commercial Real Estate and Real Estate held for sale
  - $3-5bn trading write-downs, primarily relating to RMBS
  - $4-6bn relating to Private Equity and alternative investment portfolio
  - Analysis on Leveraged & Corporate Lending and Muni portfolios are still in progress and excluded from current write-down estimate
- These revisions are based upon:
  - Bringing L.I. marks in line with Baltimore's valuation policies
  - Review of risk reports and reserving policies
  - For the most material segments (e.g. CMBS) this estimate is based on an asset-by-asset basis, while elsewhere, where markets are highly illiquid, these are conservative top-down estimates

- *Bank of America*: Like Barclays, Bank of America reviewed Lehman's asset valuations as it considered acquiring the firm. No contemporaneous account of BoA's analysis is available, but a number of people summarized the findings in FCIC interviews and elsewhere, including Fed officials, Treasury Secretary Paulson, and BoA chief executive Kenneth Lewis. All these reports are similar.

The most detailed summary appears in Secretary Paulson's memoirs (p. 199). Paulson describes a report by BoA's "deal team" at a meeting on September 13:

> [A]fter poring over Lehman's books, Bank of America now believed that to get a deal done it would need to unload between $65 and $70 billion worth of bad Lehman assets. BoA had identified, in addition to $33 billion of soured commercial mortgages and real estate, another $17 billion of residential mortgage-backed securities on Lehman's books that it considered to be problematic. In addition, its due-diligence team had raised questions about other Lehman assets, including high-yield loans and asset-backed securities for loans on cars and mobile homes, as well as some private-equity holdings. The likely losses on all those bad assets, they estimated, would wipe out Lehman's equity of $28.4 billion.

The conclusion about wiping out equity suggests that total overvaluation was on the order of $28.4 billion.

<u>Solvency Based on Fundamentals</u>

So far I have examined the fair-value or mark-to-market prices of Lehman's assets. Here I briefly examine Lehman's solvency based on its assets' fundamental values–the present values of expected cash flows. This version of solvency will be relevant when I discuss Lehman's long-term prospects if it had survived its liquidity crisis.

Economists generally agree that the mark-to-market values of many assets, especially real estate assets, were lower than their fundamental values in the stressed markets of September 2008. Therefore, if Lehman's reported asset values exceeded true mark-to-market values by $15-$30 billion, they exceeded fundamental values by less than that, or might even have been lower than fundamental values. If Lehman's true equity was near zero based on mark-to-market accounting, it was probably positive based on fundamentals.

Some evidence on this point comes from Lehman's September 10 earnings call with analysts (Valukas fn 2195). The firm's CFO, Ian Lowitt, argued that Lehman's valuations of mortgage assets were "exceptionally conservative" relative to fundamentals, because they implied healthy returns under pessimistic assumptions. Lowitt presented the following analysis:

> At current prices, our US residential portfolio generates a 12% yield or approximately LIBOR plus 800 if approximately 50% of the loans default and average recovery rates are only 40%.
>
> This base case assumes national home prices drop 32% peak to trough, vs. 18% to date, with California down 50% versus 27% to date. For a 0% yield and only principal repayment, over 80% of the borrowers would need to default with an average 35% recovery rate....
>
> In our nonprime portfolio, the assets would generate a yield of LIBOR plus 1100 with 59% defaults, LIBOR plus 100 with 76% defaults, and a 0% yield at 85% defaults, each with a 20% to 30% recovery rate assumption.

The default rates in Lowitt's calculations exceeded analysts' forecasts at the time. The calculations suggest, therefore, that Lehman's mortgage assets were undervalued relative to reasonable projections of cash flows.

Of course we should view Lowitt's calculations with some skepticism, given his strong incentive to talk up his firm. On the other hand, the calculations gain credibility from their specificity, and I do not know of anyone who has questioned them.

<u>Evidence from the Valukas Report</u>

The Valukas Report carefully reviews many of Lehman's asset valuations, although not all (pp. 203-609 and Appendices 12, 14, and 16). For most asset classes, the Report "finds insufficient evidence to support a finding that Lehman's valuations were unreasonable during the second and third quarters of 2008" (p. 214). The Report reaches this conclusion for Lehman's residential and commercial mortgages, mortgage-backed securities, collateralized debt obligations, and derivatives.

However, in two cases the Report finds "sufficient evidence to conclude that certain assets were not reasonably valued." The first case is Lehman's Principal Transactions Group (PTG), which held stakes in real estate projects that it valued at $7.8 billion at the end of 2008 Q3. The Valukas Report criticizes PTG's valuation methods but does not estimate the amount of overvaluation. The second case is Lehman's investment in the Archstone real estate investment trust, which the firm valued at $4.2 billion. The Report estimates that the Archstone position was overvalued by $140-$400 million (p. 362).

The overvaluations reported by Valukas are modest compared to Lehman's reported equity. The Report emphasizes, however, that its review of Lehman's assets is not comprehensive, and does not yield conclusions about total overvaluation or Lehman's solvency.

In lieu of a comprehensive valuation analysis, the Valukas Report analyzes Lehman's solvency in a different way: it presents a "market-based solvency analysis" prepared by the accounting firm of Duff and Phelps (pp. 1570-1587 and Appendix 21). Duff and Phelps develop a method for assessing solvency based on the market prices of Lehman's equity and debt. They find that Lehman was insolvent starting on September 8 or earlier, and that its "solvency equity" was approximately -$35 billion when it declared bankruptcy.

However, this analysis is flawed. Based on some assumptions, Duff and Phelps argue that the following condition is necessary for solvency:

$$\text{market value of equity} \quad > \quad (\text{book value of liabilities}) \; - \; (\text{market value of liabilities}) \, .$$

Yet this condition may not hold for a firm that is solvent by the usual definition that assets exceeds liabilities. In particular, the condition may fail in the situation facing Lehman after September 8: a liquidity crisis is likely to cause bankruptcy, and the bankruptcy process will destroy value.

To see this point, note that the likelihood of bankruptcy drives the market value of equity close to zero, because bankruptcy will wipe out equity holders. In addition, even if Lehman is initially solvent, the value destruction during bankruptcy may cause substantial losses to creditors, and that risk pushes the market value of liabilities substantially below the book value. In this situation, the gap between book and market values on the right side of the Duff-Phelps condition may exceed the near-zero equity on the left, so the condition fails.[8]

6.4 CLAIMS ABOUT SOLVENCY BY FED OFFICIALS

Fed officials have repeatedly asserted that Lehman was insolvent before its bankruptcy. In his 2015 memoir, Ben Bernanke says (p. 264):

> [I]t became evident that Lehman was deeply insolvent, even allowing for the likelihood that fire sales and illiquid markets had pushed the values of its assets to artificially low levels. [Lehman CEO] Fuld would later claim Lehman wasn't broke, but the capital figures he cited were based on the firm's inflated asset valuations and greatly overstated the true capital.

Fed officials have not backed up their insolvency claim with details about Lehman's balance sheet. To my knowledge, the only instances in which officials presented any reasons for believing the claim were exchanges with the Financial Crisis Inquiry Commission. The FCIC pressed two people on the solvency issue: Ben Bernanke and Thomas Baxter, the General Counsel of the New

[8] Duff and Phelps's reasoning, slightly simplified, is the following. They assume (1) a firm is solvent if the market value of its assets exceeds the book value of its liabilities; and (2) the market value of assets equals the market value of equity plus the market value of liabilities. These two assumptions imply the solvency condition stated above. Assumption (2) is not valid if the risk of bankruptcy depresses the prices of the firm's debt and equity. The Valukas Report (p. 1579) cites a finance text, Pratt (2008), as the source of assumption (2), but Pratt does not actually suggest that assumption.

York Fed. Bernanke and Baxter responded with a total of four arguments, each of which is flawed.[9]

Lehman Could Not Meet Its Obligations

Baxter advanced one argument in testimony before the FCIC on September 1, 2010. This argument involves an elementary confusion between the concepts of insolvency and illiquidity.

Earlier in the hearing, Lehman CEO Fuld had asserted that Lehman was solvent, citing its $28 billion in reported equity and claiming that overvaluations were modest. Commissioner Peter Wallison refers to Fuld's testimony in questioning Baxter: "Mr. Fuld has said [Lehman] was solvent; and I haven't heard anyone actually contradict that yet." Wallison argues that if Lehman was solvent, the Fed should have offered liquidity support when the firm experienced a run (p. 253 of the hearing transcript).

Baxter disagrees with Wallison, and a confusing debate ensues (pp. 253-255). This exchange concludes with

Witness Baxter: We saw no end to the run.

Commissioner Wallison: If they're solvent, then there is always an end to the run.

Witness Baxter: Commissioner Wallison, one definition of "insolvent" is failure to pay your debts as they come due. And that was the situation that Lehman was experiencing at the end of Lehman week. And it couldn't pay its debts as they came due. No one would extend credit to it.

Economists usually use the term illiquidity, not insolvency, for the situation that Baxter describes. He is correct that "one definition" of insolvency is the one he cites. Bankruptcy attorneys sometimes distinguish between "cash flow insolvency," an inability to pay debts as they come due, and "balance sheet insolvency," in which liabilities exceed assets (Pirro, 2013). Nonetheless,

[9] In 2014, the New York Times published an article about Lehman based on interviews with unnamed staff at the New York Fed (Stewart and Eavis, 2014). These sources say they analyzed Lehman's finances in its final days, and their "preliminary finding" was that the firm was solvent. Senior policymakers were unaware of this analysis, according to the Times.

Baxter's reply to Wallison is unsatisfactory for two related reasons.

First, CEO Fuld's testimony concerned Lehman's solvency in the balance-sheet sense, and Wallison clearly has the same concept in mind when he questions Baxter. Baxter's remarks about cash flows are not responsive to Wallison.

Second, illiquidity or cash-flow insolvency was not a valid reason for the Fed to deny assistance to Lehman. Firms that the Fed did assist, such as Bear Stearns and AIG, were also unable to obtain credit or pay current debts. Indeed, under Section 13(3), the Fed can *only* lend to firms that are "unable to secure adequate credit accommodations from other banking institutions." Baxter's position is nonsensical: he cites Lehman's satisfaction of one requirement for a loan as a reason for the Fed *not* to lend.

<u>Lehman Knew it Was Insolvent</u>

Both Baxter and Ben Bernanke say that Lehman's attorneys and board of directors knew the firm was insolvent. They make this claim in responding to follow-up questions after their testimony before the FCIC. Both Baxter and Bernanke cite the minutes of the LBHI board of directors meeting on September 14, 2008–the meeting at which the directors voted for bankruptcy.

Baxter wrote to the FCIC on October 15, 2010. His letter lists points that "the LBHI board minutes are extremely helpful in establishing." One of these points has the heading "<u>Lehman was insolvent</u>" [underline in the original]. The text below the heading is

With regard to the question whether Lehman Brothers was in sound financial condition on September 14, 2008, and had plenty of good collateral, the minutes reflect that attorneys from Weil, Gotshal & Manges, LLP, LBHI's bankruptcy counsel, advised the Lehman board that "it was likely the Corporation would ultimately have to file for protection under Chapter 11" (p. 4), and the Lehman board recognized that bankruptcy was an "ultimate inevitability" (p. 5).

Bernanke wrote to the FCIC on November 4, 2010. He echoes Baxter:

By Sunday of Lehman Weekend, Lehman's board of directors recognized that Lehman was either already insolvent or would imminently be insolvent.

A footnote to this sentence cites the minutes of the board meeting. I presume that Bernanke is referring to the statements quoted by Baxter.

In the statements that Baxter quotes, Lehman's attorneys and board recognize that the firm faces bankruptcy. This does not imply, however, that they think the firm is balance-sheet insolvent, and nothing in the minutes suggests such a belief. Rather, it is clear that meeting participants expect bankruptcy because Lehman has run out of cash–because of illiquidity. See Section 7.4 of this paper for details.

When Baxter testified before the FCIC, he was part of a panel that also included attorney Harvey Miller of Weil Gotshal. Miller was explicit about why bankruptcy was inevitable. He testified that Lehman filed a bankruptcy petition "after consideration of the inevitability of bankruptcy *because of the lack of liquidity*" (p. 145, emphasis added).

Again, one can say that illiquidity is a type of insolvency, but that type cannot justify the Fed's treatment of Lehman.

<u>The Valukas Solvency Analysis</u>

In Bernanke's letter to the FCIC, he says:

After extensive analysis, the Lehman Bankruptcy Examiner, Mr. Anton Valukas, determined that there is sufficient evidence to show that Lehman Brothers Holdings Inc. ("LBHI") was insolvent as of September 8, 2008, and perhaps was insolvent as early as September 2, 2008.

Bernanke cites p. 1573 of the Valukas Report, which summarizes the solvency analysis of Duff and Phelps. As discussed earlier, Duff and Phelps's "market-based" method is not a credible way to assess solvency.

<u>Lehman's Condition During Bankruptcy</u>

Finally, Bernanke's letter to the FCIC discusses a report on LBHI from Alvarez and Marsal, the corporate restructuring firm that managed the bankruptcy estate. This report describes the estate's financial condition in 2010. Bernanke mentions the report immediately after his comments about the Lehman board meeting and the Valukas solvency analysis, so it appears he is trying to bolster his argument that Lehman was insolvent. Bernanke writes:

[T]he recent report of the managers of the Estate of LBHI strongly suggests that a decision by the Federal Reserve to fund Lehman in September 2008 would have resulted in substantial losses to the Federal Reserve and taxpayers. On September 22, 2010, Alvarez and Marsal, representing the LBHI Estate, estimated that the value of assets currently available to LBHI–which would have been the debtor in a hypothetical loan from the Federal Reserve–was approximately $57.5 billion as of June 30, 2010. Importantly, these assets are currently all that is available to fund what the Estate estimates to be approximately $365 billion in likely allowed claims still pending against the Estate–that is, claims representing roughly 6 times the value of the assets available.

Here, Bernanke points out that the bankruptcy estate's assets were much less than its liabilities in 2010. The estate was insolvent at that point. But this fact is not very relevant to LBHI's solvency before its bankruptcy. Economists believe that bankruptcies destroy value, so a firm that is insolvent after bankruptcy may have been solvent before. Lehman's bankruptcy destroyed lots of value, as I discuss next.[10]

6.5 LEHMAN IN BANKRUPTCY

Lehman was solvent, or at least close to solvent, when it filed for bankruptcy. Its assets were approximately equal to its liabilities, which suggests it should have been able to pay its creditors. At worst, any losses should have been absorbed by the holders of subordinated debt.

Yet Lehman's creditors suffered large losses. In March 2014, the LBHI estate had $304 billion of allowed claims and only $86 billion available to distribute (Fleming and Sarkar, 2014). These

[10] Cline and Gagnon (2013) also argue that Lehman was insolvent at the time of its bankruptcy. They cite the deep insolvency of the LBHI estate after the bankruptcy and suggest that value destruction cannot fully explain the estate's condition.

figures imply that more than $200 billion of value disappeared during the bankruptcy.

What accounts for this loss? Many discussions of the bankruptcy emphasize the lack of planning. On September 14, after New York Fed officials instructed Lehman to declare bankruptcy, the firm's attorneys rushed to prepare a bankruptcy petition in a few hours. The lead attorney, Harvey Miller, later said that the petition was "the most bare-bones chapter 11 petition ever filed" (Miller and Horwitz, 2013), even though LBHI's bankruptcy was the largest ever. A 2014 study from the New York Fed (Fleming and Sarkar) concludes, "Lehman's poor pre-bankruptcy planning may have substantially reduced the value of Lehman's estate."

Clearly the bankruptcy was chaotic. Bryan Marsal, who managed the LBHI bankruptcy estate, described the situation in a 2013 interview (NOLHGA, 2013). Marsal was first contacted by Lehman's board at 10:30 PM on September 14. He recounts:

I showed up at 8:30 the next morning, and people with boxes were coming out of the building. I said, "Oh, my God." Four days later, all the people, the operating businesses, the building and all the infrastructure of the business were sold to Barclays [when it purchased most of LBI]. So we had $650 billion worth of assets and no people on the fourth day.

Flows of money among LBHI and its subsidiaries stopped on the 15th as the different units entered separate insolvency proceedings. In addition, Lehman's global accounting system shut down. Marsal says:

[O]ne of the dangers of a global entity is that these walls go up and you really don't have access to your basic financial information. We didn't know for 90 days who we owed money to or what assets were ours, what loans were ours, as we tried to reconstruct.

Marsal says, "the kind of losses that were experienced by the Lehman creditors were pretty much unnecessary," and stemmed from the disorder of the bankruptcy.

Yet value destruction is one of the murkiest aspects of the Lehman bankruptcy. Nobody has clearly identified the channels through which the chaos described by Marsal caused losses to the

LBHI estate. More research is needed on this topic. For now, I can speculate about some of the factors. Three sources of value destruction appear significant, although it is not clear how far they go in explaining the $200 billion loss.

• *Termination of Derivatives Contracts* Lehman's bankruptcy gave its derivatives counterparties the right to terminate contracts and seize collateral. When that happened, contracts were valued in ways that were unfavorable to Lehman. The details are complex, but one aspect is that asset values were based on the less favorable of bid and ask prices.

Lehman's derivatives had a total notional value of $35 trillion, so modest changes in valuation produced large losses. Bryan Marsal's restructuring firm estimated that these losses were between $50 billion and $75 billion (McCracken, 2009). For more on this topic, see Duffie (2010) and Roe and Adams (2014).

• *Fire Sales of Subsidiaries* Shortly after the bankruptcy, the LBHI estate sold a number of its subsidiaries and the assets they held at fire-sale prices.

Here, the most important item is the sale of most of LBI to Barclays on September 19. The bankruptcy court pressed for a quick sale because LBI's broker-dealer business appeared on the verge of disintegrating. The LBHI estate suffered losses for two distinct reasons. First, the panic between September 15 and 19 reduced the value of LBI's assets by $30 billion, and those losses were reflected in the terms of the sale (Crapo, 2008). Second, even after these markdowns, the assets received by Barclays exceeded the liabilities it took on by $8-13 billion, according to the LBI Trustee (Preliminary Realization Report, 2014).

On October 3, the LBHI estate sold parts of its Investment Management Division, including Neuberger-Berman, to a group of hedge funds for $2 billion. Critics argued that the sale price was reduced by a flawed bidding process. Other sales that were arranged hurriedly included LBHI's interests in R3 Capital Management and in Eagle Energy Partners (Crapo, 2008).

• *Disruption of Investment Projects* At the time of its bankruptcy, Lehman had hundreds of ongoing investment projects, largely in real estate development. In many cases the firm was part of a syndicate of investors. The bankruptcy caused many projects to lose financing and fail. Lehman lost its stakes in the projects, and other parties made claims on the estate for losses they suffered from Lehman's defaults.

Harvey Miller, Lehman's bankruptcy attorney, emphasized these costs in his FCIC testimony (p. 271 of transcript and p. 13 of written testimony). Nobody has quantified this part of Lehman's losses, but it may have been substantial.

7. LEHMAN'S LIQUIDITY CRISIS

This section looks closely at Lehman's liquidity crisis. I describe the firm's strategy for liquidity management, the basic ways this strategy failed, and details of the liquidity drains that pushed Lehman into bankruptcy. Understanding this story will help us see how the Fed might have rescued Lehman.

7.1 THE FIRM'S LIQUIDITY MANAGEMENT

Lehman's liquidity management was based on a "funding framework" developed after the Russia/LTCM crisis of 1998. The firm described this framework in its 10-K's and 10-Q's, and in presentations to rating agencies and regulators.[11]

Sources of Funds

Lehman sought to ensure funding for all of its assets, even in a "stressed liquidity environment." To that end, the firm divided its assets into "liquid" and "illiquid" categories, which it funded in different ways.

Lehman defined liquid assets as those "for which the Company believes a reliable secured funding market exists across all market environments" (10-Q for 2008 Q2, p. 80). This meant the assets could always be financed by pledging them as collateral in repos; it did not necessarily mean the assets were easy to sell outright. By Lehman's account, liquid assets included various equities, bonds, and mortgage-backed securities, including some with speculative-grade ratings.

Illiquid assets included those not commonly accepted as repo collateral, such as private equity, investments in real estate development, and corporate loans. The illiquid category also included

[11] See, for example, Lehman's presentations to Standard and Poor's and to the Fed in May 2008 (Valukas fn 6251).

collateral posted by Lehman in derivatives contracts. Lehman financed illiquid assets with stable sources of funds that it called “cash capital”: equity, long-term debt, and core deposits at bank subsidiaries. The firm also used cash capital to finance the haircuts on liquid assets pledged in repos.

Commercial paper was a modest source of funds ($8 billion at the end of 2008 Q2). Lehman used commercial paper “to mitigate short-term liquidity outflows such as unforeseen operational friction” (June memo on “Liquidity Management,” Valukas fn 6312).

The Liquidity Pool

LBHI held a “liquidity pool” to protect itself against any losses of cash. The terminology here is confusing, because the types of assets included in the pool were narrower than those considered liquid in the funding framework (see above). The liquidity pool was “primarily invested in cash instruments, government and agency securities, and overnight [reverse] repurchase agreements collateralized by government and agency securities” (10-Q, p. 80). These assets could be turned into cash quickly. Assets included in the liquidity pool were *not* pledged as repo collateral or otherwise encumbered.

LBHI’s liquidity pool was $44.6 billion at the end of 2008 Q2, up from $34.9 billion at the end of 2007. As Lehman claimed, the pool consisted *primarily* of highly liquid assets such as cash and government securities. However, the pool also included about $4 billion of collateralized loan obligations, which presumably were less liquid (Valukas fn 5422).

LBHI’s liquidity pool was “primarily intended to cover expected cash outflows for twelve months in a stressed liquidity environment.” Its 10-Q listed types of outflows that it thought might occur, of which the most significant were (pp. 79-80):

- repayment of commercial paper and long-term debt due within a year, if Lehman could not roll over these debts;

- take-ups of commitments to extend credit to clients;
- collateral calls in derivatives contracts that would be triggered by rating downgrades of LBHI;
- "reduced borrowing availability" in the repo market or increased haircuts on repo collateral.

The last point hedges somewhat on the claim elsewhere in the 10-Q that Lehman's repo financing was reliable in all market environments.

Lehman's broker-dealer subsidiaries, LBI and LBIE, had their own liquidity pools of $0.3 billion and $7.0 billion respectively at the end of 2008 Q2. Regulations forbade LBHI from accessing these pools, but liquidity could flow in the other direction, from LBHI to a subsidiary. In that case, LBHI recorded a receivable on its unconsolidated balance sheet and the subsidiary recorded a payable.

The Reliability of Repo Funding

At the end of 2008 Q2, Lehman had $188 billion of collateral pledged in repo agreements (10-Q, p. 83). This amount greatly exceeded the liquidity pool of $44.6 billion. The pool could absorb some loss of repo funding, but not too much.[12]

As discussed in Section 4, the Bear Stearns crisis shook faith in the reliability of repo funding. In statements to investors and regulators, Lehman took pains to argue that it was different from Bear and could maintain adequate funding in a crisis (e.g. 10-Q, pp. 83-84; Valukas fn 6251). The firm made several points about its repos:

- *Relationships with Counterparties* Lehman claimed its repo funding was secure because it had "broad and long-established relationships" with counterparties, and the counterparties

[12] The figure of $188 billion appears in the 10-Q's discussion of liquidity management. The balance sheet in the same 10-Q reports only $128 billion in repos (see Exhibit 1). The balance sheet may omit some repos because they are netted with reverse repos in the same securities.

understood the collateral they were financing. In addition, Lehman's management would respond to any crisis with phone calls "to address rumors and reassure key stakeholders."

• *Quality of Collateral* Of Lehman's $188 billion in repo collateral, $83 billion was Treasury and agency securities, which could always be monetized. Of the remaining $105 billion, $65 billion was investment-grade securities and publicly traded equities for which, Lehman insisted, "there exists a very active, reliable and liquid secured funding market." That left only $40 billion of lower-quality collateral that counterparties might reject.

• *Bank Subsidiaries* Of the lower-quality assets, $8 billion were pledged in repos with LBHI's banking subsidiaries. These units would always roll over repos with their parent, and they could even provide additional funding.

• *Overfunding* Lehman "overfunded" its non-Treasury/agency repos, which meant it could lose some of its repo financing without needing to draw on its liquidity pool. Total overfunding was $27 billion at the end of 2008Q2. The accounting here is subtle, with two types of overfunding ("Funding Lehman" memo, Valukas fn 6259):

First, Lehman had $11 billion of "excess collateral" for its repos. That meant that $11 billion of the non-Treasury/agency collateral that it pledged was borrowed from other institutions in exchange for cash. If some of Lehman's repo agreements did not roll, the firm could offset the effects by returning borrowed collateral and taking back cash.

Second, Lehman had $16 billion of "ticket" overfunding. That meant repo counterparties agreed to accept $16 billion more in non-Treasury/agency collateral than Lehman needed to finance, with Lehman making up the difference by delivering Treasuries and agencies. If some repos did not roll, Lehman could pledge the collateral to counterparties that would still accept it, and finance the Treasuries and agencies elsewhere.

Assessments of Lehman's Liquidity

Lehman told regulators and rating agencies that it had "built a liquidity fortress" (Valukas fn 6251). It supported this claim with stress tests, in which the firm generally survived hypothetical liquidity crises (Valukas fn 6329). A key assumption in these tests was that most repos with high-quality collateral would continue to roll over.

After the Bear Stearns crisis, the Fed performed its own stress tests for the remaining investment banks. These tests generally found that Lehman would *not* survive a liquidity crisis. Yet the Fed's conclusions were not alarmist. In May, Fed analysts characterized Lehman's liquidity as "poor but improving." In June, they said, "Lehman recognizes its vulnerabilities and is trying to reduce illiquid assets and extend maturities where possible... Lehman should improve its liquidity position by $15 billion" (Valukas fns 6331 and 6334).

For a time, rating agencies were optimistic about Lehman's liquidity. On March 17, the day after the Bear Stearns rescue, Moody's reported, "Lehman's liquidity management and position remain robust and are underpinned by a funding framework that is scaled to the firm's expectations for, and vetting of, reliable secured funding." On April 1, Fitch said, "Liquidity remains strong with Lehman's lower reliance on short-term funding relative to its peers" (Valukas fn 6312).

As noted in Section 4, S&P's view was more cautious. On April 3, it said (Valukas Appendix 13 fn 17):

> [Lehman's] excess liquidity position is among the largest proportionately of the U.S. broker-dealers... Nonetheless we cannot ignore the possibility that the firm could suffer severely if there is an adverse change in market perceptions, however ill-founded.

In retrospect, Lehman's claims about a liquidity fortress seem like wishful thinking. The Valukas Report criticizes the firm's liquidity management, saying Lehman should have known its repo funding was unreliable and its liquidity pool was inadequate (pp. 1665-1687).

7.2 CHANGES IN LIQUIDITY, MAY 31 - SEPTEMBER 9

Lehman started experiencing liquidity problems after May 31, the end of its Q2. Here I review developments between May 31 and September 9, when bad news about earnings and the Korean Development Bank triggered the fatal run on the firm. Over this period, LBHI reported a fairly stable liquidity pool, with losses of funding offset by sales of real estate assets. Yet this stability masked problems that would ultimately contribute to Lehman's crisis.

My information on Lehman's liquidity comes primarily from memos from the firm's treasury department, which were published with the Valukas Report. One key memo is "Funding Lehman Brothers," written on September 10 as the firm struggled to survive (Valukas fn 6259). Another is "Liquidity of Lehman Brothers," a review of the crisis written on October 7 (Valukas fn 6341).

Factors Affecting LBHI's Liquidity Pool

The September 10 memo summarizes Lehman's liquidity management during Q3:

> Despite a challenging market environment, Lehman Brothers was able to maintain the status quo broadly in terms of liquidity - primarily as a result of deleveraging its balance sheet (which was done for risk reasons).

Lehman provided details of this deleveraging in its press release about Q3 results. During the quarter, the firm shed $23.3 billion of illiquid assets, including $18.9 of real estate and $4.4 billion of "high yield acquisition finance."

The "challenging market environment" that Lehman acknowledged included decreases in several types of funding. These losses are listed in the September 10 and October 7 memos:

- *Long-term debt*: Lehman issued only $2 billion of long-term debt in Q3, down from $14 billion in Q2. The stock of long-term debt fell from $128 billion to $115 billion.

- *Commercial paper*: Commercial paper outstanding fell from $8 billion at the end of Q2 to $4 billion at the end of Q3.

• *Repos*: Lehman's repo agreements fell by about $10 billion. The firm maintained constant overfunding of its repos, so the lost repos cut into its liquidity pool.[13]

Overall, Lehman's claim that it "maintained the status quo" was consistent with LBHI's reported liquidity pool, which fell only slightly: from $45 billion at the end of Q2 to $42 billion at the end of Q3 and $41 billion on September 9. The pool had been only $35 billion at the end of 2007.

<u>Factors Not Reflected in LBHI's Liquidity Pool</u>

The stability of LBHI's liquidity pool masked several problems:

• *Questionable Assets in the Liquidity Pool* As noted earlier, LBHI's liquidity pool included some non-Treasury/agency securities that were not very liquid. These assets grew from $4 billion at the end of Q2 to $7 billion, probably before September 9. Lehman was unable to monetize these securities during its crisis.

• *Clearing-Bank Collateral* Starting in June, JPMorgan Chase demanded collateral–either cash or liquid securities–to cover its intraday exposure to Lehman's tri-party repos. Other banks that cleared transactions for Lehman demanded "comfort deposits"of cash, including Citi, which cleared currency trades, and HSBC, which cleared securities denominated in British pounds. These demands by clearing banks totaled $11.5 billion on September 9.

Lehman included assets held by clearing banks in its liquidity pool, but that practice is criticized in the Valukas Report (pp. 1084ff) and in Lehman's October 7 post-mortem. The collateral held by JPMorgan was released every night, but it was not available to meet Lehman's obligations during

[13] The September 10 memo reports that Lehman lost $10 billion of repos from May 31 through August 31, with no change in overfunding. The October 7 memo says that Lehman's liquidity position, including its repos, was "relatively stable" from August 31 to September 9.

the day. Lehman theoretically had the right to withdraw comfort deposits from Citi and HSBC, but those banks might have stopped clearing Lehman's transactions.

• *Broker-Dealer Liquidity Pools* The separate liquidity pools at LBI and LBIE were depleted: from May 31 to September 9, LBIE's pool from fell $7.0 billion to $0.8 billion, and LBI's from $0.3 billion to zero. The reasons are not completely clear, but one factor was a loss of cash in LBIE's prime broker business. After September 9, the broker-dealers had essentially no liquidity of their own, so they drew on LBHI's liquidity pool.

Arguably we can measure Lehman's true liquidity by adding the broker-dealers' liquidity pools to LBHI's pool, and subtracting clearing bank collateral and illiquid assets included in the pool. By this measure, liquidity was approximately $48 billion at the end of Q2 ($52 billion in liquidity pools minus $4 billion of illiquid assets). Liquidity fell to $22 billion on September 9 ($41 billion minus $7 billion of illiquid assets and $12 billion held by clearing banks).

Lehman and the PDCF

The Fed created the PDCF to help investment banks cope with losses of liquidity. Yet Lehman did not access the PDCF as its liquidity fell. It borrowed $2 billion on April 16, but did not borrow again until LBI accessed the facility after LBHI's bankruptcy.

It is not completely clear why Lehman did not borrow more before September 14. A likely factor is that the PDCF did not accept speculative-grade securities or equities as collateral. A substantial fraction of Lehman's repos used those types of collateral, and those repos proved the most difficult to roll when markets lost confidence in the firm. PDCF access, therefore, was not enough to protect Lehman from a severe run. At the same time, Lehman probably feared that borrowing from the PDCF would signal that the firm was in trouble, making a run more likely.

This situation changed dramatically on September 14. The PDCF started accepting all tri-party repo collateral, and Lehman desperately sought PDCF support. However, the Fed limited Lehman's access to the PDCF, so the firm could not borrow enough to avoid bankruptcy. Section 10 of this paper gives details on this point.

Between April and September, Lehman borrowed Treasury securities from the TSLF in amounts ranging from $10 billion to $20 billion. The collateral was agency securities and triple-A mortgage-backed securities. The TSLF was not helpful during Lehman's crisis because of the narrow range of acceptable collateral.

7.3 THE RUN, SEPTEMBER 10-12

Lehman had the same experience as Bear Stearns: an erosion of liquidity over several months and then a sudden, fatal run. Lehman's run occurred from Wednesday September 10 to Friday September 12. The firm's post-mortem from October 7 describes the run in detail.

It seems that the run was triggered by two pieces of bad news: the failure of negotiations with the Korean Development Bank on September 9, and Lehman's disappointing announcement about its earnings and strategic plan on September 10. These blows to confidence were reinforced by warnings from rating agencies (see Section 4.3).

Over September 10-12, about $20 billion of Lehman's repo financing was cut off, including $5 billion of repos with Fidelity Investments. Lehman absorbed $18 billion of this loss by reducing its overfunding of repos (see Section 7.1), so its liquidity pool lost only $2 billion. This outcome meant, however, that little overfunding remained to absorb further losses of repos.

Over the same three-day period, collateral pledged to clearing banks rose by about $4 billion, as JPMorgan Chase increased its demands.

A number of other factors reduced Lehman's liquidity in its final days. The October 7 memo summarizes these factors in a chart, shown here as Exhibit 5. Some of the factors affected LBHI directly and some affected its broker-dealers, which LBHI had to fund because their liquidity pools were gone.

The chart in Exhibit 5 shows the following drains from LBHI's liquidity pool:

- Loss in unsecured funding, $2 billion. This item is commercial paper that did not roll over.
- Loss in asset-backed financing, $2 billion. Reflects failure of deals to issue asset-backed commercial paper.
- Derivative margins, $2 billion. Collateral calls in derivatives contracts.
- Operational friction, $4 billion. This item reflects withdrawals from prime broker accounts at LBIE. It was a temporary loss due to delays in transferring assets; Lehman expected it to disappear in a few days.
- Increase in the box, $2 billion. The loss of repos produced an increase in "boxed" assets that were not pledged as collateral.
- Haircut increase, $2 billion. Modest increases in haircuts in the repos that rolled over.
- Prime broker cash generation, $1 billion. A permanent loss of cash from shrinkage in LBIE's prime broker business.

These liquidity losses, plus $1 billion of "other," total $16 billion. They reduced Lehman's reported liquidity pool from about $41 billion on September 9 to $25 billion on September 12. As the October 7 memo acknowledges, the remaining pool included $16 billion of clearing bank collateral and $7 billion of "liquid securities that became near impossible to monetize immediately" (an oxymoron). Subtracting these amounts from $25 billion leaves true liquidity (which the memo calls "free cash") of less than $2 billion. With less rounding of figures, this amount is $1.4 billion.

Exhibit 5

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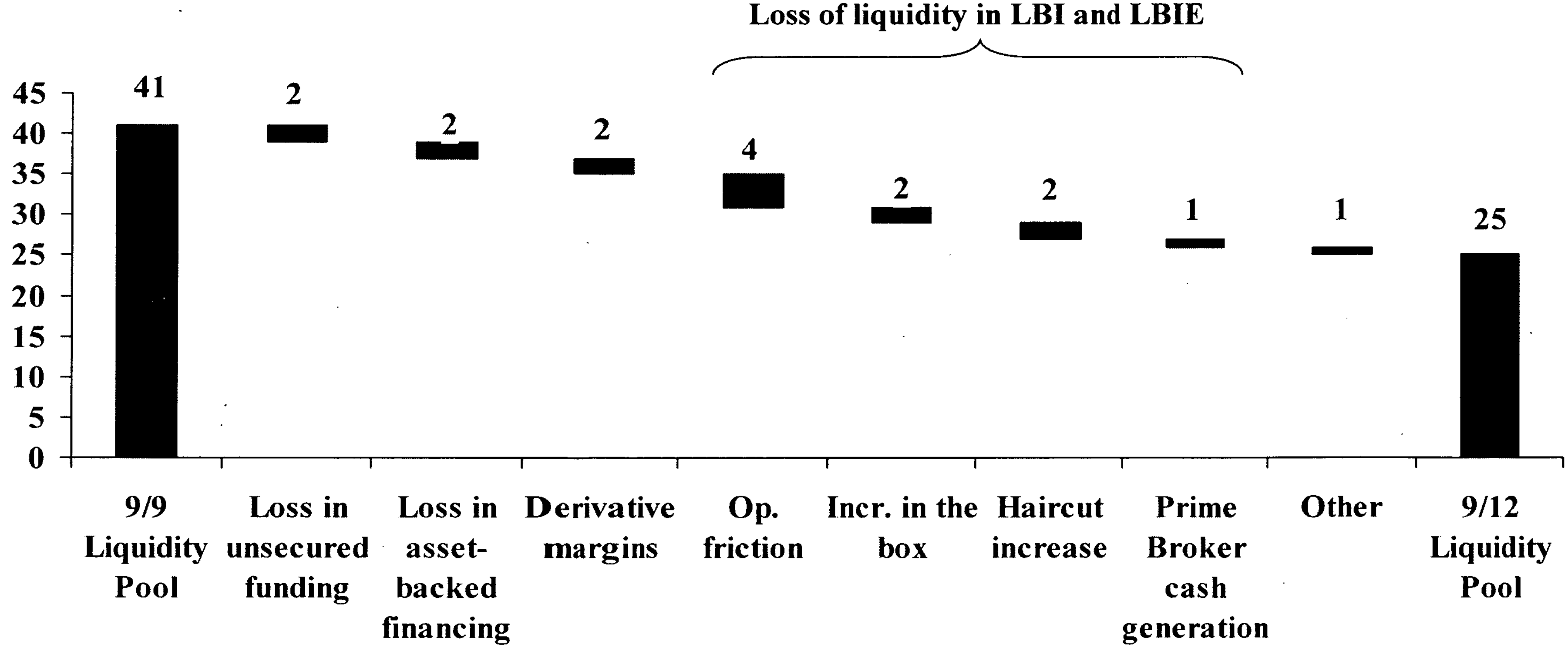
Liquidity Situation Post Q3 Earnings Announcement

- Post earnings announcement on September 9, Holdings' liquidity decreased by $16 billion from $41 billion to $25 billion - $16 billion of which was required by clearing banks at the start of the day and approximately $7 billion of which was in liquid securities that became near impossible to monetize immediately in this extremely stressed market environment – primarily because of a loss of repo capacity.
- As a result, the result of "free cash" available intra day was less than $2 billion. With LBIE facing a projected cash shortage of $4.5 billion on September 15, Lehman had no choice but to place LBIE into administration because of potential director liability. This resulted in a cross-default of and triggered the filing on September 15.

Changes In Holdings' Liquidity Pool ($ Billion)



7.4 LEHMAN'S PREDICAMENT ON SEPTEMBER 13-14

Over the weekend of September 13-14, it became clear that, if Lehman opened for business on September 15, it would quickly run out of cash and default on obligations. This prospect led LBHI's board of directors to approve a bankruptcy petition on the night of the 14th.

Liquidity Calculations for Monday

Several analyses concluded that Lehman's liquidity needs on September 15 would greatly exceed its $1.4 billion of available cash:

- A Lehman memo apparently from Saturday September 13 makes detailed liquidity projections for the following week (Valukas fn 5604). The memo predicts that $7.6 billion of repo agreements will not roll over on the 15th. It predicts additional cash drains of $5.0 billion, but assumes Lehman can replace $4.5 billion of these losses by drawing on credit lines.

- Lazard was advising Lehman, and it also prepared a memo on liquidity on September 13 or 14 (Valukas fn 2716). This memo is more pessimistic than Lehman's: it estimates that $16 billion of repos will not roll on the 15th; that, because of rating downgrades, derivatives counterparties will demand an additional $2 billion of collateral; and that banks will cut off the credit lines that Lehman planned to access. The memo concludes, using "Green" as a code name for Lehman: "absent a sale transaction or extraordinary government intervention, Green believes it will not be able to open for business on Monday."

- The October 7 post-mortem highlights the untenable liquidity position of LBIE, the London broker-dealer. LBIE projected a cash shortage of $4.5 billion at the beginning of September 15.

Looming Catastrophes

Even if Lehman had opened for business and somehow met its immediate obligations, it faced two imminent disasters:

• *Rating downgrades* On September 10 and 11, Moody's and Fitch threatened to downgrade Lehman by more than two notches if it did not find a strategic partner by September 15 (see the October 7 memo). Presumably these downgrades would have accelerated the run on Lehman.

• *Clearing banks* JPMorgan Chase and Citi threatened to stop clearing transactions for Lehman. The former's threat meant that Lehman would lose any access to the tri-party repo market. According to the Lazard memo:

> JPMorgan CEO indicated to Green CEO Thursday evening September 11, that Green needed to announce a sale transaction by market open Monday September 15 or JPM would immediately discontinue doing business with Green and effectively "put Green out of business."

<u>The Board of Directors Meeting</u>

On Sunday September 14, the LBHI board of directors convened at 5:00 PM. The meeting adjourned at 6:10 and reconvened at 7:55; it is not clear when it ended. The meeting is summarized in the board's minutes, and accounts appear in Sorkin (pp. 366-369) and in Harvey Miller's FCIC testimony (written testimony, pp. 9-10).

Lehman executives described the firm's predicament to the board. The Barclays deal had failed, the firm was out of cash, and the Fed would not lend it enough to operate the next day. LBIE faced a special problem because, under British law, its directors faced *criminal* liability if they tried to operate the firm without sufficient cash. LBIE was planning to file for administration, the British version of bankruptcy, and would default on payments due Monday. LBHI guaranteed those payments, so it, too, would be in default.

At one point the meeting was interrupted by a phone call from SEC Chair Cox and New York Fed General Counsel Baxter, who urged the board to "make a quick decision" about bankruptcy. I describe this call in Section 10.1.

After the phone call, LBHI's board debated what to do. One director suggested "calling the government's bluff" and attempting to carry on business (Valukas, Appendix 15, p. 61). In the end, however, the board concluded that opening on Monday would produce chaos, and that Lehman's stakeholders would fare better under bankruptcy. The attorneys from Weil Gotshal rushed to prepare a bankruptcy petition and filed it at 1:45 AM.

8. COLLATERAL AND THE FEASIBILITY OF LIQUIDITY SUPPORT

This paper now turns from describing what happened to Lehman Brothers to discussing how things might have been different. I will argue that liquidity assistance from the Fed could have prevented Lehman's disorderly bankruptcy and mitigated the broader financial crisis.

An alternative resolution of Lehman's crisis would have involved two steps:

FIRST, the Fed could have provided liquidity assistance to keep LBHI in operation for a period of weeks or months. Lehman could have posted collateral that protected the Fed and taxpayers from losses, as required by Section 13(3).

SECOND, policymakers and Lehman executives could have worked on a long-term resolution of the firm's crisis. A range of outcomes were possible, but whatever happened would likely have been less disruptive to the financial system than the actual bankruptcy on September 15.

This section discusses the first of these two steps and section 11 discusses the second.

How much liquidity support did Lehman need, and how much collateral did it have available? I examine these questions in three ways:

- The simplest approach uses two facts about Lehman's balance sheet. First, the firm's assets were approximately equal to its liabilities (i.e., its equity was close to zero). Second, its liabilities included $115 billion in long-term unsecured debt. Together, these facts imply that Lehman's assets greatly exceeded any liabilities that might come due over a period of months. That, in turn, implies that Lehman had ample collateral to borrow any cash it needed.

- I also take a more ambitious approach in which I estimate the amount of Fed assistance that Lehman needed, based on the available information about its liquidity crisis. The bottom line is that Lehman probably could have stayed in business if it received about $88 billion. It could have borrowed that amount from the PDCF, because it had at least $131 billion of assets that were acceptable as PDCF collateral.

- Finally, I examine the liquidity support that the Fed actually provided to LBI after the LBHI bankruptcy, which peaked at $28 billion. This experience is, I find, consistent with my estimate of the assistance needed to rescue all of LBHI.

8.1 THE IMPLICATIONS OF LEHMAN'S LONG-TERM DEBT

Here I argue that Lehman's cushion of long-term debt meant the firm had ample collateral to borrow any cash it needed in the weeks and months after September 15.

The Role of Long-Term Debt

In a liquidity crisis, or run, a financial institution faces extraordinary demands to pay off liabilities with cash. For example, it must repay short-term credit that it cannot roll over; it must meet demands for withdrawals from customer accounts; and counterparties may force it to close out various contracts with negative values. During a run, a firm may not have enough cash to meet its obligations.

Can a central bank rescue a financial institution from such a crisis without taking on significant risk for itself? The answer turns on whether the firm has enough collateral to secure a loan that meets its cash needs. Economists often argue that a firm has sufficient collateral if it is solvent, that is, if its assets exceed its liabilities. A solvent firm has enough collateral to borrow the cash it might need to pay off any or all of its liabilities.

There is, however, a weaker condition that guarantees a firm has adequate collateral: its assets exceed its liabilities *excluding long-term unsecured debt*. By definition, the holders of this debt cannot demand cash. The total of other liabilities is an upper bound on the cash the firm might need, and therefore on the collateral it might need.

The condition for adequate collateral is

$$\text{assets} > \text{liabilities} - \text{long-term debt} .$$

We can write this condition as

$$(\text{assets} - \text{liabilities}) + \text{long-term debt} > 0 ,$$

or, using the definition of equity,

$$\text{equity} + \text{long-term debt} > 0 .$$

A firm has adequate collateral for liquidity assistance if the sum of its equity and long-term debt is positive. We will see that this condition was clearly satisfied for Lehman Brothers.

I have not seen this condition for adequate collateral presented elsewhere. However, many policymakers have suggested that long-term debt reduces the risk of disorderly failures of financial institutions (e.g., Tarullo, 2014). This idea is one rationale for the Net Stable Funding Ratio proposed by the Basel Committee on Banking Supervision (Basel Committee, 2014).

Application to Lehman

In its last financial statement, for August 31, 2008, Lehman reported $28 billion of equity and $115 of long-term unsecured debt, defined as debt not due for a year or more. Based on these figures, the sum of Lehman's equity and long-term debt was $143 billion, so the firm easily met the condition for well-secured liquidity support.

As discussed in Section 6.3, it appears that Lehman overvalued its assets by $15-$30 billion relative to current market prices. However, if we subtract $30 billion from the firm's reported assets, its sum of equity and long-term debt is still $113 billion. Even if we suppose that Lehman's $60-$70 billion of questionable assets were completely worthless, its equity plus long-term debt is far above zero. It is difficult to escape the conclusion that Lehman had ample collateral for the liquidity support it needed.

Because long-term debt as measured here is not due within a year, well-secured liquidity support for Lehman could have lasted for a year or more. Given that amount of time, policymakers and Lehman executives probably would have found a more orderly resolution of the firm's crisis than the September 15 bankruptcy. Shortly before the bankruptcy, New York Fed staff considered liquidity support for two months to a year, as discussed below (Section 9.1).[14]

Upper Bounds on Lehman's Liquidity Needs

We can do a related calculation to determine how much liquidity support Lehman might have needed. An upper bound is given by total liabilities excluding long-term debt, which is the amount of cash Lehman would need if all those liabilities came due at once. This scenario is a worst case in which Lehman cannot roll over any short-term funding; loses all deposits in its bank subsidiaries; and has to eliminate all payables, close out all derivatives positions with negative values, and cover all short positions.

On August 31, Lehman's total liabilities were \$572 billion, of which \$115 billion were long-term debt. Therefore, an upper bound on Lehman's cash needs is \$572 - \$115 = \$457 billion.

Lehman reported assets of \$600 billion; assuming \$30 billion of overvaluation, true assets were \$570 billion. We see again that, with this estimate of overvaluation, Lehman's assets exceeded its maximum cash needs by \$113 billion. This surplus is 25% of maximum cash needs, which implies that any liquidity support could have been overcollateralized by 25% or more.

We can reduce the upper bound on Lehman's liquidity needs by accounting for its "matched

[14] My analysis assumes that all of Lehman's assets could serve as collateral, which the Fed could seize if the firm defaulted on a loan. Arguably, intangible assets and goodwill could not serve as collateral. However, these items accounted for only \$4 billion of Lehman's assets, so excluding them would not change my calculations substantially.

book." Some items on the liability side of Lehman's balance sheet–some of its repos and securities loans–were offset by reverse repos and securities borrows on the asset side. Lehman was an intermediary, taking securities from some firms in exchange for cash and passing the securities on to others. If counterparties terminated repos or securities loans, Lehman could mitigate its loss of cash by terminating offsetting transactions.

On August 31, Lehman's reverse repos and borrows totaled $273 billion. If the firm canceled those transactions, it could raise $273 billion in cash to pay off liabilities. Subtracting this amount from both the firm's assets ($570 billion) and its maximum cash needs ($457 billion) leaves $297 billion in assets and $184 billion in cash needs. The difference between the two is still $113 billion, but now the calculations imply that liquidity support could be overcollateralized by at least 61%.[15]

8.2 A LIKELY SCENARIO

So far, I have considered a hypothetical worst case in which Lehman has to pay off all its liabilities except long-term debt. Here I estimate how much Fed assistance Lehman actually would have needed to operate on September 15 and beyond. This exercise requires some guesses, but they are educated guesses because we have considerable information about Lehman's liquidity problems.

I estimate that Lehman would have needed about $88 billion of liquidity assistance to stay in business over the four weeks from September 15 to October 13. This total reflects initial cash of $1 billion and $89 billion of cash losses: $66 billion from repos that do not roll and $23 billion from other liquidity drains.

I also discuss the type of assistance that Lehman might have received. It appears the Fed could

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[15] CEO Fuld argues that Lehman's matched book reduced its liquidity needs in his FCIC testimony (pp. 199-200 of the transcript).

have kept Lehman in operation with overnight lending through the PDCF–the type of support it actually provided to LBI after the LBHI bankruptcy. The PDCF could have provided liquidity to the entire Lehman enterprise because at least $131 billion of the firm's assets were acceptable as PDCF collateral. This finding means the Fed could have rescued Lehman without a new authorization under Section 13(3).

The scenario that I consider here is more realistic than the one in Section 8.1, in which all short-term liabilities come due at once. Yet it is still a worst case, in a sense. My calculations assume that the run on Lehman accelerates on September 15, which was likely if the firm opened for business without Fed support. A commitment of support by policymakers might have boosted confidence in Lehman and ended the run. In that case, the firm might have survived without actually borrowing much from the Fed.

<u>Assumptions</u>

I estimate Lehman's liquidity needs under the following assumptions, which are conjectures about what would have happened if LBHI did not declare bankruptcy:

- Starting on September 15, Lehman cannot roll over any repos with collateral other than Treasury and agency securities. That was the prediction of Lehman's advisors at Lazard.

- Lehman *can* roll over repos collateralized with Treasuries and agencies. I make this assumption because LBI was able to roll most of its Treasury and agency repos after the LBHI bankruptcy.

- JPMorgan Chase continues to clear Lehman's tri-party repos. In the actual crisis, Fed officials persuaded JPMorgan to continue clearing for LBI because the PDCF was supporting it. I assume officials could have made the same case for all of Lehman.[16]

• Lehman experiences several liquidity drains besides its loss of repos, including collateral calls and losses of cash at its prime brokerages. I estimate these factors based on Lehman's pre-bankruptcy experience, analyses by Lehman and Lazard, and the Fed's earlier stress tests.

• Lehman does *not* experience liquidity drains that were theoretically possible but nobody expected. For example, Lehman's bank subsidiaries do not lose deposits.

• Lehman continues to provide cash to clients through reverse repos and securities borrows, in the interest of maintaining business as usual and maximizing its chances for long-term survival.

Liquidity Needs

Here I estimate the amount of assistance Lehman would have needed to stay in operation, given my assumptions. I focus on the firm's needs during the four weeks from September 15 to October 13, because I draw on predictions by Lehman and the Fed with four-week horizons.

I estimate that various factors would have drained about $89 billion of cash from Lehman. Since the firm had $1 billion of cash on September 14, it would have needed to borrow $88 billion from the Fed. To put that figure in perspective, note that the Fed committed a total of $123 billion to AIG on September 16 and October 6. Its lending to Morgan Stanley through the PDCF and TSLF peaked at $107 billion on September 29.

The following are estimates of the liquidity drains that Lehman would have experienced:

• Lost Repos ($66 billion): Lehman and Lazard analyzed Lehman's liquidity on September 13 and 14 (see Section 7.3). They give figures for total non-Treasury/agency collateral pledged in

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[16] This assumption is not essential. If JPMC refused to clear Lehman's repos, the Fed could have bypassed the tri-party market and lent to Lehman directly. This strategy was proposed in a July 2008 analysis at the New York Fed (see Section 9.1).

repos, which range from $73 billion to $80 billion. I will assume $80 billion to be conservative. At least 10% of the repos had maturities beyond four weeks, so I assume that repos with $72 billion of collateral (90% of $80 billion) mature and fail to roll within four weeks.

The cash that Lehman received from those repos was less than $72 billion, because of haircuts on the collateral. According to a JPMorgan Chase memo on September 11, the average haircut for LBI's non-Treasury/agency repos was about 8% (Valukas fn 7807). I will assume the same haircut for repos at other units of Lehman (primarily LBIE). That means Lehman's loss of cash from repos is about $66 billion (92% of $72 billion).

- Unsecured Funding ($6 billion): I assume Lehman cannot roll its commercial paper outstanding, which is $2 billion. I also assume that $4 billion of long-term debt comes due within four weeks and cannot be replaced, for a total loss of $6 billion in unsecured funding. The figure of $4 billion is a guess based on the facts that $2 billion of long-term debt was due within two weeks (Lazard memo) and $8.5 billion was due within three months (September 10 memo on "Funding Lehman Brothers").

- Collateral Calls ($9 billion): Lazard predicts that rating downgrades will trigger $2 billion in collateral calls on derivatives contracts. The final New York Fed stress test in June predicts $9 billion in collateral calls. Some of the collateral calls predicted by the Fed may have happened before September 15, but I conservatively assume $9 billion in new collateral calls.

- Commitments ($8 billion): The New York Fed stress test includes $8 billion of "on-boarding and other commitments." The Lehman and Lazard analyses do not mention this item, and I am not certain what it is. It may reflect the need to fund special purpose vehicles during a crisis.

- Operational Friction ($0): As discussed above, LBIE temporarily lost $4 billion of cash due to withdrawals from its prime brokerage. It expected to regain that cash during the week of

September 15, but additional withdrawals could produce new friction. In the absence of a better idea, I assume the net change in operational friction is zero.[17]

Available PDCF Collateral

Here I examine the collateral that Lehman might have used to borrow from the Fed. I focus on assets that were acceptable collateral for the PDCF, and find that Lehman had more than enough of these assets to borrow the cash it needed. This finding implies that the firm could have survived if it had unfettered access to the PDCF. Section 10 describes the fatal limits that the Fed imposed on Lehman's PDCF borrowing.

I first describe the types of collateral accepted by the PDCF, and then calculate how much of this collateral Lehman owned.

Collateral Accepted by the PDCF Originally the PDCF accepted only high-quality securities as collateral: Treasury and agency securities and investment-grade MBSs and bonds. On September 14, however, the Fed expanded the PDCF as part of its efforts to mitigate the effects of the Lehman bankruptcy (see Section 4.4). Acceptable collateral was broadened "to closely match the types of collateral that can be pledged in tri-party repos," which included speculative-grade securities, equities, and whole loans.

PDCF borrowers took advantage of the collateral expansion. Bloomberg News (Leising, 2011) analyzed the collateral pledged on September 29, when PDCF lending peaked. Borrowers pledged a total of $164 billion of collateral, and no more than $46 billion would have been acceptable before

[17] The New York Fed stress test lists liquidity losses related to "operating cash flows," which include the $9 billion of collateral calls listed above and two other items: $2 billion for "prime brokerage" and $2 billion for "derivatives/margins payment mismatches." I conjecture that these two items are part of the operational friction discussed in Lehman memos, and do not count them as additional liquidity drains.

September 14. The other collateral were $18 billion of speculative-grade securities, $28 billion of securities with “rating unavailable,” and $72 billion of equities. The speculative-grade securities included $1 billion with a D rating.[18]

From September 15 to September 18, the PDCF lent $20 billion to $28 billion to the broker-dealer LBI to keep it operating after the LBHI bankruptcy. The collateral pledged by LBI included significant quantities of risky and/or illiquid assets. Of the assets pledged on September 15, 72% were investment-grade securities and 28% were speculative-grade, unrated, or equities.

In addition, some of the collateral with investment-grade ratings was actually illiquid and of dubious value. This collateral included $5 billion of asset-backed commercial paper called RACERS, which had the top commercial-paper rating of A-1, and collateralized mortgage obligations called SASCO, rated A2 by Moodys. Attorneys for JPMorgan Chase discussed these securities in a lawsuit related to Lehman’s bankruptcy (Wachtell et al., 2011):

> On Tuesday night, September 16, many of the riskiest securities that were eligible for the triparty repo had been financed by the Fed. Those securities included RACERS, as well as securities called SASCO, which, like RACERS, were backed largely by Lehman’s own credit, were priced on the basis of Lehman’s own marks, and had never traded. Numerous other illiquid securities were also financed by the Fed on Tuesday night. Those securities–RACERS in particular–were known by LBHI to be illiquid structured securities that were not appropriate collateral for the triparty repo or to secure JPMorgan’s clearing advances.

Lehman employees denigrated the RACERS securities in emails to each other, calling them “very toxic and concentrated collateral” and “goat poo.” When a counterparty refused to accept RACERS in a transaction, an employee reported that “another one doesn’t want your toxic racer crap.”

It appears, therefore, that the PDCF was liberal in the types of Lehman assets it accepted as collateral. That makes it easier to identify additional assets that Lehman might have pledged to

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[18] Bloomberg obtained these data through a lawsuit against the Fed under the Freedom of Information Act.

borrow more and avert LBHI's bankruptcy.

Fed officials have said little about the collateral pledged by LBI to the PDCF. I have found only a brief comment in Timothy Geithner's memoirs (pp. 187-188): Geither says that loans to LBI were "secured by its higher-quality assets." This remark conflicts with the view inside Lehman that its collateral included goat poo.

Available Collateral: *Overview* Did Lehman have enough PDCF-eligible collateral to borrow the cash it needed? Below I address this question by carefully examining the assets on Lehman's balance sheet. But even without this exercise, we can see that the firm probably had adequate collateral, because of the nature of its liquidity losses.

In particular, most of Lehman's cash needs starting on September 15 reflected repo agreements that were not going to roll: according to my estimates, lost repos account for $66 billion out of a projected cash shortfall of $88 billion. With the PDCF in place, a loss of repo financing is a problem that is easy to solve: the collateral that Lehman's counterparties no longer accept can be pledged to the PDCF instead. Indeed, backstopping repos was the purpose for which the PDCF was created and then expanded on September 14 (see Section 4).

I have estimated that Lehman needed $22 billion of cash to replace liquidity drains other than losses of repos, such as collateral calls and losses of unsecured funding. To borrow this extra cash, the firm needed assets that were eligible as PDCF collateral and not previously encumbered in repos. Lehman had ample quantities of such assets.

Many of these assets were whole loans, both mortgages and corporate loans. Whole loans were sometimes used as collateral in tri-party repos, and the Fed included them when it expanded PDCF collateral on September 14. Lehman's assets included tens of billions of dollars of loans, and it previously pledged only a small fraction as repo collateral–only $1.1 billion on May 31 (Valukas

p. 1659).

Lehman could have pledged whole loans to the PDCF, or it could have created securities backed by the loans and pledged the securities. Lehman had taken the latter approach when it borrowed from the PDCF in April. It packaged 66 corporate loans to create the Freedom CLO, with a senior tranche of $2.2 billion and an equity tranche of $0.6 billion. The senior tranche received a single A rating and Lehman pledged it to the PDCF (Valukas fn 5349).

In addition to whole loans, Lehman held significant quantities of corporate bonds, equity, and mortgage-backed securities that were eligible for the PDCF and not used as repo collateral on September 14. These securities included $12 billion of collateral freed up when previous repos did not roll ($10 billion from Q3 and $2 billion from September; see Section 7). They also included securities that were apparently never used in repos: securities in the "boxes" of LBI and LBIE, and debt and equity held by LBI's subsidiary LCPI (see Lehman's Global Liquidity MIS in Valukas fn 6255, and Valukas pp. 584 and 596).

Available Collateral: Details Here I examine Lehman's balance sheet on August 31, 2008 and add up the assets that the firm could have pledged to the PDCF. I include all assets accepted by the PDCF except for Treasury and agency securities, which Lehman continues to repo to private institutions in my post-September-15 scenario.

Unless otherwise noted, my information comes from a "balance sheet footnote" that apparently was intended for LBHI's 10-Q for 2008 Q3, which was never completed (Valukas fn 2065). When the quantities of certain assets are unclear, I use conservative estimates. I find that Lehman's total holdings of PDCF-eligible collateral were at least $131 billion, an amount significantly greater than the $88 billion of cash that the firm was likely to need. The total collateral was the sum of the following items:

- Equities ($26.0 billion): The balance sheet footnote lists $43.2 of equities, but that includes private-equity stakes that the PDCF might not have accepted. The figure of $26.0 is the quantity of equities valued with Level I inputs, which means they were traded on public exchanges.

- Corporate Debt ($41.7 billion): This category includes corporate bonds and corporate loans, all of which were PDCF-eligible. Again, the loans could have been pledged directly to the PDCF, or they could have been securitized.

- Mortgage Assets ($55.0 billion): This category includes whole mortgages and mortgage-backed securities, all of which were PDCF-eligible.

- Money Market Instruments ($4.6 billion)

- Municipal Bonds ($3.5 billion): Munis were one kind of non-Treasury/agency repo collateral. The balance sheet footnote does not report Lehman's holdings of munis (they are included in the broader class of government bonds). I use $3.5 billion as a lower bound because Lehman repoed that quantity of munis on September 10 (Valukas fn 5601).

<u>Haircuts and Risk for the Fed</u>

I have estimated that Lehman needed $88 billion of liquidity support to avoid bankruptcy, and had $131 billion in PDCF-eligible collateral. Assistance from the PDCF could have kept Lehman in operation, even with large haircuts on its collateral.

In particular, Lehman could have absorbed the haircut actually imposed by the PDCF when it lent to LBI after the LBHI bankruptcy. This haircut was 16.7% for all collateral except Treasuries and agencies. With that haircut, Lehman's $131 billion of collateral could have yielded $109 billion in cash–more than the firm needed.

The Fed's 16.7% haircut was ample protection against losses from assisting Lehman. There are several reasons to think this haircut was highly conservative:

• It was considerably higher than the repo haircuts imposed by private institutions. A memo from JPMorgan Chase gives haircuts for Lehman's repos on September 11, and all were less than 16.7%. Haircuts for various asset classes included 5% for corporate bonds, 8% for equities, and 9% to 16% for mortgage-backed securities (Valukas fn 4293).

• The normal PDCF haircuts after September 15–those imposed on all borrowers except LBI–were also well below 16.7%. They included 6.5% for both corporate bonds and equities, and 6.5% to 9.1% for MBSs.

• New York Fed General Counsel Baxter said the large haircuts on LBI's collateral "were taken to account for LBI's diminished creditworthiness resulting from the loss of its parent's support"–in other words, from the LBHI bankruptcy (follow-up letter to FCIC). That rationale would not have applied if PDCF support had prevented the bankruptcy.

• The Fed's William Dudley stressed the high haircuts on LBI's collateral when he reported to the FOMC on September 16 (p. 7 of transcript). He said, "We think that's about roughly three times the market level that investors had been charging previously, so I think that gives us a fair degree of protection."

8.3 COMPARISON TO ACTUAL ASSISTANCE TO LBI

So far I have estimated Lehman's liquidity needs in a counterfactual scenario in which the firm avoids bankruptcy. As a check on this analysis, I now examine a relevant part of actual history: the Fed's liquidity assistance to the Lehman subsidiary LBI. This assistance, which lasted from September 15 to September 18, kept LBI in operation until most of it was acquired by Barclays. I ask whether this experience is consistent with my estimate of the assistance needed by the whole Lehman enterprise, i.e., LBHI.

In particular, I check a key feature of my counterfactual scenario: Lehman needs Fed assistance mostly to replace lost repos, because other liquidity losses are modest. Here I ask whether lost repos account for most of the Fed assistance that LBI actually needed.

I focus on LBI's experience on September 15, because we have precise information about its repos on that day. On September 15, LBI borrowed $28 billion in cash from the PDCF. It also received $2 billion in new repo financing from Barclays, which wanted to support LBI as it negotiated an acquisition. Liquidity support from the PDCF and Barclays totaled $30 billion.[19]

Of this funding, $6 billion from the PDCF was collateralized by Treasury and agency securities (see PDCF data on Board of Governors web site). In my earlier analysis of hypothetical assistance to LBHI, I assume that Treasuries and agencies are repoed to private institutions, and therefore ignore them in calculating both liquidity needs and available collateral. To do comparable calculations for LBI, I focus on liquidity support collateralized by assets other than Treasuries and agencies. The amount of this support was $24 billion ($30 billion minus $6 billion).[20]

Of this $24 billion, how much was needed by LBI to replace repos that failed to roll? A September 12 memo from JPMorgan Chase (Valukas fn 7810) reports LBI repos due to mature on September 15. The memo lists the amounts of various collateral types and the haircuts on the collateral; using these figures, we can compute the cash received by Lehman. The total cash from non-Treasury/agency repos maturing on September 15 was $18.7 billion.

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[19] Over September 16 and 17, this total grew to $36 billion ($20 billion from the PDCF and $16 billion from Barclays). I have not found precise figures for repos maturing on the 16th and 17th, so it is more difficult to determine LBI's liquidity needs on those days.

[20] Treasury and agency repos maturing on September 15 provided total cash of $53 billion, so it appears that Lehman rolled over most of those repos with the private sector. It is not clear why some Treasuries and agencies were pledged to the PDCF.

I assume that few or none of LBI's non-Treasury/agency repos rolled on September 15. I base this assumption on the prediction of Lazard on September 13-14 (see Section 7.3), and on a JPMorgan Chase memo that summarizes LBI's repos at the end of September 15 (Valukas fn 7807). The memo reports that LBI's tri-party repos with counterparties besides the Fed and Barclays were "mainly term repos," i.e., repos that LBI did not need to roll on September 15.

If LBI could not roll the repos maturing on September 15, it lost the $18.7 billion of cash due back to counterparties. This loss accounts for most of the $24 billion in liquidity support that LBI received from the PDCF and Barclays.

In analyzing the liquidity needs of the whole Lehman enterprise (Section 8.2), I estimate that the firm loses $66 billion in cash from repos maturing by October 13. This loss exceeds $18.7 billion, LBI's loss on September 15, for two reasons. First, almost half of LBI's repos were term repos that did not mature on September 15 but would mature by October 13. Second, roughly half of all of Lehman's repos were located at other subsidiaries of the firm, primarily LBIE (Valukas fn 5604).

If $18.7 billion of the liquidity support received by LBI went to replace lost repos, then the other $5.3 billion presumably was needed to cover different liquidity drains. It is not clear how these other losses compare to losses that LBHI would have suffered if it remained in business. Some of LBI's losses would not have occurred if all of Lehman were still operating. One example is cash due from LBIE that was cut off when LBIE entered administration (LBI Trustee Investigative Report, pp. 74ff). Another is cash lost as customers fled LBI's prime brokerage; LBI probably would have lost fewer customers if its parent had not filed for bankruptcy. On the other hand, if LBHI had remained in business, it might have suffered some liquidity drains that did not occur for LBI. An example here is collateral calls on derivatives contracts, because Lehman's derivatives were held mostly by LBHI, not its subsidiaries.

Because of these factors, we cannot extrapolate cleanly from LBI's experience to LBHI's liquidity needs if it had stayed in business. Yet LBI's experience is consistent with my broad conclusion that LBHI needed Fed assistance mainly to replace non-Treasury/agency repo funding. In particular, my estimates imply that lost repos account for 78% of the liquidity losses that LBI replaced with borrowing from the PDCF and Barclays ($18.7 billion out of $24 billion). In my hypothetical scenario for LBHI, lost repos account for 75% of the firm's borrowing needs ($66 billion out of $88 billion).

9. FED DISCUSSIONS OF COLLATERAL AND LIQUIDITY SUPPORT

The previous section of this paper seeks to determine the feasibility of a Lehman rescue by examining the firm's financial condition. Here I take a different approach: I critically review statements on the topic by Fed officials, statements made both before and after the bankruptcy.

Documents gathered by the Bankruptcy Examiner and the FCIC show that Fed officials extensively analyzed possible liquidity support for LBHI. This analysis began during the Summer of 2008 and continued until at least September 13. Officials focused on the idea that the PDCF could replace repo funding lost by Lehman–the main type of assistance that the firm ended up needing. In these pre-bankruptcy discussions, officials rarely questioned the legality of lending to Lehman or the adequacy of the firm's collateral.

Ben Bernanke made his first public comments on the Lehman bankruptcy in Congressional testimony on September 23. On that occasion, Bernanke said the Fed "declined to commit public funds" to prevent the bankruptcy because "we judged that investors and counterparties had had time to take precautionary measures." He did not say anything about legal constraints or Lehman's collateral.

The first time that Bernanke said the Fed could not legally rescue Lehman, and cited inadequate collateral, was a speech on October 7. Since then Bernanke has repeated those points many times, and other Fed officials have echoed him.

Yet Fed officials have not supported their claims with evidence. The FCIC repeatedly pressed both Bernanke and New York Fed General Counsel Baxter for quantitative details about Lehman's liquidity needs and collateral, but to no avail. I carefully review the exchanges between the FCIC and Bernanke, Baxter, and Board General Counsel Alvarez.

9.1 DISCUSSIONS BEFORE SEPTEMBER 15

After the Bear Stearns crisis, Fed officials and staff extensively discussed what they might do if Lehman experienced a run. Some people suggested that PDCF lending could keep Lehman in operation. It is not clear from the record why policymakers ultimately did not take this course.

New York Fed Stress Tests

As mentioned in Section 7, New York Fed staff performed stress tests in May and June 2008 in which they simulated liquidity crises at Lehman. These analyses do not explicitly discuss whether the Fed could rescue Lehman from a crisis, but the test results shed light on this question.

In contrast to stress tests performed by Lehman, the firm "failed" the Fed's tests: the cash outflows in stress scenarios exceeded Lehman's liquid assets. However, the tests assumed that Lehman would receive no liquidity assistance from the Fed. If we examine the scenarios in detail, we see that the firm could have covered its cash shortfall with Fed loans that were well-collateralized.

The basic reason for this conclusion is that the largest liquidity drain in the tests–as in the actual crisis in September–was a loss of repo financing. This problem mostly solves itself if Lehman can borrow from the Fed. When counterparties refuse to roll repos, that frees up collateral that Lehman can pledge to the Fed to replace the cash it has lost.

Specifically, let's consider the stress test called the "Bear scenario," which New York Fed analysts reported on May 12 (Valukas fn 6331). This test, the most dire of the Fed's scenarios, assumed "a run on the bank in all business areas." In the test, Lehman loses $88 billion of repo financing and suffers other cash drains including lost commercial paper, collateral calls, and operational friction. The firm starts with liquidity of $37 billion and loses a total of $104 billion, so its shortfall is $67 billion. Lehman runs out of cash and cannot operate.

Notice, however, that the $88 billion of lost repos exceeds the $67 billion shortfall of cash. The collateral that was previously pledged in the repos would be ample for borrowing $67 billion from the Fed, even with large haircuts.

The New York Fed performed its final stress test on June 26 (Valukas fn 6334). For reasons that are not clear, this test assumed less severe liquidity drains than the Bear scenario, so the total cash shortfall is only $18 billion. Once again, the loss of repos–$35 billion in this case–exceeds the cash shortfall, suggesting that Lehman could survive with Fed assistance.

These stress tests appear to be the most careful analyses of Lehman's liquidity that the Fed ever performed. I have not found evidence that Fed officials reviewed the tests during Lehman's crisis in September–but if they did not, they could have. Heading into the crisis, the Fed's best analysis implied that it could rescue Lehman with well-collateralized liquidity support.

Discussions in July

During July 2008, a number of staff at the New York Fed and the Board of Governors discussed possible liquidity support for Lehman in memos and email exchanges. These discussions are documented in the FCIC Lehman Chronology (Tabs 14-17).

The discussion began with a July 11 memo to President Geithner from New York Fed staff, including Lucinda Brickler and Til Schuermann. The memo discusses how the Fed might react if a major broker-dealer lost tri-party repo financing, and analyzes Lehman Brothers as an example.

The memo points out that a firm could lose financing either because counterparties refuse to roll repos or because the firm's clearing bank refuses to provide intraday credit. The Fed could step in to replace either the counterparties or the clearing bank. The memo describes the rationale for such an intervention:

Should a dealer lose the confidence of its investors or clearing bank, their efforts to pull away from providing credit could be disastrous for the firm and also cast widespread doubt about the instrument [tri-party repos] as a nearly risk-free, liquid overnight instrument. In the event a firm faced this situation, the Federal Reserve could step in and provide overnight financing as it does now through the PDCF, and by replacing the credit provided by the clearing bank during the day.... By allowing a dealer to provide a strong face to the market, this approach is intended to support market confidence in the dealer and, by continuing the smooth functioning of the market, in the tri-party repo instrument itself.

The memo says that the PDCF might need to accept all types of tri-party collateral, anticipating the expansion of the facility that occurred on September 14.

Schuermann sent the memo to Geithner and 16 others at the New York Fed. An accompanying email says, "I will bring printed copies now," suggesting there was a meeting to discuss the memo. Brickler forwarded the memo to Patrick Parkinson, Deputy Director of the Board of Governors' Division of Resarch and Statistics, saying, "We are talking through collateral, margin, legal agreement, operating issues, etc., today to put together a plan in the event it becomes necessary to consider this."

Over the next two days, July 12-13, there is a lively email exchange among New York Fed and Board staff, including Brickler, Schuerman, Parkinson, and several others. Generally the emails are not sent to top policymakers; instead, the staff discusses "what we should tell Tim [Geithner]." They debate a wide range of policy options in the event of a run on Lehman.

The Board's Patrick Parkinson takes a leading role in these exchanges. He expresses confidence that the PDCF could replace any loss of repo funding by Lehman and keep the firm afloat. At one point he writes:

[T]he point of our PDCF lending would be to head off a massive run. Perhaps in a world where "headline risk" is an important concern a run would still occur. But if so we would end up lending at the end of the day an amount that still would be no higher (and could be far smaller) than what others seem to want to commit to lend at the beginning of the day.

On July 20, Parkinson reported on Lehman's problems to top Board officials including Ben

Bernanke (Tab 18). For reasons that are not clear, Parkinson is less optimistic on that occasion than he is on July 13. Even if the PDCF replaced all of Lehman's repo financing, he suggests, "our action would not ensure LB's survival" because the firm could face other liquidity drains. Parkinson concludes, "That's not to imply that [a rescue] would not be worth the gamble, but it would be a gamble."

<u>The Last Week</u>

After July, the discussions about Lehman's liquidity died down, as far as one can tell from the public record. The topic re-emerged as an urgent one on September 10, when it became clear that Lehman faced an acute crisis. The FCIC's Lehman Chronology documents extensive analyses from September 10 through September 13.

The discussions of Lehman were complex, and some are difficult to interpret because they refer to non-public documents. Yet two broad points emerge from the evidence. First, numerous staff at the New York Fed and the Board developed plans for liquidity support for Lehman, partly at the request of President Geithner. Second, there is no sign that anyone was concerned about the adequacy of Lehman's collateral or the legality of assisting the firm.

The following are highlights of the discussions:

Geithner's Options On Wednesday, September 10, President Geithner led a conference call with staff from the New York Fed and the Board. The discussion is summarized in an email from Mark VanDerWeide of the Board's Legal Division (FCIC Chronology Tab 36):

> At 4:15pm FRBNY/Board call, same three options were laid out once again by Tim. Working groups were directed to spend the next few hours fleshing out how a Fed-assisted BofA acquisition transaction might look, how a private consortium of preferred equity investors transaction might look, and how a Fed take out of tri-party repo lenders would look.

The last of the three options sounds like the plans for liquidity support discussed in July.

VanDerWeide also says, “Tim seemed to think that Lehman would survive into the weekend, but may need some PDCF help tomorrow or Friday.”

The “Gameplan” On September 10 and 11, a memo referred to as a “liquidation consortium gameplan” was circulated among New York Fed and Board staff and Vice Chair Kohn (Tab 37). It is not clear who wrote the memo. It presented a plan for the meeting of Wall Street CEOs that began at the Fed on September 12. The meeting’s purpose was to “explore possibilities of joint funding mechanisms that avert Lehman’s bankruptcy.”

For our purposes, two parts of the Gameplan memo are significant. One is headed “FRBNY financial commitment.” This section discusses liquidity support for Lehman:

Term of any liquidity support should be long enough to guard against a fire sale, but on a short enough fuse to encourage buyers of Lehman assets to come forward. Two months to a year in duration?

Here, the memo envisages the policy intervention that I analyze throughout this paper: liquidity support to give Lehman time to find the best possible resolution of its crisis.

The other relevant part of the memo is a section titled “Legal,” which is part of a larger section titled “Open Issues.” The Legal section lists a number of questions, including what approvals for a deal would be needed from Lehman shareholders and U.S. and foreign regulators. It also asks, “Can we obtain necessary FOMC approval for whatever funding facility is fashioned to facilitate a consortium?”[21]

The most interesting aspect of the Legal section is what it does *not* discuss. It does not mention concerns about the legality of liquidity support or the adequacy of Lehman’s collateral.

Kohn Email On the afternoon of Friday September 12, Vice Chair Kohn sent a brief email to

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[21] There is a small mistake here: it is the Board of Governors, not the FOMC, that approves lending facilities under Section 13(3).

Bernanke and Governor Kevin Warsh, in which he reported on discussions he had with Fed Bank Presidents (Tab 50). Kohn says:

I was quizzed closely by Fisher [President of the Dallas Fed] on the appetite for Fed/Gov't involvement beyond liquidity provision. I told him strong prediliction against by both Treas. and Fed...

The important point here is the implicit one that policymakers were considering liquidity provision. "Involvement beyond liquidity provision" may refer to a capital injection or a Maiden Lane facility to purchase Lehman assets.

Final Staff Debates Some of the staff who had followed Lehman since the Summer–Parkinson and VanDerWeide of the Board and Brickler of the New York Fed–exchanged a flurry of emails on September 12 and 13 (Tab 53). This discussion is hard to follow because it centers on a non-public memo by Brickler called the "tri-party cheat sheet." Yet we can infer some of the thinking about support for Lehman.

Brickler attached the cheat sheet to a September 12 email, saying, "Attached are some thoughts on tri-party repo for the weekend." She adds

I've also attempted to briefly describe a few things we may need to consider in the event that JPMC refuses to unwind Lehman's positions on Monday–assuming they're still in business, but haven't been rescued–and the policy makers believe an intervention is necessary to protect the market from the fallout of a sudden default.

As in July, Brickler is worried that JPMorgan Chase will stop clearing Lehman's repos.

VanDerWeide replies on September 13 and comments on several policy options that apparently were listed in Brickler's memo. One comment is

Option 1: need to discuss whether this fits within existing PDCF authorization or would need to be new 13(3)/10B loan (like the Bear March 14 loan).

From this comment, it appears that Option 1 is overnight lending against repo collateral, which would be similar to PDCF lending and to the Bear loan on Thursday, March 14 (not the subsequent loan to Maiden Lane to purchase Bear assets).[22]

VanDerWeide's Report to Alvarez Late on September 13, there is a cryptic email exchange between VanDerWeide and Board General Counsel Alvarez (Tab 61). At 7:39 PM, VanDerWeide mentions "the tri-party solution structure we spoke with you about just now." He says, "FRBNY legal and policy thinks our proposal is workable and the best option we have right now." Evidently, New York Fed staff had some plan to help Lehman maintain its repo financing.

VanDerWeide sent this email about 30 hours before LBHI filed for bankruptcy. Nothing in the real-time record explains why policymakers did not follow through on plans to assist LBHI.

9.2 BERNANKE'S TESTIMONY ON SEPTEMBER 23

As discussed throughout this paper, Ben Bernanke and other Fed officials have insisted repeatedly that they could not rescue Lehman legally because the firm lacked adequate collateral for a loan. However, that is not what Bernanke said the first time he commented on the bankruptcy.

On September 23, 2008, Bernanke testified about the AIG and Lehman crises before the Senate Banking Committee. In his written testimony, Bernanke says the Fed rescued AIG because "a disorderly failure of AIG would have severely threatened global financial stability." He then discusses Lehman:

> In the case of Lehman Brothers, a major investment bank, the Federal Reserve and the Treasury declined to commit public funds to support the institution. The failure of Lehman posed risks. But the troubles at Lehman had been well known for some time, and investors clearly recognized–as evidenced, for example, by the high cost of insuring Lehman's debt in the market for credit default swaps–that the failure of the firm was a significant possibility. Thus, we judged that investors and counterparties had had time to take precautionary measures.

[22] Section 10B of the Federal Reserve Act concerns discount loans to depository institutions. It is relevant here because the March 14 loan to Bear was channeled through JPMorgan Chase.

In saying the Fed "declined" to assist Lehman, Bernanke suggests that it could have done so if it chose. He does not cite legal barriers, saying instead that the expected effects of Lehman's failure were not sufficiently dire to warrant a rescue.

When Bernanke testified before the FCIC in 2010, its Chairman, Phil Angelides, reminded him of his 2008 testimony. Angelides summarizes Bernanke's position then as, "Lehman was not rescued essentially because the market, the participants, had had time to prepare in the wake of market developments." Angelides adds, "it seems to me the decision to let Lehman fail was a conscious policy decision" (p. 19 of the hearing transcript).

Bernanke responds (pp. 24-25):

Let me just say one word about the testimony you referred to, which has gotten–which has supported this myth that we did have a way of saving Lehman. This is my own fault, in a sense, but the reason we didn't make the statement in that testimony, which was only a few days after the failure of Lehman, that we were unable to save it was because it was a judgment at the moment, with the system in tremendous stress and with other financial institutions under threat of run, or panic, that making that statement might have, might have even reduced confidence further and led to further pressure. That being said, I regret not being more straightforward there, because clearly it has supported the mistaken impression that in fact we could have done something. We could not have done anything.

Later in his testimony, Bernanke says, "I was very, very confident that Lehman's demise was going to be a catastrophe" (pp. 76-77).

In this testimony, Bernanke disavows his initial account of why the Fed let Lehman fail. He says he was not "more straightforward" because he feared the market's reaction if he revealed the true reason for the Fed's decision.

The Final Report of the FCIC notes the difference between Bernanke's testimony in 2008 and in 2010. It says (p. 340), "As Bernanke acknowledged to the FCIC, his explanation for not providing assistance to Lehman was not the explanation he offered days after the bankruptcy."

Bernanke discusses his initial testimony about Lehman in his 2015 memoir. His account there is similar to his 2010 statement to the FCIC, with the added detail that he planned his initial testimony in collaboration with Treasury Secretary Paulson. Bernanke says (p. 289):

> In congressional testimony immediately after Lehman's collapse, Paulson and I were deliberately quite vague when discussing whether we could have saved Lehman. We spoke about the true, but ultimately irrelevant, fact that financial firms had more time to prepare for Lehman's collapse than for a Bear Stearns failure. But we had agreed in advance to be vague because we were intensely concerned that acknowledging our inability to save Lehman would hurt market confidence and increase pressure on other vulnerable firms. Today I wonder whether we should have been more forthcoming....

Bernanke says he is not sure whether, on balance, his "caginess" in his September 23 testimony was a good idea.[23]

9.3 CLAIMS ABOUT COLLATERAL AND LEGAL AUTHORITY

Bernanke first cited legal barriers to rescuing Lehman and the firm's inadequate collateral in a speech to the National Association of Business Economists on October 7, 2008. Since then, Bernanke and other Fed officials have consistently repeated the claims in that speech.

In the October 7 speech–two weeks after the Congressional testimony discussed above–Bernanke explained why Lehman was not rescued as follows:

> With respect to public-sector solutions, we determined that either facilitating a sale of Lehman or maintaining the company as a free-standing entity would have required a very sizable injection of public funds–much larger than in the case of Bear Stearns–and would have involved the assumption by taxpayers of billions of dollars of expected losses. Even if assuming these costs could be justified on public policy grounds, neither the Treasury nor the Federal Reserve had the authority to commit public money in that way; in particular, the Federal Reserve's loans must be sufficiently secured to

[23] Henry Paulson also suggested initially that the failure of Lehman was a policy choice, and later said that the Fed and government had no legal means to rescue the firm. In a 2013 update of his memoirs, Paulson gives the same explanation as Bernanke for an initial lack of candor. Speaking of his press conference on September 16, Paulson says (p. xxi): "When asked why we didn't save Lehman, I wouldn't publicly admit that the U.S. couldn't find a single authority to rescue a failing investment bank. I believed that if I acknowledged as much, Morgan Stanley, which was also on the ropes, would have gone down within a few days."

provide reasonable assurance that the loan will be fully repaid. Such collateral was not available in this case.

Bernanke made similar claims about collateral and legal authority in speeches on October 15 and December 1, 2008. At the Jackson Hole conference on August 21, 2009, he said:

[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, and as the government as a whole lacked appropriate resolution authority or the ability to inject capital, the firm's failure was, unfortunately, unavoidable.

The staff of the FCIC interviewed Bernanke in November 2009 and later released a transcript. On this occasion Bernanke repeats his claims about legal authority in particularly strong language. He says (p. 30), "I will maintain to my deathbed that we made every effort to save Lehman, but we were just unable to do so because of a lack of legal authority." He also says (pp. 25-26):

I've said the following under oath and I'll say it again under oath if necessary: we wanted to save Lehman. We made every possible effort to save Lehman... We could not. We did not have the legal authority to save it.

The Bankruptcy Examiner interviewed Bernanke in December 2009. No transcript is available, but the Examiner's Report summarizes what Bernanke said (pp. 1503-1504):

Bernanke did not believe that the Fed had the legal authority to bail out Lehman in September 2008. He noted that a Federal Reserve Bank such as the FRBNY could make a loan only if it was satisfactorily secured, that is, that the bank could reasonably expect a 100 percent return. Bernanke said a "fundamental impediment" existed for Lehman: By mid-September, Lehman lacked not just "standard" collateral, but "any" collateral. Lehman's tangible assets and securities fell "considerably short of the obligations that would come due."

Bernanke has maintained this position in subsequent discussions of the Lehman crisis. In his 2012 lectures at George Washington University, he says that legal constraints left the Fed "helpless" to save Lehman. In his 2015 memoirs, he says (pp. 287-288):

Unlike AIG, which had sufficient collateral to back a large loan from the Fed, Lehman had neither a plausible plan to stabilize itself nor sufficient collateral to back a loan of the size needed to prevent its collapse.

At another point in his memoirs, Bernanke recounts a conversation with Timothy Geithner on September 14, when Geithner called him to report the failure of the Barclays deal. Bernanke says, "I asked Tim whether it would work for us to lend to Lehman on the broadest possible collateral to keep the firm afloat," and he summarizes Geithner's answer (pp. 267-268):

"No," Tim said. "We would only be lending into an unstoppable run." He elaborated that, without a buyer to guarantee Lehman's liabilities and to establish the firm's viability, no Fed loan could save it. Even if we lent against Lehman's most marginal assets, its private-sector creditors and counterparties would simply take the opportunity to pull their funds as quickly as possible.... We would be left holding Lehman's bad assets, having selectively bailed out the creditors who could exit the most quickly, and the firm would fail anyway. "Our whole strategy was based on finding a buyer," Tim said. It was a question of practicality as much as legality. Without a buyer, and with no authority to inject fresh capital or guarantee Lehman's assets, we had no means of saving the firm.

Here again, Bernanke maintains that the Fed could not have saved Lehman with a well-secured loan, and that it lacked authority for more effective assistance. (In my reading of this passage, Bernanke's distinction between practicality and legality is not important for the substance of his position.)

Geithner makes similar claims about Lehman in his own memoirs, in 2014. He says (p. 186):

[W]e didn't believe we could legally lend them the scale of resources they would need to continue to operate, because we didn't believe they had anything close to the ability to repay us.

Later, Geithner says (p. 187):

We had shown that we could push the boundaries of our authority to take on some modest risk, but the Fed's emergency authorities limited how much risk we could take; we were the central bank of the United States, and we weren't going to defy our own governing law to lend into a run. We could [only] make loans to solvent institutions against solid collateral.

9.4 CHALLENGES BY THE FCIC

On most occasions when Fed officials have discussed Lehman, their accounts of the episode have not been challenged strongly. These cases include most of the interviews of officials by the staff of the FCIC, which are available on the FCIC website. These sessions had a friendly tone, with the interviewers seeming to accept officials' claims uncritically.

Fed officials were treated differently at public hearings of the FCIC, where they were questioned by members of the Commission rather than its staff. Chairman Bernanke, New York Fed General Counsel Baxter, and Board General Counsel Alvarez testified under oath at a hearing titled "Too Big to Fail" on September 1-2, 2010. On that occasion, several Commissioners cross-examined the officials aggressively, questioning their claims about Lehman's collateral and the Fed's authority to lend. The FCIC pushed Bernanke and Baxter further with follow-up questions sent in writing on October 1, 2010.

In response to this questioning, Fed officials provided the most detail about their treatment of Lehman that is available anywhere. I review this record carefully. Officials were nonresponsive to some of the FCIC's questions–notably Chairman Bernanke in replying to his follow-up letter. On other issues, the claims of different officials conflict with each other or with facts established elsewhere in the record.

Bernanke's FCIC Testimony

Bernanke testified before the FCIC about various aspects of the financial crisis on September 2, 2010. The transcript is 121 pages. Commissioners questioned Bernanke about the Lehman episode at several points.

Early in the hearing (pp. 18-21), FCIC Chairman Angelides asks Bernanke to explain why the Fed did not assist Lehman–"the things you were trying to weigh, the decision-making factors." He questions the legal-authority explanation, in part because Bernanke did not mention it in his first statement about the bankruptcy (see Section 9.2). Angelides reviews the discussions among Fed staff about possible support for Lehman and concludes, "I don't see any documents or discussion along the way about legal bars or government analysis of a shortage of collateral."

In reply, Bernanke says in part (pp. 22-23):

Now on Sunday night of that weekend, what was told to me was that–and I have every reason to believe–was that there was a run proceeding on Lehman, that is people were essentially demanding liquidity from Lehman; that Lehman did not have enough collateral to allow the Fed to lend it enough to meet that run; therefore, if we lent the money to Lehman, all that would happen would be that the run would succeed, because it wouldn't be able to meet the demands, the firm would fail, and not only would we be unsuccessful but we would have saddled the taxpayer with tens of billions of dollars of losses.... The unanimous opinion that I was told, and that I heard from both the lawyers and from the leadership at the Federal Reserve Bank of New York, was that Lehman did not have sufficient collateral to borrow enough to save itself. And therefore any attempt to lend to Lehman within the law would be futile and would only result in loss of cash.

Later (pp. 25-27), Angelides asks Bernanke why the Fed lent money to LBI but not to LBHI. Bernanke replies that LBI "had sufficient collateral to support the loan," whereas "the calculations were that the liquidity demands on the holding company were much greater than the collateral that they had available to meet those demands." Angelides asks Bernanke about the source of his information:

Chairman Angelides: Was that based on an analysis? Or was that based on the private consortium's analysis?

Witness Bernanke: That was based on analysis at the Federal Reserve Bank of New York, primarily, which had been going on through the weekend. And of course prior to that, we had done a lot of analysis based on our presence at Lehman during the Summer.

Later in the hearing (pp. 80-84), Commissioner Wallison pursues a similar line of questioning. He asks Bernanke whether the Board of Governors could have authorized a loan to LBHI, leading to the following exchange:

Witness Bernanke: We are able to do so under the law so far as we have sufficient collateral. And we were prepared to do that. And I was in Washington ready to call the Board together to do that, if that was going to be helpful. However, what I was informed by those working on Lehman's finances was that it was far too little collateral available to come to our window to get enough cash to meet what would be the immediate liquidity runs on the company.... So it was our view that we could not lend enough to save the company under the restriction that we could only lend against collateral.

Commissioner Wallison: And you are saying, then, that even if the collateral was illiquid, you could have lent against it, but you concluded–or someone in the New York Fed concluded–that there wasn't enough of such even illiquid assets for you to make this loan?

Witness Bernanke: That's correct.

Commissioner Wallison: Did you do a study of the collateral that was available? Does the New York Fed have a study of the collateral that was available so we could–

Witness Bernanke: Well I would refer you to them. Remember, we were working with the SEC to do these liquidity stress tests that we did over the Summer. And then over the weekend, there was 24-hour analysis going on that included not only the staff of the New York Fed, but also assistance from the private sector companies that were gathered there. I don't have any–to my knowledge, I don't have a study to hand you. But it was the judgment made by the leadership of the New York Fed and the people who were charged with reviewing the books of Lehman that they were far short of what was needed to get the cash to meet the run. And that was the judgment that was given to me. So that was my understanding.

Still later in the hearing, Bernanke has similar exchanges with Commissioner Holtz-Eakin (pp. 87-88) and with Vice Chairman Thomas (p. 89). Thomas pushes for details about the collateral shortfall, asking whether "it wasn't sufficient collateral by an inch, by a mile?" In reply, Bernanke relates what he heard from the policymakers gathered at the New York Fed (President Geithner, Secretary Paulson, and SEC Chairman Cox):

[W]hat I heard from them was just the sense of defeat. You know, that it's just way too big a hole. And my own view is it's very likely that the company was insolvent, even, not just illiquid.

What should we make of this testimony? Bernanke says repeatedly that his judgment about Lehman's collateral was based on analysis at the New York Fed during the firm's final weekend. He says that "people who were charged with reviewing Lehman's books" worked around the clock on "calculations" of the firm's liquidity needs and collateral. But Bernanke does not provide any details of this analysis, or even evidence that it occurred. There is no way to prove that such an analysis did *not* occur, but there are several reasons to question Bernanke's account.

First, as Angelides points out, there is an extensive record of Fed emails and memos from the final weekend, and nobody discusses the adequacy of Lehman's collateral. Such discussions are also absent from detailed accounts of the weekend in Sorkin's *Too Big to Fail* and the memoirs of Henry Paulson and Timothy Geithner (although Geithner states that Lehman's collateral was inadequate).

Second, Bernanke says "the private sector companies" helped analyze the adequacy of Lehman's collateral, and that does not appear to be true. By all accounts, the firms gathered at the New York Fed were divided into three groups with different tasks, which Geithner (p. 182) describes as

> one to analyze Lehman's toxic assets to help facilitate a potential merger, one to investigate an LTCM-style consortium that could take over the firm and gradually wind down its positions, and one to explore ways to prepare for a bankruptcy and limit the attendant damage.

None of these tasks involved analysis of Lehman's liquidity needs or the collateral available for a Fed loan.

Finally, Bernanke cites the New York Fed stress tests from the Summer of 2008. These tests do address Lehman's liquidity needs, but they do not support the claim of inadequate collateral. As discussed in Section 9.1, the tests find that a run would leave Lehman with unencumbered repo collateral that exceeded its borrowing needs.

<u>The FCIC's Follow-up Questions to Bernanke</u>

A month after Bernanke's testimony, on October 1, 2010, the FCIC sent him a follow-up letter with six questions. The first two questions concern Wells Fargo's acquisition of Wachovia, and the last requests a list of readings on the financial crisis. The other three questions concern Lehman:

> 3. Please provide any information about Lehman's financial condition or its collateral in the weeks leading up to the company's bankruptcy.
>
> 4. During your testimony, you stated that the Federal Reserve Bank of New York conducted a collateral analysis of Lehman Brothers, upon which you relied to make your decision not to use the Federal Reserve's Section 13(3) authority. Please provide the collateral analysis, the name of the person who communicated the collateral analysis to you, and the time and location when you were informed of the collateral analysis. Please inform the Commission of the name or names of persons who conducted the collateral analysis for the Federal Reserve Bank of New York. In addition, please

provide a list of persons with whom you or your staff consulted with regards to this matter in the White House or the Treasury and any related memoranda, documents, emails, etc.

5. Please report the dollar value of the shortfall of Lehman's collateral relative to the collateral necessary to issue a bridge loan or other secured assistance to Lehman on September 14, 2008.

Obviously, the Commission is trying hard to pin Bernanke down on the details of the Fed's collateral analysis.

Bernanke replied to the Commission in a 15-page letter on November 4. He says:

This letter responds to the supplemental questions you sent me on October 1, 2010 and provides additional information regarding the issues you raised in your letter inviting me to testify before the Commission. To most effectively and efficiently respond to the questions posed in your two letters, my responses are organized by topic.

The topics in the letter are "Supervision," "Monetary Policy," "Emergency Assistance" (which discusses Wachovia and 13(3) lending in general), "Lehman Brothers Bankruptcy," and "Reading List." The Lehman Brothers section, on pp. 11-14, is the part that is relevant here.

In his letter, Bernanke reiterates, "The contention that the Federal Reserve believed it had viable options to rescue Lehman, but chose not to use them, is simply untrue." He reviews policymakers' unsuccessful efforts to arrange a Barclays acquisition, and then writes:

Without a merger partner, the Federal Reserve saw no viable options for avoiding a Lehman bankruptcy. Lehman was in immediate need of substantial capital and liquidity to fund its operations as counterparties pulled funding away or sought better lending terms and more collateral. Although we did not have precise information about their credit needs at the time, the balance sheet of Lehman readily illustrated that the credit relied on by Lehman to remain in operation was in the hundreds of billions of dollars and the lack of confidence that led counterparties to pull away from Lehman suggested that Lehman would need a credit backstop of all its obligations in order to prevent a debilitating run by its counterparties. Moreover, the value of a substantial portion of assets held by Lehman, especially its investments in RMBS, loans, and real estate, was falling significantly. Derivative positions were subject to continuing collateral calls that required amounts of Lehman funding that could not easily be quantified in advance. And clearing parties were demanding collateral as a condition for serving as an intermediary in transactions with Lehman. We saw no evidence that Lehman had sufficient collateral to support these types and amounts of taxpayer support from the Federal Reserve....

This information was conveyed to me by phone that weekend by FRBNY officials. As you know, Lehman's primary dealer did have sufficient collateral to support a limited loan through the PDCF and other existing FRBNY liquidity facilities, and that credit was provided.

After this passage, Bernanke's letter turns to the issue of Lehman's solvency. As detailed in Section 6.4, he suggests Lehman was insolvent based on dubious arguments involving the Valukas Report, a 2010 report from the managers of the Lehman estate, and the minutes of the September 14, 2008 meeting of Lehman's board of directors.

Bernanke's letter is not responsive to the FCIC's follow-up questions. Question 4 asks for many details about the New York Fed's collateral analysis and how Bernanke learned about it ("the name of the person who communicated the collateral analysis to you," and so on), but Bernanke's relevant response is a single sentence: "This information was conveyed to me by phone that weekend by FRBNY officials." In response to Question 5, about "the dollar value of the shortfall" between Lehman's liquidity needs and collateral, Bernanke says vaguely that Lehman needed "hundreds of billions of dollars," and says nothing quantitative about its available collateral.

Bernanke lists some of the specific liquidity drains that Lehman faced, including collateral calls by derivatives counterparties and clearing banks. He does not quantify these factors, however. His assertion that collateral calls for derivatives "could not easily by quantified in advance" is at odds with the New York Fed stress tests over the Summer, which estimate that a run on Lehman would trigger collateral calls of $9 billion.

<u>Baxter's FCIC Testimony</u>

On September 1, 2010, the day before Chairman Bernanke's FCIC testimony, New York Fed General Counsel Baxter testified in a session devoted to Lehman Brothers. He was part of a panel that also included Lehman CEO Fuld; Lehman's lead bankruptcy attorney, Harvey Miller; and Barry Zubrow of JPMorgan Chase.

In written testimony for the hearing, Baxter states the same position on Lehman as Bernanke. He writes:

> Lehman had no ability to pledge the amount of collateral required to satisfactorily secure a Fed guarantee, one large enough to credibly withstand a run by Lehman's creditors and counterparties.

Baxter, like Bernanke, was pushed by several Commissioners to back up his claim. He responded with two different points, one regarding Lehman's liquidity needs and another regarding the firm's long-term prospects. I will examine these points separately:

LBHI's Liquidity Needs Commissioner Holtz-Eakin asks Baxter why the Fed provided liquidity assistance to keep LBI in operation, but not all of LBHI. Baxter replies (pp. 185-186):

> So what you're talking about with additional funding to rescue the Lehman parent is it comes on top of the $60 billion that was already committed to the broker-dealer [LBI]. So, you know, if you take what was offered in one of the statements that there was another $40 billion needed, we're up to $100 billion now. Now where's the collateral coming? How are you doing that? Those things are all completely obscure.

This testimony is noteworthy because, to my knowledge, it is the only place where a Fed official gives a numerical estimate of Lehman's liquidity needs. As Baxter clarifies elsewhere (pp. 165-166), the $60 billion in support for LBI is an estimate that aggregates the $28 billion in PDCF lending on September 15 and loans of cash and securities through the TSLF and open-market operations (OMO). The TSLF and OMO lending were roughly the same before and after the LBHI bankruptcy.[24]

The key point here is the suggestion that LBHI needed $40 billion of additional funding to survive. Baxter does not cite the source of this figure, but says it "was offered in one of the statements." I conjecture that Baxter is referring to the written testimony of attorney Harvey Miller,

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[24] The OMOs counted here were repos of Treasury securities from Lehman to FRBNY, which the latter initiated as part of its implementation of monetary policy.

who says, “It has been estimated by some commentators that a government-sponsored wind-down [of LBHI], with limited guarantees, might have cost $40 to $50 billion.” Miller’s figure, however, is an estimate of the ultimate cost of resolving LBHI, not of the firm’s liquidity needs.[25]

In any case, since LBI borrowed $28 billion from the PDCF, Baxter’s $40 billion figure implies that LBHI could have survived with total PDCF support of $68 billion (along with unchanged support from the TSLF and OMOs). This estimate of LBHI’s borrowing needs is on the *low* side compared to my estimate of $88 billion (see Section 8.2).

Baxter says the source of collateral for additional borrowing is “completely obscure,” but we have seen that Lehman clearly had enough collateral. The firm had at least $131 billion of assets that were acceptable as PDCF collateral under the September 14 rules (see Section 8.2). It had many additional assets that could have served as collateral under a new 13(3) resolution (see Section 8.1).

“A Bridge to Nowhere” At several points in Baxter’s testimony, Commissioners press him about the Lehman decision and he does *not* say anything about Lehman’s collateral or the Fed’s legal authority. Instead, Baxter says that policymakers decided before the weekend of September 13-14 that Lehman should declare bankruptcy if it was not acquired by another firm. They did not consider liquidity support for Lehman because that would not have improved the outcome of the firm’s crisis: it would have been “a bridge to nowhere.”

Baxter first takes this position under questioning by Chairman Angelides. Angelides makes a point that he later makes to Ben Bernanke: memos and emails suggest that policymakers discussed liquidity support for Lehman extensively, and were not concerned about the firm’s collateral or their

[25] The source of Miller’s figure is not clear. If he is suggesting that a wind down would have cost the government $40-$50 billion, then I disagree. The only necessary public assistance would have been Fed liquidity support during the wind down, which could have been well secured (see Section 11.3).

legal authority. Angelides reviews the evidence (pp. 161-163 of the transcript) and says, "I never see anyone say during the months, we can't even consider financial assistance because the condition of Lehman won't allow it."[26] He asks Baxter:

Tell me all the policy considerations that go in? Or was it that from day one you were saying legally not possible? Because it sure looks like there's a heck of a lot of debate, a hell of a lot of debate here, about whether or not to rescue, whether or not to provide for an orderly transition, and none of this was cut off by a legal opinion and said not possible.

Baxter replies (p. 164):

I think it's important to understand the framework that we went into Lehman weekend with. And our principal plan, our Plan A, if you will, was to facilitate a merger between a strong merger partner and Lehman. That was Plan A. And rest assured, Commissioners, we worked night and day to try to make that plan happen.

Baxter describes the failure of the Barclays acquisition, and then continues:

So Plan A couldn't be executed. Now Secretary Geithner, when I worked for him when he was president of the New York Federal Reserve Bank, used to say to the staff, and sometimes in an animated way, "plan beats no plan." So he was not going to allow us to be in a position where we had no contingency plan. So our contingency plan for the facilitated merger-acquisition of Lehman, was the following: The parent would file a Chapter 11 petition. The U.S. broker-dealer would stay in operation with the benefit of Federal Reserve liquidity until such time as a proceeding could be commenced under the Securities Investor Protection Act. That was the contingency plan. The Plan B if you will.

Later in the hearing (p. 253), Commissioner Wallison presses Baxter on why the Fed did not provide liquidity assistance to LBHI. Baxter replies that such an action "was inconsistent with the contingency plan that we were executing after Plan A fell apart and we couldn't find a merger partner."

In this exchange, Baxter also says *why* a loan to LBHI was neither Plan A nor Plan B: it would have been futile for resolving Lehman's crisis. Lehman CEO Fuld, testifying alongside Baxter, had

[26] In the transcript, this sentence includes the word "can" rather than "can't," but that appears to be a typo.

said that Lehman needed a “bridge loan” to keep the firm in operation while it addressed its problems. Baxter tells Wallison (p. 254):

> It was felt that that kind of bridge loan was a bridge to nowhere, because the management of Lehman had worked, I think as diligently as possible, to find a solution to their problems in the run-up to Lehman weekend. We had worked through Lehman weekend to find a solution to those problems. The market no longer had confidence in Lehman. The market was no longer willing to trade with Lehman.

Baxter also calls assistance to LBHI “a bridge to nowhere” at two other points in his testimony (p. 174 and p. 253). He elaborates on this idea in his follow-up letter to the FCIC, discussed below.

Baxter’s argument, it appears, is that Fed liquidity support could not have improved the outcome of the Lehman crisis. That claim is dubious. Liquidity support could have kept Lehman in operation for weeks or months (see Section 8 of this paper). Given this time, policymakers and Lehman executives probably would have found a resolution of the crisis that was less damaging to the financial system than the September 15 bankruptcy (see Section 11).

In any case, Baxter’s account of policy deliberations does not fit well with Chairman Bernanke’s testimony the next day. Bernanke says the New York Fed staff intensively analyzed Lehman’s collateral over its final weekend, and “I would refer you to them” for details. According to Bernanke, Fed officials determined that Lehman’s collateral was inadequate, and that was the reason for denying assistance to LBHI. This account makes sense only if officials seriously considered such assistance during the weekend–not if they dismissed the possibility before the weekend, as Baxter claims.

On this point, the record supports Bernanke’s account more than Baxter’s. As detailed in Section 9.1, there *was* intensive discussion of support for LBHI among New York Fed staff from Wednesday September 10 through Saturday September 13. This discussion included the “gameplan” for the weekend meetings at the Fed, which suggested liquidity support for two months to a year.

Baxter received that memo.

Baxter's Follow-Up Letter

The FCIC sent Baxter a follow-up letter on October 1, 2010, which includes a question that it also posed to Ben Bernanke:

> Please report the dollar value of the shortfall of Lehman collateral relative to the collateral necessary to issue a bridge loan or other secured assistance to Lehman on September 14, 2008.

In replying to the FCIC on October 15, 2010, Baxter restates the question and then gives this response:

> As far as I am aware, the possibility of extending a so-called "bridge loan" to LBHI on September 14 was never seriously considered by the Federal Reserve because such a loan, as I said during the Commission's September 1, 2010 hearing, would have been a bridge to nowhere. This view was not simply my own, but rather at the time was held throughout the U.S. government, broadly among Lehman's counterparties, and even by Lehman itself. As noted above, by September 14, 2008, LBHI's own board had concluded that bankruptcy was an "ultimate inevitability." Of course, after LBHI filed for bankruptcy, the FRBNY did extend on September 15 an aggregate amount of credit of approximately $60 billion to LBI, which enabled LBI to continue in business. This extension of credit was secured by a pledge of collateral that we valued at more than $60 billion. To keep all of Lehman operating as a going concern, rather than only the U.S. broker dealer, would have required a vastly greater amount of credit and collateral.

This statement largely repeats claims from Baxter's earlier testimony, but two details are noteworthy:

First, recall Baxter's testimony that LBHI might have needed $40 billion in credit to stay in operation, in addition to the $60 billion actually lent to LBI. In his follow-up letter, Baxter says that LBHI needed an amount "vastly greater" than $60 billion. "Vastly greater" is imprecise, but it sounds larger than $40 billion added to $60 billion.

Second, Baxter says that his view about a "bridge to nowhere" was shared "by Lehman itself." This claim is absurd. By all accounts, Lehman's executives tried desperately to borrow from the Fed because they believed that would lead to a better outcome for the firm. As in his comments on solvency (Section 6.4), Baxter misinterprets the reference to the "ultimate inevitability" of bankruptcy in the minutes of the Lehman board meeting. The board believed that bankruptcy was inevitable because the Fed had refused to assist LBHI, not because assistance would have been futile.

<u>Alvarez's Testimony and Interview</u>

Scott Alvarez, the General Counsel of the Board of Governors, also appeared before the FCIC on September 1, 2010. His testimony focused primarily on the acquisition of Wachovia by Wells Fargo, but he commented briefly on Lehman. He says (p. 41):

[W]e didn't have the tools to do anything other than what we did. Lehman needed far more liquidity than the Federal Reserve could provide on a secured basis. And without that security, we are not authorized to provide lending.

Once again, FCIC Chairman Angelides pressed for details about Lehman's collateral, leading to the following exchange (pp. 43-44):

Chairman Angelides: Just kind of yes or no, did the Fed ever do a collateral analysis? Did anyone in the federal government? I've never seen a collateral analysis.

Witness Alvarez: A written report on the value–

Commissioner Angelides: Yes.

Witness Alvarez: –of the collateral? No. There was no time for that...

Like the other witnesses at the FCIC hearing, Alvarez had previously been interviewed by FCIC staff. His interview, on July 29, 2010, is more interesting than most because the staff questioned him somewhat aggressively. Alvarez says that his office wrote a memo about each of the Fed's loans under Section 13(3), which discussed the collateral for the loans. That statement leads to the following exchange (around 1:21 in the audio recording):

Interviewer: Does that same document exist for Lehman, taking the assets, assessing that their value wouldn't support the collateral?

Alvarez: Nope. No.

Interviewer: Then how do you know you couldn't make a loan under 13(3)?

Alvararez: Folks had a pretty good feeling for the value of Lehman during that weekend, and so there was no memo prepared that documented why it is we didn't lend. It was just the thought that we are not going to lend because the decision makers who were involved in the negotiations, who were on the scene, who were talking to the Bank Americas complaining about the size of the hole, and talking to the industry saying we're not going to put up any money to solve this, and talking to the Lehman people who are saying, "My God, how are we going to open on Monday," they understood from all of that that there wasn't enough there for us to lend against and so they weren't willing to go forward.

Here, Alvarez says policymakers "understood" that Lehman had insufficient collateral despite an absence of documentation. He cites three pieces of evidence: Lehman had a "hole"; the private sector would not rescue the firm; and it could not open on September 15. None of these points is responsive to the interviewer's question about collateral.

• The term "hole," as used by Bank of America executives and others, refers to Lehman's overvaluation of assets and possible insolvency (see, for example, Paulson, p. 189). The available evidence suggests that Lehman was near the border of solvency based on market values of assets, and solvent based on fundamental values (see Section 6.3). In any case, as stressed throughout this paper, the adequacy of Lehman's collateral for a Fed loan does not turn on the question of solvency.

• The point about "the industry" is confused in two ways. First, the analysis by the private sector consortium, like the discussion of holes, concerned asset valuation and solvency, not liquidity and collateral. Second, the consortium did *not* refuse to put up any money. It agreed to finance some of Lehman's assets to facilitate a Barclays deal.

• To repeat the obvious, the reason that Lehman could not open on September 15 was its liquidity crisis: it could not borrow enough from the private sector. Under Section 13(3), such a predicament does not rule out a Fed loan; to the contrary, it is one of the requirements for a loan (see

Section 5.1).

9.5 A "NAKED GUARANTEE"

Fed officials have sometimes put forward a variation on their claims about collateral and legal authority. They have argued that a Lehman rescue required an unsecured guarantee of all the firm's obligations, which the Fed could not legally provide. In fact, Lehman did not need such a guarantee to stay in operation.

Recall that a dispute about a guarantee derailed the Barclays acquisition of LBHI. The Fed demanded that Barclays guarantee Lehman's obligations between the initial deal and final approval by Barclays and Lehman shareholders. Under British law, however, such a guarantee itself required a shareholder vote, which could not happen quickly, and Britain's Financial Services Authority refused to waive this requirement.

One possible resolution of this impasse was for the New York Fed to guarantee Lehman's obligations, rather than Barclays. The FSA suggested this option (FSA statement, Valukas fn 5918). Fed officials have argued, however, that Section 13(3) did not allow them to issue an unlimited and unsecured guarantee. On this point, their argument about legal authority appears sound.

However, a number of Fed statements are misleading because they suggest that an unlimited guarantee was the only way to avert Lehman's bankruptcy. In fact, as I emphasize throughout this paper, the firm could have survived with a finite amount of well-secured lending. Secured lending through the PDCF allowed LBI to operate after LBHI's bankruptcy, and similar lending could have supported all of LBHI.

General Counsel Baxter emphasizes the guarantee issue in his FCIC testimony. In his written testimony, he describes how the issue derailed the Barclays deal, and then says (pp. 8-9):

> Many have asked why, when the Barclays guarantee problem presented itself, the Federal Reserve did not step forward and guarantee the trading obligations of Lehman pending its merger with Barclays.... Under the law, the New York Fed does not have the authority to provide what I would characterize as a "naked" guarantee–one that would be unsecured and not limited in amount, and would put the U.S. taxpayers at risk for the *entirety* of Lehman's trading obligations.

In his opening statement at the FCIC hearing, Baxter describes what was needed to avert Lehman's bankruptcy (p. 151):

> First, we needed a suitable merger partner for Lehman. Second, we needed that merger partner to provide a guarantee similar to the one that JPMorgan Chase provided in its acquisition of Bear Stearns wherein the acquiring institution agreed to backstop Lehman's trading obligations between the signing of the merger agreement and the merger closing.

Baxter adds, "This guarantee was indispensable to Lehman's rescue" (p. 152).

Baxter returns to the guarantee issue at several points in his testimony. He reiterates that the Fed could not provide a guarantee (p. 164):

> The Fed has no such legal authority. And the reason is that in Section 13(3) of the Federal Reserve Act there's a requirement that we're secured to our satisfaction. A naked guarantee of unlimited amount, unsecured, does not meet that statutory requirement. Full stop.

Baxter contrasts a guarantee for LBHI with the Fed's "fully secured" lending to LBI, which was legal (p. 166).

Ben Bernanke does not discuss the guarantee issue in his FCIC testimony, but he raises it in earlier Congressional testimony (House Financial Services Committee, April 20, 2010). On that occasion, Bernanke says that Lehman needed an unlimited guarantee to survive:

> Lehman needed both substantial capital and an open-ended guarantee of its obligations to open for business on Monday, September 15. At that time, neither the Federal Reserve nor any other agency had the authority to provide capital or an unsecured guarantee, and thus no means of preventing Lehman's failure existed.

Finally, Board General Counsel Alvarez makes a relevant comment in his FCIC interview. An interviewer asks how much Lehman needed to borrow, and Alvarez replies (around 1:23):

> We were faced with having to give an open-ended guarantee. Lehman didn't come to us and say,

“can we borrow $10 billion?” It was, “will you guarantee our operations tomorrow?” How big is that loan?

Alvarez goes beyond Baxter and Bernanke in claiming that Lehman executives asked for an unlimited guarantee from the Fed. The record does not support that claim. What Lehman asked for was secured funding from the PDCF, as detailed in the next section of this paper.

10. FED ACTIONS TO ENSURE BANKRUPTCY

Previous parts of this paper argue that the Fed could have averted Lehman's bankruptcy with a well-collateralized loan. The point of this section is that Fed officials did not merely stand by and allow Lehman to fail. Rather, they took actions to ensure that LBHI would file a bankruptcy petition before markets opened on September 15. This outcome, as General Counsel Baxter told the FCIC, was the Fed's "Plan B." Officials pushed for bankruptcy once they saw that "Plan A," the Barclays acquisition, was not going to work.

Fed officials took action at two levels. First, they instructed Lehman's executives and attorneys to file a bankruptcy petition. Baxter delivered this instruction at a meeting at the New York Fed on the afternoon of Sunday, September 14. It was reiterated in thinly veiled language in a phone call from Fed and SEC officials to Lehman's board on Sunday evening.

Neither the Fed nor the U.S. government has the authority to order a bankruptcy filing by a private corporation. Therefore, Fed officials had to accompany their instruction with other actions that forced the hand of Lehman's board. Specifically, they acted to ensure that Lehman had insufficient cash to operate on September 15.

Fed policymakers faced a tricky problem on September 14. They wanted to ensure that all the Wall Street firms *except* Lehman had adequate liquidity, so they expanded the range of collateral accepted by the PDCF. They also wanted LBI to stay in business, so they gave it access to the PDCF and accepted "goat poo" as collateral.

At the same time, officials did not want Lehman to borrow enough from the PDCF to keep all of LBHI in operation. As detailed in Section 8.2, it appears that Lehman had enough collateral to do so. The Fed prevented this outcome, however, by restricting the firm's access to the PDCF.

The restrictions on Lehman's PDCF access are one of the murkier aspects of the firm's crisis.

Lehman executives told the FCIC that the Fed refused to broaden the range of acceptable collateral for their firm as it did for others. But General Counsel Baxter has denied this claim, and the real-time evidence is ambiguous.

On the other hand, there is clear evidence of a different kind of limit on Lehman's PDCF access–a restriction on which parts of the firm received assistance. In particular, the Fed prevented LBIE, Lehman's broker-dealer in London, from receiving cash that it needed for payments on September 15. LBIE defaulted, and that implied default by its parent LBHI as well, because LBHI guaranteed the payments.

The Fed took two actions to deny cash to LBIE. First, it lent to LBI but refused a request for a similar loan to LBIE. This action contrasts starkly with the Fed's decision seven days later to lend to the London broker-dealers of Morgan Stanley and Goldman Sachs.

By itself, it probably would not have mattered that the Fed lent to LBI and not LBIE. LBI could have borrowed cash to meet both its own and LBIE's liquidity needs, using routine transfers of cash and collateral among Lehman subsidiaries. At one point on September 14, Lehman executives planned such an arrangement. This plan was thwarted, however, by another Fed action: the "Friday criterion." This rule limited the collateral that LBI could pledge to the PDCF to assets on LBI's balance sheet on Friday, September 12. This restriction prevented other Lehman subsidiaries from transferring collateral to LBI, which meant LBI could not borrow enough cash to keep all of Lehman in operation.

General Counsel Baxter discusses the Friday criterion in his follow-up letter to the FCIC. He says that the Fed restricted asset transfers within Lehman because they might have been "preferences" or "fraudulent conveyances" under bankruptcy law. The basis for Baxter's claim is not clear, however.

10.1 THE FED'S INSTRUCTIONS TO LEHMAN

Fed officials discussed bankruptcy with Lehman's executives, attorneys, and board at two points on Sunday, September 14: at an afternoon meeting at the New York Fed, and in an evening phone call to the board.

The Sunday Afternoon Meeting

Fed officials invited Lehman executives and attorneys to the afternoon meeting, which began around 1:00 PM. General Counsel Baxter ran the meeting, which included about 25 people from the Fed and SEC. Attorney Harvey Miller led the Lehman representatives, who included several of Miller's law partners, Lehman President Bart McDade, and Alex Kirk, Lehman's Global Head of Principal Investing.

Several of the Lehman representatives subsequently described the meeting in FCIC interviews. Their accounts are similar. Other similar accounts appear in Miller's written testimony to the FCIC, in the Valukas Report, and in Sorkin's *Too Big to Fail*. To my knowledge, nobody from the Fed has mentioned the meeting in any interview, testimony or writing.

By all accounts, General Counsel Baxter firmly instructed LBHI to file for bankruptcy. He rebuffed questions about this order from Lehman's representatives.

The Valukas Report summarizes the meeting in its chronology of Lehman's final week, under the heading, "The FRBNY directed Lehman to file for bankruptcy" (Appendix 15, p. 58). The Report cites Miller and Lehman CEO Fuld as sources. It says:

> McDade called Fuld from the meeting at the FRBNY to tell him that "the Fed has just mandated that we file for bankruptcy." At the FRBNY, Baxter said that Lehman needed to file by midnight that night. Miller responded to Baxter's statement by asking why and objecting that the filing could not happen by midnight. Miller said that a Lehman bankruptcy would "bring great destabilization in the market," "bring trading to a halt," and result in financial "Armageddon." The Government representatives' reply was that the issue had been decided and there were cars available to take the Lehman people back to their offices.

The most detailed account of the meeting is given by Harvey Miller in his written testimony to the FCIC (pp. 7-9):

> In substance, the Lehman representatives were advised that a transaction with Barclays was not going to occur and, further, that there would be no federal assistance provided to save or support Lehman. Despite requests for elucidation as to the basis of the decision, Lehman's representatives were instructed that there would be no further information provided as to the basis of the decision to refrain from providing Lehman with financial support or other assistance.

Miller's account continues for two pages. Fed officials say they will provide liquidity to LBI but not the rest of LBHI. Lehman's representatives stress the disastrous consequences if LBHI fails, ask again for an explanation for the Fed's decision, and receive responses that are "not illuminating."

At one point there is a break in the meeting. According to Miller:

> After listening to comments from Lehman and Weil, Mr. Baxter stated that the government representatives would caucus to consider Lehman's comments. The government representatives then left the conference room for approximately one hour. When they returned, Mr. Baxter reported that after consideration of all of the contentions made on behalf of Lehman, the decision not to support Lehman had been reaffirmed. Accordingly, he stated that the only alternative was that Lehman had to fail. Mr. Baxter then directed that the Lehman and Weil teams should promptly return to Lehman's headquarters and arrange for a meeting of Lehman's Board of Directors to be convened for the purpose of adopting a resolution authorizing and directing LBHI to commence a bankruptcy case before 12:00 midnight of that day.

The meeting continues in the same vein, with Lehman's representatives *again* requesting an explanation and Fed officials replying that "there existed no obligation or duty to provide such information or to substantiate the basis for the decision not to aid or support Lehman." At the end of the meeting:

> The direction to return to the Lehman headquarters was repeated. The Lehman and Weil teams were encouraged to promptly leave the premises and did so.

Sorkin's *Too Big to Fail* (pp. 356-359) gives essentially the same account of the Sunday afternoon meeting, but with a more dramatic tone. Baxter tells Miller, "We've come to the conclusion that Lehman has to go into bankruptcy," leading to an argument in which Miller “bellows” and Baxter responds “sheepishly” and “uneasily.”

The Phone Call to the Board

On the evening of Sunday, September 14, the LBHI board of directors convened at 5:00 PM, adjourned at 6:10, and reconvened at 7:55. At some point after that, Fed and SEC officials called Lehman and asked to address the board by speaker phone. After some discussion, the board agreed to take the call.

This phone call, like the afternoon meeting at the New York Fed, is described consistently by numerous Lehman sources and by Sorkin. The top officials on the call were General Counsel Baxter and Christopher Cox, the Chairman of the SEC. By all accounts, Baxter and Cox wanted LBHI to file for bankruptcy, but hesitated to give an explicit order to the board. According to Harvey Miller’s testimony (pp. 9-10):

> In substance, Messrs. Cox and Baxter stated that it was in the best interests of the financial system and the United States economy for Lehman’s Board of Directors to pass a resolution approving the commencement of a bankruptcy case prior to 12:00 midnight of that day. Several Directors asked Messrs. Cox and Baxter whether they, on behalf of the NY Fed and the SEC, were directing the Board of Directors to adopt a bankruptcy resolution. In response, Mr. Cox hesitated, and Mr. Baxter suggested they hold an offline caucus. After five or ten minutes, Messrs. Cox and Baxter rejoined the conference call with the Directors.
>
> Mr. Cox stated that he and Mr. Baxter were not issuing a direction to the Lehman Board of Directors to pass a resolution authorizing the commencement of a bankruptcy case. Rather, he indicated that the decision was for Lehman’s Directors to make in the exercise of their business judgment and discretion. Such response notwithstanding, Lehman’s Directors persisted in asking for a clear and definitive answer to the question of whether the NY Fed and SEC were directing the passage of a bankruptcy resolution. These questions precipitated another caucus that extended for another five to ten minutes. When Messrs. Cox and Baxter rejoined the conference call, they reiterated that the decision of whether to adopt a bankruptcy resolution was a decision for Lehman’s Board of Directors to make and, further, that neither the SEC nor the NY Fed was directing the adoption of such a resolution. However, Mr. Cox stated that he believed that the preferences of the NY Fed and the SEC had been made unequivocally clear to Messrs. McDade, Kirk, and others at the meeting that had been held earlier that day at the NY Fed.

Treasury Secretary Henry Paulson mentions this phone call in his memoirs. He says (p. 220):

[S]haring the line with Tom Baxter, the general counsel of the New York Fed, and other Fed and SEC staffers, Cox called Fuld shortly after 8:00 PM to reiterate that there would be no government rescue. Lehman had no alternative to bankruptcy. Fuld connected Cox to Lehman's board. "I can't tell you what to do," Cox told them. "I can only tell you to make a quick decision."

Paulson says he encouraged Cox to call Lehman even though "I understood that it was awkward and unusual for a regulator to push a private-sector firm to declare bankruptcy."

The minutes of the Lehman board meeting list a number of reasons for the decision to file for bankruptcy. Reflecting the discussions with policymakers, these reasons include "the clear preference of the Federal government that the Corporation file for bankruptcy that evening" and "the potential goodwill that may be generated by a filing." Other factors include "the potential difficulty in meeting all payment obligations the next day" and "the ultimate inevitability of a bankruptcy filing under the circumstances" (where "the circumstances" refers to the firm's liquidity crisis).

10.2 CONFUSION ABOUT THE PDCF

The Fed prevented Lehman from borrowing the cash it needed by restricting its access to the PDCF, but the nature of the restrictions is not completely clear. Lehman executives say the broadening of PDCF collateral on September 14 was not extended to their firm, but General Counsel Baxter flatly denies this claim. The real-time evidence is ambiguous. This issue produced a long and confusing debate among Baxter, CEO Fuld, and several FCIC Commissioners at the hearing on September 1, 2010.

Claims by Lehman Executives

In his opening statement to the FCIC, CEO Fuld describes the events of Sunday, September 14. He says (pp. 147-148):

Notably, on that same Sunday the Fed expanded for investment banks the types of collateral that would qualify for borrowings from its Primary Dealer Credit Facility. Only Lehman was denied that expanded access. I submit that, had Lehman been granted that same access as its competitors, even as late as that Sunday evening, Lehman would have had time for at least an orderly wind down or an acquisition, either of which would have alleviated the crisis that followed.

Later in the the hearing (pp. 159-160), Chairman Angelides asks Fuld, “What do you think was at the nub of the decision not to rescue or provide liquidity for an orderly wind down?” In reply, Fuld says in part:

I really cannot answer you, sir, as to why the Federal Reserve and the Treasury and the SEC together chose not to not only provide support for liquidity, but also not to have opened the window to Lehman that Sunday night as it did to all of our competitors. And I must tell you that when I first heard about the fact that the window was open for expanded collateral, a number of my finance and treasury team came into my office and said we’re fine. We have the collateral. We can pledge it. We’re fine. Forty-five minutes later, they came back and said: That window is not open to Lehman Brothers.

Fuld repeats this account when he is questioned later by Commissioner Holtz-Eakin (p. 178).

Lehman President Bart McDade did not appear at the FCIC hearing, but he gave a similar account in an interview with FCIC staff on August 9, 2010. He says that Fed officials described the terms on which Lehman could borrow from the PDCF at the Sunday afternoon meeting at the New York Fed, and the following exchange occurs (around 54:00 in the audio recording):

Interviewer: How were the terms that Lehman would get different from what other participants would get, and what was the explanation of why?

McDade: The terms were just different. Lehman would have access to the old terms. All the other banks would have access to the new terms–

Interviewer: Let me stop you for a minute if I can. In terms of the old terms, does that primarily or even exclusively mean not as broad based of collateral types being accepted?

McDade: Yes.

McDade goes on to say the reasons given by the Fed were “vague.” Asked about the impact of the collateral restriction on Lehman, he says:

It made the difference between being able to be open the next day and still have a chance for an orderly unwind.

Lehman CFO Ian Lowitt was also asked by FCIC staff about Lehman's access to the PDCF. Lowitt, like Fuld, says that Lehman initially believed it could pledge the broader types of collateral, but then learned it could not (around 37:00 in the recording):

On clarification... it was determined that actually [the PDCF] wouldn't be open to us for more collateral types, but that it would be open to the broker-dealer on the Monday for the normal liquid securities that LBI held.

Baxter's Account

General Counsel Baxter testified alongside CEO Fuld at the FCIC hearing. Baxter repeatedly contradicts Fuld about Lehman's PDCF access, saying at one point, "Mr. Fuld is simply incorrect" (p. 166). He says, "Lehman had access to the PDCF with the expanded collateral, but with a higher haircut." Asked whether that was true before LBHI's bankruptcy filing, Baxter says, "Prior to filing, exact same terms for Lehman as for all other primary dealers" (p. 177).

Later, Baxter has an exchange with Chairman Angelides (pp. 183-184):

Chairman Angelides: [I]n our staff interviews of Mr. McDade and Mr. Lowitt, what the chronology we put out today indicates is, it says Baxter tells them that Lehman cannot access the expanded window and had to file for bankruptcy. So you dispute that? You said you never told that to nobody?

Witness Baxter: Correct.

Chairman Angelides: So how did all these people infer all this? Why did they come to this conclusion? I mean, how does that happen?

Witness Baxter: I think you'll have to ask them that, Mr. Chairman.

Several times, Baxter supports his position by citing a letter dated September 14 from Christopher Burke, a New York Fed Vice President, to Lehman. This letter includes a detailed list of acceptable PDCF collateral, and it reflects the expansion that had just occurred. At one point Commissioner Holtz-Eakin asks, "Could the broker dealer have accessed [the PDCF] on Sunday night on the same terms as everyone else?," and Baxter replies (pp. 180-181):

There's a letter from Chris Burke who is an officer of the New York Fed to Lehman Brothers. You have it in the record, and you can look at that and see what we said in plain terms. There shouldn't be doubt about this. You have it in writing.

Baxter also cites the Burke letter in his follow-up letter to the FCIC.

<u>The Real-Time Evidence</u>

After the LBHI bankruptcy, from September 15 to 18, the broker-dealer LBI borrowed from the PDCF. Over that period, the PDCF *did* accept the expanded range of collateral. Indeed, it accepted securities from LBI that Lehman employees had denigrated as "very toxic" (see Section 8.2).

However, what is relevant for understanding LBHI's bankruptcy is what happened before the filing, not after. What did the Fed tell Lehman on September 14 about its access to the PDCF?

The evidence on this point is mixed. General Counsel Baxter, in his letter to the FCIC (footnote 8), cites an email from New York Fed official James Bergin to his colleague William Dudley at 2:15 PM on September 14. This email says, "We informed Weil [Harvey Miller's law firm] of the expansion of the PDCF collateral." But this news apparently did not reach everyone at Lehman. At 8:35 PM, Lehman's Timothy Lyons emailed CFO Lowitt to say, "The fed is letting the other eighteen broker dealers fund a much broader range of collateral than us" (Valukas fn 5978).

Some Fed officials were also confused about Lehman's access to the PDCF–including William Dudley, the recipient of the email cited by Baxter. During the FOMC meeting on September 16, Philadelphia Fed President Plosser asked Dudley whether the expansion of PDCF collateral applied to LBI, and Dudley answered incorrectly (p. 7 of the FOMC transcript):

In terms of the Lehman collateral, they are not allowed to broaden the PDCF–they are basically bringing us the stuff they had on Friday.

Baxter emphasizes the letter from Christopher Burke, but its relevance is dubious. The letter is dated September 14, but it was emailed to Lehman at 2:24 AM on September 15, which was after the bankruptcy filing (FCIC, p. 337).

Baxter says the letter "formalized and memorialized conversations that the FRBNY had with Lehman throughout that Sunday, September 14" (p. 4 of follow-up letter). However, he cites only one specific conversation: a call from Burke to "all of the primary dealers to explain the newly expanded access to the PDCF." We can tell that this call occurred between 8:40 and 11:48 PM, based on New York Fed emails discussing the call (Exhibit 7 in Baxter's letter). The LBHI board convened for the final time at 7:55 PM, so it is unlikely the board knew of Burke's call when it decided on bankruptcy.[27]

10.3 NO SUPPORT FOR LBIE

Here I discuss a restriction on PDCF lending that the Fed clearly did impose. It lent to LBI, Lehman's New York broker-dealer, but refused to assist LBIE, the London broker-dealer.

The Restriction and Its Impact

The Lehman board meeting on September 14 began with a situation report by Thomas Russo,

[27] Other parts of the record add more confusion. The minutes of the September 14 Lehman board meeting report (p. 2), "Mr. Russo [Lehman's General Counsel] described the Fed's emergency order allowing non-investment grade securities to be used as collateral at the Fed window and the Firm's need for the Fed to accept a broader range of collateral, but that the Fed's position is that the expanded window would only apply to tri-party repos of securities." Also on September 14, Board Vice Chair Kohn wrote to Ben Bernanke that "LEH heard about the pdcf enlargement and thought it was a lifeline, but they didn't understand it was limited to triparty" (FCIC Lehman Chronology Tab 66). The FCIC Final Report (p. 337) interprets Russo to mean that Lehman asked to borrow against an even broader range of collateral than that accepted by the expanded PDCF, which "closely matched" the collateral in tri-party repos. The Kohn remark can be interpreted the same way. Most evidence, however, suggests that Lehman only sought to borrow against the expanded PDCF collateral.

Lehman's in-house general counsel. Russo described LBIE's predicament and the Fed's unwillingness to help. According to the minutes (Valukas fn 2829):

> Mr. Russo reported that a failure to fund Lehman Brothers (International) Europe ("LBIE") would obligate the LBIE directors to initiate administration proceedings under UK insolvency laws, which would trigger cross-defaults to the Firm's [LBHI's] swaps book. Mr. Russo described these cross-defaults as representing a massive systemic risk that may require the Corporation and certain subsidiaries to seek protection under Chapter 11. The Board discussed the use of the Fed window to fund LBIE and it was explained that despite the efforts of management to convince the Fed on this point, should the Fed not change its position on the use of the expanded window, the Board of Directors of LBIE would have to initiate the UK administration process.

The Fed's treatment of LBIE was subsequently confirmed by the UK's Financial Services Authority (FSA). In March 2010, the FSA prepared a chronology of its actions during the Lehman crisis (Valukas fn 5918). One item in the chronology is:

> Later that evening [September 14] a conference call took place between the FSA and the FRBNY. The FRBNY explained that Lehman would shortly file for Chapter 11, but that Lehman Brothers Inc. would be kept afloat using FRBNY financing. The FSA asked if this funding would be made available to LBIE and was told that this was not possible.

According to the FSA chronology, this call took place before 7:00 PM New York time (midnight in London). Therefore, despite the Fed's statement that "Lehman would shortly file," the conversation occurred before the Lehman board convened at 7:55, received the phone call from Baxter and Cox, and decided on bankruptcy.

<u>Could the Fed Have Lent to LBIE?</u>

On September 14, the entities eligible to borrow from the PDCF were the 19 primary dealers in Treasury securities. These dealers were New York-based subsidiaries of global financial firms, and included LBI but not LBIE or LBHI. A loan to LBIE would not have been a routine transaction for the PDCF.

However, the Fed could have changed the rules on September 14 to give LBIE access to the PDCF or a similar facility. The Board of Governors could have authorized this action under Section

13(3).

We can see that this action was feasible from what happened after September 14. The Lehman bankruptcy was followed by liquidity crises at Goldman Sachs and Morgan Stanley, the last two of the big five investment banks (see Section 4.5). These firms, like Lehman, had broker-dealer subsidiaries in both New York and London, and liquidity drains occurred in both places. The Fed took several steps to keep Goldman and Morgan in business, and one was extension of PDCF access to the London broker-dealers.

This action was one of several announced in a Fed press release at 9:30 PM on Sunday, September 21. The relevant part of the press release is the last sentence:

> In addition, the Board also authorized the Federal Reserve Bank of New York to extend credit to the London-based broker-dealer subsidiaries of Goldman Sachs, Morgan Stanley, and Merrill Lynch against collateral that would be eligible to be pledged at the PDCF.

This action received little attention at the time, and I have seen few mentions of it in previous accounts of the financial crisis. It was overshadowed by the announcement, in the same press release, that the Fed had approved the applications of Goldman Sachs and Morgan Stanley to become bank holding companies (see Section 12.1 below). The media treated the bank-holding-company announcement as major news.

It is not clear from the press release whether the Fed planned to lend to the London broker-dealers through the PDCF, or through a new facility that accepted the same types of collateral. What actually happened, it appears, is that the London broker-dealers borrowed from the PDCF in the same way as their New York counterparts.

This policy change is reflected in the data on PDCF lending on the Board of Governors website. During the week of September 15, the PDCF lent each day to "Goldman, Sachs & Co." and "Morgan Stanley & Co. Incorporated"–the New York broker-dealers of the two firms. Starting on

September 22, the PDCF lent to those two entities and *also* to “Goldman, Sachs & Co.-London” and “Morgan Stanley & Co. Incorporated-London.” At the height of the crisis, lending to the London units was a substantial fraction of PDCF support for Goldman and Morgan. On September 30, for example, Goldman in New York borrowed $10.0 billion and Goldman in London borrowed $6.5 billion. For Morgan Stanley, the corresponding figures were $34.7 billion and $25.5 billion.

10.4 THE FRIDAY CRITERION

Even with the PDCF closed to LBIE, it appears that LBI might have borrowed enough cash to keep all of Lehman in operation. As collateral, LBI could have pledged its own PDCF-eligible assets and also assets transferred from LBHI and other LBHI subsidiaries. Indeed, there is evidence that Lehman tried to implement this strategy on September 14. It was thwarted when the Fed imposed the Friday criterion: LBI’s collateral was limited to assets that were on its balance sheet on Friday, September 12.

The Flow of Assets within LBHI

It will be useful to have some background on the interactions among LBHI and its subsidiaries, including LBI and LBIE. Each day, large quantities of cash and securities flowed among these entities, creating payables and receivables. These items appear on the *unconsolidated* balance sheets of LBHI and its subsidiaries. For example, on May 31, 2008, LBHI’s assets included $172 billion due from subsidiaries and its liabilities included $79 billion due to subsidiaries. LBI had $77 billion due from other Lehman entities and $161 billion due to them (LBHI 10-Q for 2008Q2, p. 47).

These figures reflect a variety of complex transactions among the different parts of Lehman. The following are examples of these transactions:

- The Valukas Report (pp. 1550-1554) emphasizes that LBHI helped manage liquidity for its subsidiaries: it was a "central banker" for the Lehman enterprise. Each day LBHI received cash from subsidiaries with more liquidity than they needed, creating payables to those subsidiaries. LBHI distributed cash to other subsidiaries, creating receivables.

- Lehman entities deposited cash and securities in accounts at other Lehman entities. For example, the LBI Trustee reports, "Other Lehman entities maintained accounts at LBI to hold securities for various purposes related to their or their own customers' transactions" (Preliminary Investigation Report, p. 53). LBI sometimes used the securities in these accounts as collateral in other transactions.

- Different parts of Lehman made repurchase agreements with each other. For example, at the time of the Lehman bankruptcy, LBIE's liabilities included $211 billion of repos with other Lehman entities (LBIE Administrator, p. 51). Repos allowed different units of Lehman to help finance each other's transactions. For example, LBI could obtain cash from LBIE through a repo, and then pass it on to customers through reverse repos (LBI Trustee, p. 74).

Potential Transactions on September 14

Given the financial flows within Lehman, it probably should not have mattered which part of the enterprise borrowed from the PDCF. As demonstrated in Section 8, Lehman as a whole had enough collateral to borrow the cash it needed. With only LBI eligible to borrow, collateral could have been transferred to LBI from other Lehman units; LBI could have pledged the collateral to the PDCF; and the cash it received could have been spread around Lehman as needed.

In particular, LBIE's liquidity crisis could have been solved through a series of transactions: LBIE gives securities to LBI, which incurs a payable; LBI pledges the securities to the PDCF in return for cash; and LBI gives the cash to LBIE, eliminating the payable.

One piece of evidence suggests that Lehman actually tried to use LBI's access to the PDCF to borrow cash for other parts of the firm. This evidence is an item in a chronology included in the LBI Trustee's Preliminary Investigation Report. The item is:

> 9/14/2008 4:12 PM: LBI prepares a plan for delivering securities to the Fed pursuant to the PDCF. LBHI and LCPI would prepare a schedule of pledged assets and deliver them to the Fed, as an amendment to the current documents, through LBI "as Agent to the Fed for LBHI and LCPI."

This report is cryptic, but it suggests that Lehman was trying in its final hours to overcome the restriction that only LBI could borrow from the PDCF.[28]

One detail that makes sense is that LCPI–Lehman Commercial Paper Inc.–was a potential source of PDCF collateral. According to the Valukas Report (pp. 584 and 596), a substantial share of Lehman's corporate debt and equity was held on the balance sheet of LCPI.

The Restriction

The Valukas Report describes the Friday criterion as follows (pp. 1532-1533):

> [T]he FRBNY limited the collateral LBI could use for overnight financing to the collateral that was in LBI's box at JPMorgan as of Friday, September 12, 2008. This restriction was referred to as the "Friday criterion."

LBI's "box" was an account at JPMorgan, its clearing bank, where it held its tri-party repo collateral.

General Counsel Baxter describes the Friday criterion in his follow-up letter to the FCIC (p. 2):

> [T]he FRBNY asked LBI to certify that the securities that LBI pledged to the PDCF on September 15 were in fact owned by LBI as of September 12 and had not since been transferred from LBI's parent LBHI.

It appears the Friday criterion ruled out transfers of assets to LBI not only from LBHI, but also from other units of Lehman. The assets that were unavailable to LBI included the debt and equity securities held by LCPI, which was a subsidiary of LBI. LBI could not use its subsidiary's assets as collateral because they were not in its repo box on September 12.

[28] The Trustee's Report does not cite the original source of this information.

It seems that Lehman's top executives were unaware of the Friday criterion. As discussed above, CEO Fuld and President McDade told the FCIC that the Fed restricted Lehman's access to the PDCF. But they thought the restriction involved the types of assets the PDCF would accept as collateral, not the legal entities that owned the collateral.

However, at least one Lehman executive understood the Friday criterion: Alex Kirk, the Global Head of Principal Investing. Kirk participated in the September 14 meeting at the New York Fed at which officials said they would assist LBI but not LBHI. Kirk describes part of the meeting in his 2010 interview with FCIC staff (about 1:05 in the recording):

We then were told that the Fed would provide us financing against then-eligible assets to be financed by the Fed, and they were going to provide that financing for the strict purpose of paying back the financing counterparties, i.e., anybody who ran a repo line outstanding with Lehman Brothers the broker-dealer in the U.S. We then had a long series of discussions about the necessity, from our point of view, of being able to move money through the system as we normally had between the various entities, but it was explained to us that each legal entity would now be a box in and of itself, and we were prohibited from moving any money in or out of the broker-dealer....

Later in his interview (around 1:11), Kirk says the Fed's policy was fatal to Lehman:

Like any financial institution, the inability to move money between your various subsidiaries will shut you down very quickly.... The inability to move money between legal entities, in and of itself, would have caused us to file, certainly, within days.

It appears that LBI obeyed the Friday criterion when it borrowed from the PDCF on September 15. A JPMorgan email on the evening of the 15th discusses LBI's collateral (Valukas fn 5995):

• The assets in Lehman's 9/15/2008 PDCF repo of $28 billion are of comparable type to the assets that were in Lehman's tri-party book on 9/12/2008.

• The assets were all pledged by Lehman Brothers Inc. (the broker dealer).

• To the best of our knowledge, there are not any Lehman Brothers Holdings Inc. securities collateralizing this PDCF repo.

<u>Bernanke's Comment on LBI and LBHI</u>

In his FCIC testimony, Ben Bernanke appears confused about the relationship between LBI and

LBHI. In arguing that LBHI could not be saved, Bernanke says (p. 26):

[B]y the way, we didn't do anything to prevent the broker-dealer from lending to its own holding company, and it didn't seem to decide that was a smart thing to do.

This statement does not square with the facts that Lehman tried to fund LBHI through PDCF borrowing by LBI, and that Fed policy thwarted Lehman's plan.

10.5 BAXTER'S JUSTIFICATION FOR THE FRIDAY CRITERION

To my knowledge, General Counsel Baxter's 2010 letter to the FCIC is the only place where a Fed official discusses the Friday criterion. After saying that LBI had to certify that its PDCF collateral was on its balance sheet on September 12, Baxter continues:

This certification was an important legal risk mitigant, and was crafted in light of LBI's unique situation as a subsidiary of a bankrupt parent. Had LBHI transferred securities to LBI, so LBI could then pledge them to the PDCF, those securities could have become subject to a preference or fraudulent conveyance claim, leaving the FRBNY, and consequently the taxpayers, undersecured. The FRBNY's need to confirm that none of the collateral that it held could be subject to a superior claim in the bankruptcy court may be what Lehman personnel referred to as the "Friday criterion," as described in the Valukas Report.

Baxter's claim, apparently, is that assets transferred from LBHI and then pledged to the PDCF might have been taken away from the Fed in LBHI's bankruptcy proceedings.

There are two problems with Baxter's reasoning. First, it is circular. Baxter says the Friday criterion was necessary because LBHI was bankrupt, but the bankruptcy was caused by the Friday criterion. If not for this restriction on PDCF access, Lehman could have borrowed enough to keep LBHI in operation, making Baxter's concern about the bankruptcy court irrelevant.

Second, Baxter's argument about legal risk is cryptic. He refers to the concepts of preference and fraudulent conveyance in bankruptcy law, but their relevance to asset transfers among LBHI and its subsidiaries is unclear at best.

According to the federal Bankruptcy Code, a preference is a payment from a bankrupt firm "for or on account of an antecedent debt" that benefits the recipient at the expense of the firm's other creditors (USC 547). This concept does not appear relevant to the intra-Lehman transfers at issue here, simply because these transfers would not have been payments for antecedent debts.

A fraudulent conveyance is a transfer of assets from a bankrupt firm to another entity that either (i) is made "with actual intent to hinder, delay, or defraud" the firm's creditors; or (ii) harms creditors because the firm "received less than a reasonably equivalent value in exchange for such transfer" (USC 548). Condition (i) seems not to apply, because the transfers that LBHI wanted to make were not intended to defraud its creditors (indeed, they would have benefitted creditors by making bankruptcy less likely). Perhaps there is some argument that condition (ii) applies, but General Counsel Baxter gives no indication of what that argument might be. Transfers of assets among LBHI and its subsidiaries, with offsetting payables and receivables, were a routine part of Lehman's liquidity management.

11. POSSIBLE LONG-TERM OUTCOMES

We have seen that Fed liquidity support could have kept LBHI in operation for a considerable period of time. This period might have lasted around two months to a year, as suggested by the New York Fed "Gameplan" on September 11, or longer.

I presume, however, that the Fed would not have supported Lehman forever. At some point, the firm would have needed to solve the problems underlying its crisis, or go out of business. Fed liquidity support would have served a purpose only if the long-term outcome of Lehman's crisis was better for the firm's stakeholders, and/or less disruptive to the broader financial system, than the September 15 bankruptcy.

Fed officials sometimes suggest there was no hope of a benign resolution of Lehman's crisis, even with Fed assistance. General Counsel Baxter, for example, dismissed the idea of liquidity support as "a bridge to nowhere" (Section 9.4). Yet it is easy to imagine resolutions of the crisis that would have avoided much of the damage from the bankruptcy. These possibilities include plans that Lehman was trying to implement when the bankruptcy occurred, and plans that Fed officials had discussed. Other possibilities are suggested by the experiences of firms that the Fed chose to assist during the financial crisis.

Here I outline some scenarios. I will argue that, with sensible behavior by Fed officials and Lehman executives, the outcome of the firm's crisis would probably have fallen into one of three categories: completion of the Barclays acquisition; long-term survival of Lehman as an independent firm; or a wind down over a period of a year or two.

I will not speculate about which outcome was most likely, which is very hard to judge. My main point is that *any* of the possible outcomes if the Fed assisted Lehman would have done less damage than the actual bankruptcy.[29]

11.1 COMPLETING THE BARCLAYS DEAL

On the morning of September 14, there was a tentative deal to rescue Lehman. Barclays would purchase the bulk of LBHI, leaving behind $40 billion of real estate and private equity that the leading Wall Street firms would finance. One possible resolution of Lehman's crisis was completion of the Barclays deal.

The deal fell through because of a disagreement between U.S. and British regulators about funding Lehman during the period before final approval by Barclays and Lehman shareholders. Without an arrangement for interim funding, Lehman probably could not survive until the deal was closed. The Fed insisted that Barclays solve this problem by guaranteeing Lehman's obligations immediately. But under UK law, such a guarantee would itself require a shareholder vote, and the Financial Services Authority refused to waive this requirement (see Section 4.4).

The Fed could have dropped its demand for a Barclays guarantee and provided funding to LBHI for the month or two needed to organize shareholder votes. As I have documented extensively, the Fed's lending could have been well-secured with collateral accepted by the PDCF. Claims by Fed officials that LBHI needed "unlimited and unsecured" assistance are not correct (see Section 9.5).

Some commentators suggest that Britain's Financial Services Authority was determined to thwart Barclays' acquisition of LBHI, believing it was too risky for the U.K. economy (e.g. Paulson, pp. 210-211). If the guarantee issue had not derailed the deal, the FSA might have found another

[29] I do not consider the possibility of a capital injection from the TARP. If Lehman had survived, the financial crisis would have been less severe, and Congress might not have created the TARP.

reason to reject it. In that case, Fed liquidity assistance would not have saved the deal.

However, the FSA disputes this view. In its 2010 statement to the Lehman Bankruptcy Examiner, it confirms that it rejected the Fed's request to waive a shareholder vote, which "would represent a compromise of one of the fundamental principles of the FSA's Listing Regime" (p. 8). The FSA also demanded that Lehman have access to the PDCF (p. 6). It reports, however, that its Chief Executive, Hector Sants, repeatedly told Barclays that "the FSA had no objection in principle to Barclays purchasing Lehman" (p. 10).

11.2 SURVIVAL OF AN INDEPENDENT LEHMAN

What if Lehman stayed in business but the Barclays deal could not be completed? It is unlikely that a different firm would have stepped forward to buy Lehman. By the time Lehman failed, both the firm and policymakers had searched exhaustively for potential acquirers. The only institutions with any interest were Barclays and Bank of America, and the latter dropped out when it bought Merrill Lynch. Absent a Barclays deal, therefore, it seems Lehman's only chance to avoid bankruptcy was to survive as an independent firm.

It is not clear whether that could have happened. Perhaps the market's loss of confidence in Lehman would have proven irreversible, so the firm could never be weaned from Fed support and fund itself privately. In that case Lehman would eventually have gone out of business.

It does not appear, however, that fundamentals dictated that outcome. As discussed in Section 6, Lehman was borderline solvent based on mark-to-market prices for its assets, and clearly solvent based on fundamental values. Lehman also operated businesses with franchise value, including its broker-dealers. Arguably, Lehman was a viable firm that could eventually have regained the market's confidence if it weathered the 2008 crisis.

Lehman's crisis stemmed from the underlying problems of low capital and excessive investment in real estate. Presumably, the firm's chances of survival would have risen if these problems were mitigated. Here I outline a number of actions by Lehman or the Fed that might have helped.

Lehman's Strategic Plan

Five days before its bankruptcy, on September 10, Lehman announced a "strategic restructuring." It planned to spin off most of its commercial real estate assets to REI Global, a real estate investment trust (REIT), in the first quarter of 2009. It also planned to sell a majority stake in its Investment Management Division (IMD), which included the Neuberger Berman asset-management business.

As detailed in Section 4.3, Lehman's announcement of its plans failed utterly to restore confidence and ease the firm's liquidity crisis. Yet the two planned actions might have helped in the long run if Lehman stayed in business. The real estate spinoff appears to be a sound idea, because REI Global, as a REIT, was not required to use mark-to-market accounting. The sale of IMD would have increased Lehman's capital.

Ben Bernanke describes Lehman's strategic plan in his memoirs, saying the firm planned to split into a "bad bank" (REI Global) and a "good bank" (the rest of the firm). Bernanke makes some mildly favorable comments (p. 254):

> The good bank-bad bank strategy can be successful under the right conditions. The good bank–shorn of its questionable assets–may be able to raise new capital, while the bad bank can be financed by speculative investors at high interest rates and wound down, with assets being sold off over time. Fuld said that he hoped to divest Lehman's bad assets and make up the losses by selling one of the company's most valuable subsidiaries, its asset management unit, Neuberger Berman. Some thought it could fetch $7 billion to $8 billion.

Bernanke then explains why the plan was not implemented:

> [T]he plan, even if it ultimately proved workable, would take months to complete. It was time Fuld didn't have.

Liquidity support from the Fed would have given Lehman time to try its strategy.

After the bankruptcy, on September 29, the LBHI estate sold most of IMD for the fire-sale price of $2 billion.

A Maiden Lane for Lehman

Lehman could also have shed real estate assets if the Fed created a special purpose vehicle (SPV) to buy them. The Fed created SPVs to help other firms during the financial crisis: it created Maiden Lane LLC and Maiden Lane II to buy mortgage assets from Bear Stearns and AIG respectively.

Fed officials discussed the possibility of "a Maiden Lane type vehicle" for Lehman during the Summer of 2008. On July 15, William Dudley, then head of the Markets Group at the New York Fed (and now President) circulated a memo titled "Lehman Good Bank / Bad Bank Proposal" (Valukas fn 5816). Dudley sent the memo to New York Fed colleagues, including President Geithner, and officials at the Board of Governors, including Vice Chair Kohn and Governor Warsh. Dudley described his proposal as "very much in the spirit of what we did with Bear," and summarized it as follows (with the caveat that his numbers were "rough guesses"):

Separate [Lehman] into two parts:

Maiden Lane type vehicle: $60 billion of illiquid assets backstopped by $5 billion of Lehman equity. Fed guarantees financing or finances the $55 billion. Lehman owns this vehicle, so if assets > liabilities upon windup, accrue to Lehman shareholders.

Clean Lehman left. $600 billion of assets, $23 billion of equity. Much less risk, greater liquidity cushion (don't have to finance illiquid assets).

Fed gets equity in clean Lehman (whether warrants or some other form of equity TBD in compensation for backstop financing in SPV).

Dudley's memo goes on to describe the rationale for his proposal:

Why we want to do this. Takes illiquid assets off the market, reduces risk that forced sale of assets will generate losses that make Lehman insolvent. Preserve Lehman franchise value as a going concern. No negative externality to rest of financial system. Moral hazard considerations low given equity dilution. Clean Lehman can be sold or remain a viable concern.... No need for distressed sale of the entire company. Can find a medium-term solution.

If Lehman is solvent now, this preserves solvency. If Lehman is, in fact, insolvent now–even in the absence of forced asset sales–this limits degree of insolvency. Risk of not intervening early, Lehman is solvent now, becomes insolvent due to forced asset sales. Benefits of forced sale of firm under duress accrue to buyer, and large negative externalities to the broader market.

Dudley suggests that his plan would be safe for the Fed, noting: "Protections to the Fed. First loss piece, net interest margin on SPV, and equity in clean Lehman." These features of Dudley's plan are similar to protections the Fed received in the rescues of Bear Stearns and AIG. The "first piece loss" refers to the $5 billion of equity that Lehman would contribute to the SPV. This investment would protect the Fed in the same way as the $1 billion subordinated loan from JPMorgan Chase to the first Maiden Lane. "Equity in clean Lehman" is similar to the equity in AIG that the government acquired. The "net interest margin" is the gain from charging an above-market interest rate, which was also a feature of the AIG deal.

The reaction to Dudley's proposal was lukewarm. It was discussed in an FRBNY-Board conference call, with one participant reporting, "Kohn did not push back very hard on this proposal" (FCIC Lehman Chronology, Tab 17). President Geithner replied to Dudley's memo with a brief email:

Pls add something on how we decide what assets to take. And we need a broader framework in which to place this, with high procedural hurdles.

It is not clear whether anyone followed up on these requests. There is no record that Fed officials discussed the SPV proposal between mid-July and Lehman's final week.

It appears, however, that some version of the proposal was on the table at a late date. A September 10 email from Mark VanDerWeide of the Board says the "options laid out by Tim" included "a Fed-assisted BofA transaction" (FCIC Chronology, Tab 36). In this context, "assistance" probably means long-term financing of illiquid assets, which BofA had demanded. The "gameplan" circulated before the weekend meetings at the New York Fed suggests that the Fed might have helped the private consortium rescue Lehman. The document says, "We should have in mind a maximum number of how much we are willing to finance before the meeting starts" (FCIC Chronology, Tab 37).

Since the bankruptcy, Fed officials have said that they might have financed some of Lehman's assets, but only if that action facilitated an acquisition of the firm. For example, the Valukas Report says (fn 5896):

> [W]hen shown the Liquidity Consortium gameplan document, Geithner confirmed that the FRBNY would have considered extending financing to Lehman, but only if a willing buyer for the firm had surfaced.

Yet Dudley's plan for an SPV did *not* depend on an acquisition of Lehman. Indeed, Dudley presumed that Lehman would remain independent and cited that as an advantage of his plan. He said the plan was "in the spirit of what we did with Bear, but better because less damage to franchise, no forced sale."

The Fed created the first Maiden Lane to facilitate JPMorgan's acquisition of Bear Stearns. However, the purpose of Maiden Lanes II and III, created during AIG's crisis, was to strengthen that firm and help it remain independent. Another Maiden Lane might have helped an independent Lehman.

New Equity

As discussed above, it is unlikely that any institution besides Barclays would have bought all of Lehman Brothers. However, if Lehman survived its liquidity crisis, it might have found investors to purchase equity stakes in the firm. Recall that Goldman Sachs and Morgan Stanley raised equity at the height of the financial crisis from Warren Buffett and Mitsubishi respectively.

In June 2008, Lehman raised $6 billion through a public offering of stock. After that, the firm sought investments from more than thirty institutions and wealthy individuals, but all these efforts failed (Valukas, Appendix 13). The last big hope was the Korean Development Bank (KDB), which expressed interest in a $6 billion investment but ended negotiations on September 9. It might seem that, by the time of Lehman's bankruptcy, the firm had exhausted all possibilities for new equity.

However, Lehman's failure to raise equity was due in part to its liquidity crisis and bankruptcy risk, which scared off investors. Outcomes might have been different if the Fed provided liquidity support to stabilize Lehman.

In particular, Fed assistance might have saved the KDB deal. Lehman set deadlines for completing a deal–first September 10 and then September 18–and KDB ended negotiations in part because it found the deadlines too tight (Valukas Appendix 15, fn 79). Presumably Lehman's insistence on a quick deal reflected its acute liquidity crisis. Fed support might have given Lehman and KDB enough time to reach an agreement.

Another potential investor, the Investment Corporation of Dubai (ICD), was deterred by the threat of bankruptcy. On September 9, when Lehman's stock price fell drastically, ICD said it needed a "time out" in negotiations about an investment (Valukas Appendix 15, p. 18). Once again, negotiations might have continued if the Fed had stabilized Lehman.

If Lehman had survived past September 14, other investors probably would have emerged. By many accounts, several firms were interested in Lehman during 2008 but ultimately did not invest because Lehman demanded unreasonably high prices for its stock. After September 14, with the firm on the brink of failure, its executives would have softened their bargaining position. Indeed, they were willing to sell the entire firm to Barclays for the fire-sale price of $3 billion.

A Bank Holding Company

Finally, Lehman might have become a bank holding company (BHC). The Fed allowed Goldman Sachs and Morgan Stanley to become BHCs on September 21, and that action appears to have boosted confidence in the firms (see Section 4.5).

Lehman raised the idea of becoming a BHC with New York Fed officials in July 2008. The officials responded negatively: President Geithner said the idea was "gimmicky," and General Counsel Baxter suggested that markets might react negatively. Lehman never applied formally for BHC status (Valukas, Appendix 13, p. 12; FCIC, p. 328).

11.3 A WIND DOWN

Even if the Fed provided liquidity support to Lehman, it is possible that the Barclays deal would not have been consummated, and that the firm could not survive on its own. In that case, Lehman would eventually have been forced into bankruptcy. Yet that outcome would have differed from the actual bankruptcy on September 15, because the delay would have provided time for an orderly wind down.

During a wind down, Lehman could have closed out trading positions and sold assets and subsidiaries over time. The firm's prime brokerage customers could have moved their assets elsewhere. Much of the value destruction from the bankruptcy could have been avoided, including the losses from fire sales, termination of derivatives, and disruption of investment projects (see Section 6.5). Given Lehman's near-solvency before bankruptcy, losses to the firm's creditors might have been minimal.

In addition, an orderly wind down probably would have reduced the damage to the U.S. financial system from Lehman's failure. There would have been less panic in financial markets after

September 15. Lehman would not have defaulted on the commercial paper held by the Reserve Primary Fund, so we might have avoided the run on money market funds.

An obvious model for a wind down of LBHI was the wind down of LBI that the Fed planned on September 14 (a plan that changed when Barclays purchased most of LBI). General Counsel Baxter told the FCIC that the Fed supported LBI "to enable the broker-dealer to wind down its trading book in an orderly manner–thereby mitigating to some degree the impact of the failure on financial markets and the economy" (written testimony, p. 11). Support for all of Lehman would have allowed wind downs of other parts of its business, including the trading book of LBIE.

At two points during Lehman's final weekend, its executives began planning for a wind down of the firm. In both cases, the planning was cut short by a decision by policymakers to pursue a different strategy.

The first of these incidents occurred on the morning of Saturday, September 13, when Lehman executives Kirk and McDade met at the New York Fed with some of the Wall Street CEOs (specifically, the CEOs of Citigroup, Merrill Lynch, and Morgan Stanley). Kirk describes the meeting in his FCIC interview (around 31:00):

The topic of discussion was that the government, the Fed, had asked this group of banks to put together a plan on how to wind down Lehman Brothers over a long period of time and what sort of funding would Lehman Brothers need, for what term, etc, how many people, the business plan, effectively... We were then asked to return and work with our colleagues to put that together.

But that work was quickly aborted, says Kirk:

When we were on our way from that meeting, we were stopped by Steve Shafran, who was working for Henry Paulson at the time, and we were asked to focus all our efforts on trying to move forward with Barclays as a potential acquirer of the firm.

The other wind down planning occurred on September 14, after the failure of the Barclays deal. The Valukas Report describes what happened under the heading, "Lehman Developed a Plan for an

Orderly Liquidation" (Appendix 15, pp. 55-56):

James P. Seery, Jr., Lehman's Global Head of Fixed Income - Loan Business, and others at Lehman then started working on an "orderly" liquidation plan for Lehman. The plan contemplated that it would take six months to effect an orderly unwinding of Lehman's positions. During that time, Lehman would have to continue to employ a substantial number of people, and pay bonuses to keep them. The plan also assumed that the FRBNY would provide financing support through the wind-down process.

Once again, planning for a wind down stopped abruptly. The Valukas Report continues:

All work on the liquidation plan came to a halt when word circulated that the Government had told Lehman that Lehman would need to file bankruptcy that evening.

12. COMPARISON TO OTHER CASES

Here I compare the Fed's treatment of Lehman Brothers to its actions when other financial institutions faced liquidity crises–specifically, Morgan Stanley, Goldman Sachs, Bear Stearns, and AIG. The Fed helped these firms avoid bankruptcy with a mixture of liquidity support and long-term financing of assets.

As discussed throughout this paper, Fed officials maintain that Lehman did not have adequate collateral to borrow the cash it needed. In contrast, they say, the firms that the Fed supported *did* have adequate collateral, so the Fed took on less risk than it would have in lending to Lehman.

Once again, the available evidence does not support the Fed's position. When the Fed assisted Morgan Stanley and Goldman Sachs, it accepted types of repo collateral that Lehman had in ample quantities, so this lending was no safer than lending to Lehman would have been. In lending to AIG and Bear Stearns, it appears, the Fed took on *more* risk than it would have in rescuing Lehman–although we cannot be sure for AIG, because the Fed has never given a detailed accounting of AIG's collateral.

This section also examines the Commercial Paper Funding Facility (CPFF), which the Fed established in September 2008 to buy commercial paper from corporations. Fed officials argued that this extension of credit was well-secured by insurance premiums on the commercial paper, but their argument has significant flaws.

12.1 MORGAN STANLEY AND GOLDMAN SACHS

After the Lehman failure, Morgan Stanley and Goldman Sachs also experienced large losses of liquidity that threatened them with bankruptcy (see Section 4.5). The Fed kept the two firms in business with loans from the PDCF and TSLF; total support peaked in late 2008 at $107 billion for

Morgan Stanley and $69 billion for Goldman Sachs. Ultimately, these firms survived with the help of their bank-holding-company status, equity injections from both private investors and TARP, and the broad stabilization of the financial system.

The Fed facilities accepted the same types of collateral from Morgan Stanley and Goldman Sachs as they accepted from LBI after the LBHI bankruptcy. Some of this collateral was low-quality; for example, at the peak of Morgan Stanley's borrowing, about $2 billion of its PDCF collateral was securities rated CCC or lower (data from Board of Governors web site). With the same collateral standards, Lehman could have borrowed enough to avoid bankruptcy if not for the restrictions on its PDCF access (see Section 10).

Recall that the haircuts on LBI's PDCF collateral exceeded typical haircuts in the tri-party repo market. By contrast, after September 15, the PDCF haircuts for Morgan Stanley and Goldman Sachs were *smaller* than market haircuts for most collateral types. We can see this point by comparing three sources: the Burke letter, which lists haircuts for LBI (see Section 10.2); the Fed web site, which lists haircuts for other PDCF borrowers; and a memo from JPMorgan Chase, which lists market haircuts on September 12 (Valukas fn 7810). The haircuts for speculative-grade corporate bonds, for example, were 16.7% for LBI, 15% in the market, and only 6.5% for Morgan Stanley and Goldman Sachs.

12.2 BEAR STEARNS

The Fed first assisted Bear Stearns with an overnight loan on Thursday March 13. It lent $12.9 billion against $13.8 billion in repo collateral, an arrangement similar to its later lending through the PDCF.

The Fed provided a different kind of assistance on March 16: it created Maiden Lane LLC and lent it approximately $29 billion to purchase real estate assets from Bear. This transaction appears riskier than the Fed's overnight lending to Bear and others, so I will examine it in detail.

<u>The Maiden Lane Deal</u>

The Maiden Lane transaction is described in a June 2008 report prepared for the New York Fed by the accounting firm of Ernst and Young (FCIC fn 15.80). Maiden Lane purchased $29.97 billion of assets from Bear, based on Bear's valuations. The assets were selected by agreement of the Fed and JPMorgan Chase. The Fed retained BlackRock Financial Management to manage Maiden Lane's portfolio, instructing BlackRock to sell assets over time to maximize returns.

Maiden Lane was financed by a non-recourse loan of $28.82 billion from the Fed and a subordinated loan of $1.15 billion from JPMorgan Chase. Under this arrangement, JPMorgan would absorb the first $1.15 billion of any losses on Maiden Lane's assets, and the Fed would absorb the rest. The interest rate on the Fed's loan was 2.5%, which was the discount rate at the time. In June 2012, the Fed reported that its loan had been repaid in full.

According to the Ernst and Young report, the $30 billion of assets purchased by Maiden Lane included $16.8 billion of mortgage-backed securities, $8.2 billion of commercial mortgages, $1.6 billion of residential mortgages, and $3.3 billion of credit and interest-rate derivatives. Virtually all the MBSs were investment-grade, and all the mortgages were classified as performing.

In 2010, the New York Fed released a financial statement for Maiden Lane as of December 31, 2008. This statement broke down Maiden Lane's assets by the method used to value them. A total of $11.4 billion of assets were valued based on Level III inputs, the most subjective method in the hierarchy of the Financial Standards Accounting Board (see Section 6.3). Maiden Lane's Level III assets included all its holdings of commercial and residential mortgages, and about $2 billion of its mortgage-backed securities.

An Adequate Haircut?

How well-secured was the Fed's loan to Maiden Lane? Under the deal with JPMorgan, the Fed lent approximately $29 billion and received a senior claim on $30 billion in assets. Essentially, the Fed lent against $30 billion of collateral with a haircut of $1 billion, or 3.3%.

This haircut was lower than those for other Fed loans during the financial crisis. Most lending against mortgage assets occurred through the PDCF, which imposed haircuts of 6.5% on investment grade MBSs and 8.3% on whole mortgages.

Moreover, the indefinite term of the Maiden Lane loan made it substantially riskier than PDCF loans, which were overnight. Haircuts for overnight repos are chosen to protect cash lenders from *one-day* changes in collateral values, plus liquidation costs (Brickler et al., FCIC Lehman Chronology Tab 14). If collateral depreciates over time, a lender reduces the daily cash it provides to maintain the haircut and avoid losses. In the Maiden Lane deal, by contrast, the Fed's commitment of $29 billion left it exposed to the risk of falling collateral values.

In sum, the Maiden Lane loan would have been riskier than PDCF lending–the type of assistance that Lehman needed–even if the haircuts were the same. Maiden Lane was riskier still because of the small haircut accepted by the Fed.

The Performance of the Maiden Lane Portfolio

So far I have assessed the riskiness of the Maiden Lane loan ex ante. Another perspective comes from examining what happened after the loan was made.

As the financial crisis worsened, default rates on mortgages rose and Maiden Lane's assets became much riskier. The Financial Times produced evidence on this point by analyzing a large sample of MBSs from Maiden Lane's portfolio (Alloway, 2010). In April 2008, just after Maiden Lane was created, 93% of the MBSs by value were rated AAA, and 99.9% were investment grade

(BBB or higher). Two years later, only 19% were AAA and 28% were investment grade. 48% were CCC or lower.

As Maiden Lane's assets became riskier, their values were marked down, and the Fed's loan became undercollateralized. Publication H.4.1 from the Board of Governors gives weekly figures for Maiden Lane's assets and for the balance on its loan from the Fed. Total assets first fell below the loan balance on October 22, 2008. The gap between assets and the debt to the Fed peaked at $3.1 billion on May 6, 2009, when assets were $25.7 billion and the debt was $28.8 billion.

Eventually the financial crisis eased, Maiden Lane's assets appreciated, and it fully repaid the Fed's loan. This outcome does not mean, however, that the loan was safe. The Fed lost $3.1 billion as of May 2009, and its final loss could have been that much or more if the financial crisis worsened.

12.3 AIG

At AIG, as at the big investment banks, losses related to real estate produced a collapse of confidence and a liquidity crisis. The Fed first assisted AIG with an $85 billion line of credit on September 16. In the following months, the Fed took several other actions to stabilize AIG, including additional loans and the creation of Maiden Lane II and Maiden Lane III. For a detailed review, see the 2010 report on AIG by the Congressional Oversight Panel for TARP (COP, pp. 58-83).

Fed officials asserted that their lending to AIG, like all their lending under Section 13(3), was well-secured. However, much of AIG's collateral was equity shares in the firm's insurance subsidiaries–private companies that are difficult to value. Officials have presented no evidence on the value of AIG's collateral relative to the credit extended to the firm. Indeed, they explicitly refused to provide estimates of collateral values to the Fed's Congressional oversight committees.

Under these circumstances, it is difficult to determine the adequacy of AIG's collateral, but I do my best to interpret the available evidence.

<u>The September 16 Loan</u>

In the AIG crisis, as with Lehman, the Fed and Treasury initially tried to broker a private-sector rescue. A consortium led by JPMorgan Chase and Goldman Sachs met at the New York Fed on September 15 and prepared a term sheet for a $75 billion line of credit for AIG. However, on the morning of September 16, the consortium members decided not to go through with the deal. By that point, AIG had run out of cash and faced imminent bankruptcy.

On the evening of September 16, the Board of Governors authorized the $85 billion line of credit from the New York Fed to AIG. The terms were similar to the deal considered by the private-sector consortium, with $10 billion added "as a cushion" (COP, p. 71). The line of credit had a term of two years and an interest rate of LIBOR plus 850 basis points–much higher than the rates the Fed charged other financial institutions. In addition, AIG was required to give the Treasury department a 79.9% equity interest in the firm (which would have gone to the consortium of lenders in the private-sector deal).

The collateral pledged by AIG was quite different from the collateral for other Fed loans. Loans from the PDCF and loans to the Maiden Lanes were collateralized by specific securities and whole loans, and the cash provided by the Fed was based on the value of the collateral and haircuts it deemed prudent. By contrast, when the Fed announced the September 16 loan to AIG, it said simply

> The loan is collateralized by all the assets of AIG, and of its primary non-regulated subsidiaries. These assets include the stock of substantially all of the regulated subsidiaries.

The "regulated subsidiaries" were primarily insurance companies, such as American Life Insurance Company. Under state insurance laws, AIG could not pledges the assets of these companies, but it could pledge AIG's equity in the companies themselves. On September 16, New York Fed security personnel went to AIG headquarters and took possession of paper stock certificates for the companies.

The exact structure of the AIG deal was complex. For example, some of the non-regulated subsidiaries of AIG guaranteed their parents' obligation to the Fed. Some assets of these subsidiaries were designated as collateral for the $85 billion loan, and others as collateral for the guarantees.

<u>Policymakers' Testimony to the FCIC</u>

In the years following the AIG loan, Fed officials often asserted that the loan was well secured, so there was little risk to the Fed. On this point, as on others, the most detailed discussions appear in the 2010 FCIC testimony of Chairman Bernanke and New York Fed General Counsel Baxter. Both of them emphasized the fact that the loan was collateralized by stock in AIG's insurance companies.

According to Bernanke (p. 37):

Unlike Lehman, which was a financial firm whose entire going-concern value was in its financial operations, AIG was the largest insurance company in America. And the Financial Products Division, which got into the trouble, was just one outpost of this very large and valuable insurance company.... So unlike Lehman, which didn't have any going-concern value, or not very much, AIG had a very substantial business, a huge business, more than a trillion dollars in assets and a large insurance business that could be used as collateral to borrow the cash needed to meet Financial Products' liquidity demands. So that's a very big difference. And indeed, the Federal Reserve will absolutely be paid back by AIG.

Later in his testimony, Bernanke reiterates (pp. 60-61):

[I]t was our assessment that they had plenty of collateral to repay our loan.... [T]he problems with AIG didn't relate to weaknesses in their insurance businesses, it related very specifically to the losses of the Financial Products Division. The rest of the company was, as far as we could tell, an effective, sound company with a lot of value, and that was the basis on which we made the loan.

Baxter, in his written FCIC testimony, says (p. 10):

Unlike the naked guarantee needed to facilitate the merger of Barclays and Lehman, our committed credit to AIG on September 16, 2008 was fully secured by good collateral, namely, AIG's sound retail insurance businesses. In fact, before any money was disbursed to AIG on September 16, AIG delivered share certificates to the New York Fed that we continue to hold as collateral in our vaults. These shares fully secured every penny we lent to AIG on September 16, 2008.

Policymakers' Statements in 2014-2015

More recently, both Timothy Geithner (who did not testify before the FCIC) and Ben Bernanke have discussed the AIG rescue. Both of them discuss AIG in their memoirs, and in their 2014 testimony in *Starr International Co. vs. U.S.* The *Starr* case was a lawsuit brought by AIG stockholders claiming that the Fed's terms for the AIG loan were unduly harsh.

These assessments of the AIG loan are more equivocal than the FCIC testimony of Bernanke and Baxter. Geithner says in his 2014 memoirs that AIG's insurance companies were "reasonably solid collateral" (p. 193). In elaborating on this point, he says:

Those insurance businesses would have a good chance of retaining their value *if their parent company didn't go down* [emphasis added].

This statement suggests implicitly that the AIG loan would not have been well-secured if the company did go down.

At one point Geithner says, "I believed we had gotten taxpayers a reasonable deal" (p. 197), but elsewhere he says (p. 194):

We would be exposing the Fed to the risk of an imploding insurance company, and there was a real possibility that our loan would simply buy the world time to prepare for a horrific default.

In the *Starr* lawsuit, the plaintiff's counsel challenged Geithner to justify the harsh terms of the AIG loan: the high interest rate and the demand for 80% equity in the company. In response, Geithner said (quoted in Stewart, 2014):

I thought we were taking enormous, unprecedented risks, and that there was substantial risk that we would lose billions of dollars, if not tens of billions of dollars.

Geithner also testified, however:

I also believed that there was a reasonable prospect that over time, over a longer period of time, if we were successful in preventing AIG's failure and if we were successful in averting another global depression, that we had a reasonable chance of recovering our assistance.

Bernanke, in his 2015 memoirs, restates his 2010 view that AIG had adequate collateral (p. 281):

Unlike Lehman, AIG appeared to have sufficiently valuable assets–namely, its domestic and foreign insurance subsidiaries, plus other financial services companies–to serve as collateral and meet the legal requirement that the loan be "secured to the satisfaction" of the lending Reserve Bank.

At the same time, Bernanke echoes Geithner in citing risk to justify the terms of AIG's loan:

Tough terms were appropriate. Given our relative unfamiliarity with the company, the difficulty of valuing AIG FP's complex derivatives positions, and the extreme conditions we were seeing in financial markets, lending such a large amount inevitably entailed significant risk. Evidently, it was risk that no private-sector firm had been willing to undertake. Taxpayers deserved adequate compensation for bearing that risk. In particular, the requirement that AIG cede a substantial part of its ownership was intended to ensure that taxpayers shared in the gains if the company recovered.

Bernanke also says (pp. 282-283):

If the loan to AIG helped stabilize financial markets, then AIG's companies and assets would likely retain enough value to help repay the loan over time. But if financial conditions went from bad to worse, driving the economy deeper into recession, then the value of AIG's assets would suffer as well. And, in that case, all bets on being repaid would be off. We had to count on achieving the better outcome.

The tone of these comments differs from the FCIC testimony of Bernanke (AIG "had plenty of collateral") and Baxter (the collateral "fully secured every penny we lent"). Why the difference? One possible factor is the contexts in which statements were made. In their FCIC testimony, Bernanke and Baxter were defending the Fed against charges that the AIG loan was excessively risky, so they had an incentive to minimize the risk. By contrast, in his *Starr* testimony, Geithner was replying to the plaintiff's claim that the Fed imposed "extortionary" terms on AIG. He needed to emphasize the risks to the Fed to justify the terms. *Starr* may also have influenced the discussions of AIG in Geithner's and Bernanke's memoirs.

Opacity about Collateral Values

How well-secured was the AIG loan? We could better answer that question if we knew the value of the firm's collateral. Unfortunately, we know little about the collateral, in part because the Fed has resisted requests for information.

Under Section 129 of the Emergency Economic Stabilization Act of 2008, the Fed must report to its Congressional oversight committees each time it invokes its 13(3) authority to make a loan. Each report must include a justification for the loan, a description of its terms, and "available information concerning the value of any collateral held with respect to such a loan."

The Board of Governors submitted the required report for the September 16 loan to AIG (see "Credit and Liquidity Programs" on the Board web site). The report says, "the Board does not believe the authorization of the Credit Facility will result in any net cost to taxpayers." The report does *not*, however, provide any information about the value of AIG's collateral. Indeed, the report explicitly declines to estimate this value, based on an unusual argument that doing so could impede repayment of the loan (p. 7):

> In light of the complexities involved in valuing the extremely broad range of collateral and guarantees securing all advances under the Credit Facility, the Board believes any estimate at this time of the aggregate value that ultimately will or may be received from the sale of collateral or the enforcement of the guarantees in the future would be speculative and could interfere with the goal of maximizing value through the company's global divestiture program and, consequently, the proceeds available to repay the Credit Facility.

In 2012, this author submitted a Freedom of Information Act (FOIA) request to the Board of Governors for several documents, including "a list of the specific assets pledged as collateral for the September 2008 loan to AIG and the value of each asset as determined by the Federal Reserve." The Board searched its records and found a document "responsive to the request," but declined to release it. The Board cited Exemption 8 of FOIA, which covers documents related to "the regulation or supervision of financial institutions."

I appealed this decision to federal district court, where I was represented by the Public Citizen Litigation Group (Ball v. Board of Governors of the Federal Reserve System, D.D.C. No. 13-cv-603, 2015). In the course of this litigation, the Board described the document responsive to my FOIA request as follows:

Spreadsheet listing specific certificated and uncertificated securities and instruments, in particular, stock, promissory notes, and membership interests issued by certain AIG subsidiaries, delivered by AIG to the FRBNY as a portion of the collateral for the FRBNY's extension of up to $85 billion in credit to AIG (the AIG Revolving Credit Facility).

Unfortunately, the judge in the case upheld the Board's decision to withhold this document under Exemption 8.[30]

<u>Evidence on Security</u>

I have not found an estimate of the value of AIG's collateral in any public source. I have, however, found fragments of evidence concerning the adequacy of the collateral for securing the Fed's $85 billion loan. This evidence is far from conclusive, but it casts doubt on the security of the loan.

The Views of Financial Institutions The consortium led by JPMorgan Chase and Goldman Sachs decided not to lend $75 billion to AIG, even with the high interest rate and equity stake that the Fed received. One possible reason is that consortium members thought AIG's collateral was inadequate.

There is some evidence supporting this conjecture. Two official documents report the views of

[30] My FOIA request also included memos by the Board's General Counsel about the legal justifications for the Maiden Lane and AIG loans. That part of my request was also denied, and the denial was upheld by the court. Despite these outcomes, I grateful for the outstanding work on my case by PCLG attorneys, especially Jehan Patterson.

consortium members: the 2010 report of the Congressional Oversight Panel for TARP, and a 2009 report of the Special Inspector General for TARP (SIGTARP). The SIGTARP report cites “a JPMorgan vice chairman” as reporting (p. 8):

The group developed a loan term sheet, but an analysis of AIG’s financial condition revealed that liquidity needs exceeded the valuation of the company’s assets, thus making the private participants unwilling to fund the transaction.

The COP report says (fn 246):

One bank that participated in the private-sector rescue effort told the Panel that the banks also concluded that AIG did not have adequate collateral to support the necessary loan.

Fed officials have disputed these accounts. The SIGTARP report, after relating the view of the JPMorgan executive, continues:

FRBNY officials told SIGTARP that, in their view, the private participants declined to provide funding not because AIG’s assets were insufficient to meet its needs, but because AIG’s liquidity needs quickly mounted in the wake of the Lehman bankruptcy and the other major banks decided they needed to conserve capital to deal with adverse market conditions.

The COP report includes a similar claim by Fed staff (p. 68). Once again, it is difficult to know who is right without more information.

Analysis at the New York Fed It appears that New York Fed staff analyzed the value of AIG’s collateral in the days before the loan. On September 14, Assistant Vice President Alejandro LaTorre circulated a memo titled “Pros and Cons of Lending to AIG” to colleagues including President Geithner (FCIC fn 19.38). Attached to the memo was a presentation about AIG’s insurance companies prepared by FRBNY’s Bank Supervision Group. In these documents, discussions of AIG’s collateral are cryptic, but the tone is negative.

LaTorre’s memo lists “pros” of lending to AIG, which include various financial disruptions that would occur if the firm failed, and “cons” including moral hazard and concern that “lending to AIG could be perceived as inconsistent with treatment of Lehman.” Point 5 in the list of cons concerns

AIG's insurance companies:

5. Assets available from Ins. Co. subs may not be sufficient to cover potential liquidity shortfalls as many of the subs do not appear to be sources of strength.

→ Life Ins. Co. subs have significant unrealized losses on investments.

→ P&C could be source of strength; paid $1.4B dividends, but amounts small relative to size of hole.

The presentation from the Bank Supervision group is titled, "AIG Subsidiaries: Are they a Source of Strength?" The first slide after the title is headed "Ability to support has weakened," and appears to be the source of LaTorre's comments. It mentions unrealized losses on investments and says "dividends to parent down sharply overall," giving figures of $4.9 billion for 2007 and $1.4 billion for 2008 year-to-date.

Another slide in the presentation, titled "What happens in a sale?," mentions risks to the solvency of AIG's insurance companies. This slide says,

Using a weighted average, all the subsidiaries shocked would wipe out their capital in a liquidation if assets are sold at a 12% loss or greater.

Maiden Lanes II and III

Following the September 16 loan, the Fed took several other actions to assist AIG. It lent $38 billion to the firm through a Securities Borrowing Facility, and $16 billion through the Commercial Paper Funding Facility, discussed below. In November 2008 the Fed created Maiden Lane II and Maiden Lane III, which I examine here.

Maiden Lane II bought $21 billion of mortgage-backed securities from AIG, financed by a $20 billion loan from the Fed and a $1 billion subordinated loan from AIG. Maiden Lane III bought $29 billion of collateralized debt obligations (CDOs) from counterparties of AIG, financed by $24 billion from the Fed and $5 billion from AIG. The purchases by Maiden Lane III allowed AIG to terminate credit default swaps tied to the CDOs.

We can interpret these two arrangements, like the first Maiden Lane that assisted Bear Stearns, as long-term loans from the Fed against illiquid collateral. The subordinated loans from AIG were equivalent to haircuts on the collateral: about 5% for Maiden Lane II and 17% for Maiden Lane III. Despite these haircuts, falling asset prices meant the Fed's loans became undercollateralized: the assets of the Maiden Lanes fell below their debts to the Fed. These shortfalls peaked in mid-2009 at $2.1 billion for Maiden Lane II and $2.7 billion for Maiden Lane III. Once again, however, the Fed's loans were ultimately repaid in full.

12.4 THE COMMERCIAL PAPER FUNDING FACILITY

The Fed established the CPFF in October 2008, after the run on money market funds made it difficult for corporations to issue commercial paper. In this case–unlike any other credit extension under Section 13(3)–the public record includes a memo from the Board's General Counsel, Scott Alvarez, on the legal justification for the action (FCIC fn 18.135). The memo argues that lending through the CPFF met the legal requirement for satisfactory security, but once again the reasoning of Fed officials is unsound.

The CPFF purchased commercial paper and was funded by a loan from the New York Fed, with the commercial paper serving as collateral. This arrangement was economically equivalent to direct purchases of commercial paper by the Fed, as Alvarez's memo acknowledges (p. 3). At the end of 2008, the CPFF owned $335 billion of commercial paper, about 20% of all CP issued by U.S. corporations (Kacperczyk and Schnabel, 2010).

The CPFF purchased only commercial paper with the highest rating, A1/P1/F1. That rule was not very restrictive, however, because 90% of commercial paper had that rating–including LBHI's commercial paper until its bankruptcy. About a third of the commercial paper bought by the CPFF was asset-backed and the rest was unsecured, and most of the unsecured CP was issued by financial institutions (Adrian et al., 2011). I will focus on the Fed's financing of unsecured CP.

When the CPFF purchased unsecured commercial paper, it required the issuer to pay an "insurance fee," in addition to the interest on the CP. The fee was fixed at 100 basis points per annum. For 90-day commercial paper, the fee was approximately 0.25% of the security's face value.

General Counsel Alvarez's memo argues that an insurance fee is one acceptable form of security under Section 13(3). It also argues that a 100 basis point fee was adequate to protect the CPFF from losses. I will not question the general point about insurance fees, but the justification for the level of the fee is weak.

The memo says the 100 basis point fee "is designed to be an insurance premium based on historical loss rates for A1/P1/F1 CP." It argues (p. 8):

> Like an insurance company or fund, these premiums (along with any earnings on the CP in the CPFF SPV) would serve as a source of funds to repay the CPFF SPV's extension of credit from the Reserve Bank if losses result from the CP. Also, like an insurance company or fund, the pool of premiums would be available to offset <u>any</u> losses, that is, the premium paid by one issuer would be available to offset losses of other issuers, not just losses from the issuer paying the premium. Mutualization of losses is an important and defining characteristic of an insurance company or fund. Moreover, the aggregate premiums retained in the CPFF SPV were computed to cover those expected losses over the expected life of the facility. Historically, the default rate of A1/P1/F1-rated CP is very low.

The flaws in this reasoning are egregious. In October 2008, when the CPFF was established, the level of distress in financial markets was far greater than at any other time since commercial paper was invented in the 1970s. Historical loss rates surely understated the risk on commercial paper, especially commercial paper issued by financial institutions.

In addition, the analogy to mutualization in insurance is inapposite, because of the correlation of risk across different CP issuers. Kacperczyk and Schnabl (2010) state the obvious:

“diversification reduces exposure to idiosyncratic risk but cannot reduce exposure to systematic risk which affects all commercial paper issuers at the same time.” A worsening of the financial crisis might have produced defaults on a significant fraction of commercial paper, with losses to the CPFF that greatly exceeded the insurance fees it received.

13. WHO DECIDED THAT LEHMAN SHOULD FAIL?

The main purpose of this paper is to establish that lack of legal authority was *not* the reason that the Fed let Lehman Brothers fail. However, if we accept this thesis, it is natural to ask what the real reasons were for the Lehman decision. To address that question, we must first understand who made the decision.

Under the Federal Reserve Act in 2008, the authority to lend or not lend to Lehman rested solely with the Federal Reserve. The Board of Governors could have invoked Section 13(3) to authorize a loan from the New York Fed. Alternatively, Lehman probably could have survived if the Fed had merely *not* acted to limit the firm's access to the PDCF (see Section 10).

Yet the decision that Lehman should fail was made primarily by Treasury Secretary Henry Paulson–a government official with no legal authority in the matter. Paulson directed the negotiations about Lehman's fate at the New York Fed over September 12-14. He tried to broker an acquisition of Lehman, and when that failed he decided the firm should file for bankruptcy. Fed officials including President Geithner followed Paulson's directions, and then reported what was happening to Ben Bernanke in Washington.

Why did Henry Paulson take charge of the Lehman decision, and why did Fed officials let him? We cannot know for sure, but two factors appear relevant. One is Fed policymakers' desire for political support from the Treasury when they took unpopular actions. The other is the frequently noted difference in personalities between Henry Paulson and Ben Bernanke, who Geithner (p. 154), for example, characterizes as "imposing and action-oriented" (Paulson) and "deferential" (Bernanke).

13.1 THE FED AND THE TREASURY IN 2008

Secretary Paulson's decisions about Lehman were part of his broader role in Fed policymaking. Paulson was involved to varying degrees in many of the Fed's actions during the financial crisis.

One example is the resolution of the Bear Stearns crisis over the weekend of March 14-16. Several sources give similar accounts of this episode, including Paulson's memoirs (pp. 100-116), Timothy Geithner's memoirs (pp. 147-158), and the book by journalist David Wessel (pp. 157-171). The effort to rescue Bear was led by Paulson in Washington and Geithner in New York, who talked repeatedly with each other and with Bear CEO Schwarz and JPMorgan CEO Dimon. Paulson estimates that he and Geithner had two dozen phone calls over the weekend.

Geithner also talked to Ben Bernanke several times over the weekend to brief him on developments, and ultimately Bernanke approved the plan for the New York Fed to create Maiden Lane and lend it $30 billion. On Sunday March 16, Bernanke convened the Board of Governors and it voted to authorize the loan under Section 13(3).

When Fed officials discussed controversial actions such as the Maiden Lane and AIG loans, they stressed the involvement of the Treasury department. The phrases, "with the full support of the Treasury department" and "in close consultation with the Treasury department" became standard language in Fed press releases and Congressional testimony by Bernanke and others.

An incident from the Bear Stearns crisis illustrates the importance of Treasury support to Fed officials. Geithner told Paulson that the Fed would lend to Maiden Lane only if Treasury indemnified the Fed from any losses on the loan. Paulson replied that Treasury could not do that without Congressional approval, and an argument ensued. Eventually Geithner and Paulson reached a compromise: Paulson wrote a letter expressing support for the loan and noting that any losses would reduce the seignorage revenue that the Fed returned to Treasury.

Why did the Fed want the Treasury's support? One likely factor was a desire to deflect political criticism of the Fed's actions. Geithner acknowledges this motive in discussing Paulson's letter about Maiden Lane (p. 156): "[W]hile it merely stated fiscal facts, I thought it gave us some cover, implicating Treasury in the risks we were taking."

13.2 HENRY PAULSON'S ROLE

Here I review the Lehman crisis chronologically, focusing on Secretary Paulson's role. Paulson was clearly in charge of policy deliberations–more so than in other phases of the financial crisis, when arguably he and Geithner were equal partners. On Lehman's final weekend, Paulson traveled to New York to manage policy at the New York Fed. He announced that Lehman would receive no public assistance, rejecting Geithner's concerns about that policy. On September 14, Paulson decided that Lehman should declare bankruptcy and dictated that decision to Fed officials.

In this part of my analysis, one important source is Sorkin's popular book, *Too Big to Fail*. Sorkin's account is based on anonymous sources, but many parts are corroborated by Paulson and Geithner's memoirs, or by documentary evidence. To my knowledge, nobody has pointed out important inaccuracies in Sorkin's account of the Lehman crisis.

Before the Final Weekend

After the Bear Stearns crisis in March, policymakers worried that a run on Lehman could drive it into bankruptcy. Paulson tried hard to avert that outcome by brokering an acquisition by a stronger firm. Between March and September, Paulson discussed potential deals with Lehman CEO Fuld on almost fifty occasions (Paulson, pp. 136-137).

During the week of September 8, Paulson negotiated with the CEOs of Bank of America and Barclays, the two firms still interested in Lehman. Both CEOs said they might buy Lehman if the

Fed financed some of its illiquid assets, citing the Bear Stearns precedent. Paulson ruled out such a deal, but suggested that financing might come from a private consortium. He took this position with Fed officials as well (Geithner, p. 178).

On Thursday September 11, Lehman's liquidity crisis was acute. That evening, Paulson participated in a conference call with Geithner, Bernanke, SEC Chair Cox, and members of their staffs. By all accounts, Paulson stated forcefully that Lehman would receive no public assistance. Paulson himself says (p. 186):

[R]ealizing that I was speaking to a large group, I again emphasized that there would be no public assistance for a Lehman bailout and that we would be looking for the private sector to help the buyer complete the acquisition.

Geithner relates (p. 179):

By Thursday night, when Hank forcefully repeated his no-public-money stand during a conference call with Ben and SEC Chairman Chris Cox, I began to worry that he actually meant it. He declared that he didn't want to be known as "Mr. Bailout," that he couldn't support another Bear Stearns solution. I could hear the influence of his political advisers, who had been trying to steer Hank away from supporting any Fed role, urging him not to let me talk him into another Bear.

Sorkin (pp. 282-283) also quotes Paulson as insisting, "I can't be Mr. Bailout." Sorkin adds, "Geithner was a bit hesitant about taking such a severe stance in public," but "he quickly fell in line." The policymakers agreed to convene a meeting of Wall Street CEOs the next evening. "In the meantime, Paulson instructed them, the message should be clear: *No bailouts*."

In all these accounts, Paulson unequivocally dictates policy about Fed lending. He "instructs" Fed officials, and it seems they accept his instructions with little debate. Geithner's suggestion that he might "talk [Paulson] into another Bear" implies that the Fed needed Paulson's approval to assist Lehman.

Sorkin describes an incident on Friday September 12 that also suggests Paulson was in charge. Geithner had a conversation with Rodgin Cohen, an attorney advising Lehman (p. 295):

“I don’t think this deal can get done without government assistance,” Cohen stressed to Geithner. “They [Bank of America] may be bluffing us, and they may be bluffing you. But we can’t afford to call that bluff.”

Geithner, who had expressed similar worries to Paulson the day before but had been told to stand down, was succinct in his response: “You can’t count on government assistance.”

On Thursday night, Paulson told his press secretary, Michele Davis, to leak his position to the press. A typical headline on Friday morning, from Bloomberg News, was “Paulson Adamant No Money for Lehman” (Geithner p. 179).[31]

September 12-13

On Friday September 12, Paulson discussed the Lehman crisis at breakfast with Ben Bernanke, and then flew from Washington to New York. Traveling from the airport to the Fed, Paulson discussed possible deals on the phone with Geithner, Lehman CEO Fuld, and Bank of America CEO Kenneth Lewis (Paulson, pp. 187-190).

On Friday evening, Paulson opened the meeting of Wall Street CEOs at the Fed, and immediately ruled out Fed assistance for Lehman. General Counsel Baxter told the FCIC, “Secretary Paulson opened the meeting with a short and plain declaration that there would be no public money to support Lehman” (p. 6 of written testimony). Wessel quotes Paulson as saying, “We did the last one [Bear Stearns]. You’re doing this one” (p. 16). Geithner and Sorkin give similar accounts of Paulson’s remarks.

Paulson then turned the meeting over to President Geithner, who says, “I echoed [Paulson’s]

[31] In his memoirs, Paulson says he would have changed his position and agreed for the Fed to finance some of Lehman’s assets if doing so facilitated an acquisition of the firm. He says of himself and Geithner (p. 181), “we both knew that if a Bear Stearns-style rescue was the only option, we would take it.” The Fed financed some of Bear’s assets as part of the deal with JPMorgan Chase. According to Paulson, it was the absence of an acquirer that made a Lehman rescue impossible.

no-public-money stance" (p. 181).[32] Geithner divided the CEOs into three groups and assigned them to analyze different aspects of Lehman's crisis (see Section 9.4).

On Saturday September 13, Paulson was at the New York Fed from about 7:00 AM to 9:00 PM. He negotiated with Barclays and Bank of America, Lehman CEO Fuld, and the CEOs gathered at the Fed (Paulson, pp. 194-206). Geithner joined Paulson in some but not all of these discussions. By the end of the day, there was a tentative deal for Barclays to purchase Lehman, but leave behind some illiquid assets that the Wall Street consortium would finance. Paulson left the Fed feeling "optimistic about the prospects for a deal."

<u>September 14-15</u>

On the morning of Sunday September 14, Geithner and SEC Chair Cox spoke on the phone with Callum McCarthy, the head of the UK Financial Services Authority. McCarthy said that the FSA would not allow Barclays to guarantee Lehman's obligations without a shareholder vote, and that decision derailed the Barclays acquisition (see Section 4.4). At about 11:00 AM, Paulson called Alistair Darling, the UK's Chancellor of the Exchequer, and asked him to overrule McCarthy. Darling said no.

After that conversation, Paulson told Geithner, "Darling's not going to help. It's over" (Paulson p. 211). According to Sorkin (p. 349), Geithner replied, "Okay, let's go to Plan B," which was bankruptcy.

Paulson and Geithner told the CEOs at the Fed that the Barclays deal was off and they should prepare for Lehman's bankruptcy. Paulson called Fuld and told him, "Dick, I feel terrible. We've come up with no options" (Paulson, p. 212). Lehman's executives and lawyers were summoned to

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[32] Paulson says that "Tim opened the meeting" and then "handed the meeting over to me" (p. 191). However, Geithner, Baxter, Sorkin, and Wessel all report that Paulson spoke first. Paulson confirms that he said "there could be no government money involved in any rescue" (p. 192).

the meeting at which General Counsel Baxter told them to file for bankruptcy (see Section 10.1). It is not clear who planned that meeting and gave instructions to Baxter.

On Sunday afternoon, Lehman executives learned of the expansion of PDCF collateral, and initially thought that action might save their firm (Section 10.2). Sorkin reports Paulson's reaction to the PDCF expansion (p. 355):

> "Lehman's got to file immediately," Paulson, leaning back in his chair, instructed Geithner and Cox. He made it clear that he didn't want Lehman adding to the uncertainty in the marketplace by dragging the situation out any longer.
>
> Paulson had another reason for insisting that Lehman file: If the Fed was going to open its discount window even wider to the remaining broker-dealers, he didn't intend that Lehman be granted that access; doing so would represent another opportunity for moral hazard.

By this account, Paulson was behind the decision to limit Lehman's access to the PDCF, which ensured its bankruptcy. Once again, Paulson "instructs" other policymakers and "insists" on his position.

On Sunday evening, Paulson pushed SEC Chair Cox to call Lehman's board of directors and tell them to file for bankruptcy. This part of the story is described in more detail below.

On September 15, after Lehman filed, Paulson returned to Washington and held a news conference at the White House. He took responsibility for letting Lehman fail, saying, "I never once considered it appropriate to put taxpayer money on the line in resolving Lehman Brothers."

<u>Paulson and the White House</u>

Paulson was an official in President Bush's Administration. It is natural to suppose that he acted in consultation with the President or senior White House staff, and some fragments of evidence support this conjecture.

One piece of evidence is an email from Paulson's chief of staff, Jim Wilkinson, who accompanied Paulson to New York. Wilkinson wrote to an executive at JPMorgan Chase at 9:00

AM on Sunday, after learning of the FSA's objection to the Barclays deal (FCIC fn 18.101):

No way govt money is coming in... I'm here writing the usg coms [United States government communications] plan for orderly unwind... also just did a call with the WH [White House] and usg is united behind no money. No way in hell paulson could blink now... [ellipses in original]

Paulson says that he called Josh Bolten, President Bush's chief of staff, to report the problem with the FSA (p. 209):

"You've got Presidential approval to settle on a wind-down that doesn't commit federal resources," Josh told me. "Anything else, you should come back to the president and tell him what you're planning."

13.3 BEN BERNANKE'S ROLE

After Chairman Bernanke and Secretary Paulson had breakfast on Friday September 12, Paulson left for New York and Bernanke spent most of the weekend in his Washington office. In his memoirs, Bernanke says (p. 263), "We used frequent conference calls to keep the Treasury, the Fed, and the SEC on the same page." Here I review the evidence on Bernanke's communications with the policymakers in New York.

My sources are accounts of Lehman's final weekend from the FCIC, Sorkin, and the memoirs of Bernanke, Geithner, and Paulson. According to these sources, Geithner spoke to Bernanke at several points, mostly to report developments after the fact. As far as I can tell, Bernanke did not talk to Paulson between the Friday breakfast and 5:00 PM on Sunday, well after Lehman's fate was sealed.

A Fed Governor, Kevin Warsh, spent the weekend at the New York Fed. Some accounts, such as Wessel (p. 13), portray Warsh as Bernanke's representative. However, it does not appear that Warsh had an important role in policy deliberations about Lehman. In addition, there is little evidence of communication between Warsh and Bernanke.

Bernanke's Communications with Geithner and Paulson

I have looked for evidence of communications between Bernanke and either Geithner or Paulson in the memoirs of the three men (Bernanke pp. 263-269; Paulson, pp. 186-221; Geithner, pp. 180-190); in the 76 pages on the September 12-14 weekend in Sorkin's book (pp. 297-372); and in the Lehman Chronology prepared by the FCIC. These sources report the following handful of phone calls. It is possible that other communications occurred, but it seems unlikely that all of the sources leave out something important.

• Bernanke (p. 263) says that he received "discouraging reports" from Geithner on Friday evening and/or Saturday morning. Geithner reported that Bank of America, Barclays, and the consortium at the New York Fed all believed that Lehman significantly overvalued some of its assets. B of A and Barclays were demanding government assistance for a Lehman deal.

• At 7:00 PM on Saturday, Bernanke and Geithner participated in a conference call with others at the New York Fed and the Board. According to an email from Bernanke before the call, the agenda included a "briefing/update on Lehman" (FCIC Chronology, Tab 58). Nobody reports the details of this briefing. At the time of the call, policymakers were optimistic that Barclays would acquire Lehman.

• On Sunday morning, Geithner called Bernanke to report the failure of the Barclays deal and the plan for Lehman to file for bankruptcy. In Sorkin's narrative (pp. 350-351), Paulson and Geithner announce the bankruptcy plan to the Wall Street executives at the Fed, and later Geithner leaves Paulson "to brief Bernanke." Bernanke says, "A call from Tim dashed my remaining hopes" for rescuing Lehman. He goes on to say, "It seemed the next step would be to prepare for a bankruptcy" (pp. 267-268).

In the same call, says Bernanke, he raised the possibility of Fed assistance to Lehman, and

Geithner rejected the idea:

> I asked Tim whether it would work for us to lend to Lehman on the broadest possible collateral to try to keep the firm afloat. "No," Tim said. "We would only be lending into an unstoppable run".... I pressed Tim for an alternative solution, but he had none.

- Around 5:00 PM on Sunday, Bernanke participated in a conference call with Geithner, Paulson, and others. This call occurred well after the decision that Lehman must declare bankruptcy, which policymakers originally planned to announce at 4:30 (see below). Paulson says (p. 218), "We reviewed the day's dreadful events" and discussed efforts to contain the damage from the bankruptcy.

Bernanke and Warsh

Fed Governor Kevin Warsh spent the September 12-14 weekend at the New York Fed. In describing Bernanke's plans for the weekend, Wessel says, "His immediate interests in New York would be represented by his lieutenant, Kevin Warsh." This statement suggests that Bernanke influenced policy through Warsh, but it appears that did not actually happen, for two reasons.

First, there is no evidence that Warsh had a significant role in the decision making about Lehman at the New York Fed. He is not mentioned anywhere in Sorkin's or Geithner's accounts of the weekend. Paulson mentions Warsh only as a participant in the Sunday afternoon conference call with Bernanke and others.

Second, there is little evidence of communication between Bernanke and Warsh. Bernanke does not mention Warsh in his account of the weekend, beyond saying at the beginning that "Paulson, Geithner, [SEC Chair] Cox, and Kevin Warsh were in New York for the negotiations" (p. 263). Besides the one conference call, the only documented interactions between Bernanke and Warsh were two emails on Sunday afternoon, after the bankruptcy plan was set (FCIC Chronology, Tabs 66-67).

The first email was sent by Bernanke at 2:55 PM on Sunday. It was addressed to Warsh, General Counsel Scott Alvarez, Vice Chair Kohn, and Brian Madigan, Director of the Board's Division of Monetary Affairs. The message says in its entirety:

Anything new, Kevin?

Brian, Scott: Any more details on PDCF collateral, 23A details?

(Bernanke's questions for Brian and Scott concern measures to support the tri-party repo market after Lehman's failure.)

The public record does not include any direct response from Warsh to Bernanke's email. However, Bernanke heard from Warsh indirectly in an email from Vice Chair Kohn. At 3:03 PM, Kohn wrote[33]

Just talked to Kevin. LEH heard about the pdcf enlargement and thought it was a lifeline, but they didn't understand it was limited to triparty. KW thinks everything's on track for 430ish. SEC will go first announcing Chapt 11 for holding company. I haven't seen any details.

Bernanke sent his second email to Warsh at 4:55 PM. It said:

Anything to report?

In case I am asked: How much capital injection would have been needed to keep LEH alive as a going concern? I gather $12B or so from the private guys together with Fed liquidity support was not enough.

Bernanke's reference to a $12 billion capital injection is puzzling because such a plan was not the focus of negotiations at the New York Fed. Rather, the private consortium agreed to lend $40 billion against Lehman's illiquid assets to facilitate a Barclays acquisition.

[33] Kohn's remark that the PDCF expansion "was limited to triparty" is puzzling. See footnote 27.

13.4 WHY WAS PAULSON IN CHARGE?

In 2008, the Federal Reserve Act gave the Fed sole authority over its lending under Section 13(3). Legally, the Treasury Secretary had no role in approving loans. Bernanke acknowledges this fact at one point in his memoirs. In discussing Paulson's "no government money" position, Bernanke says (p. 289):

> Hank's statements were to some extent beside the point, in that Fed loans were the only government funds available. It would have been the Federal Reserve's decision–not Hank's or the Treasury Department's–whether to make a loan, had a loan of sufficient size to save the firm been judged feasible.

Geithner makes a similar comment about Paulson's opposition to rescuing Lehman (p. 178): "This wasn't really Hank's decision; he couldn't tell the Fed how to use its authority."

Yet, in the end, Paulson *did* tell Fed officials what to do. Why did he take charge of policy toward Lehman? And why did Fed Chair Bernanke let Paulson take charge?

Presumably one factor was the desire of Fed officials for Paulson's political support, discussed above. Yet political pressures may not fully explain Paulson's and Bernanke's roles in the Lehman episode. We cannot know the inner motivations of the two men, but one factor in their behavior seems obvious: their basic personalities. By many accounts, Paulson was a highly assertive person who often told others what to do, and Bernanke was not. Based on these traits, we would expect Paulson to take charge in a crisis.

Many journalists and economists describe the personalities of Paulson and Bernanke, often in colorful terms. Wessel (p. 12) says that Paulson "had a tendency to talk more than listen." Sorkin notes Paulson's "bulldog tenacity" (p. 41) and mentions that he played tackle on the Dartmouth football team, "where his ferociousness in playing earned him the nicknames 'The Hammer' and 'Hammering Hank'" (p. 44).

In contrast, as I document elsewhere (Ball, 2016), people typically describe Bernanke with words such as “modest,” “unassuming,” “shy,” “introverted,” “quiet,” and “a nerd.” *Time* magazine, in naming Bernanke its 2009 Man of the Year, said “he does not have a commanding presence.” Appelbaum (2014) says that Bernanke “did not push forcefully” for policies he supported in FOMC meetings.

Several people have explicitly compared the personalities of Paulson and Bernanke. Adam Davidson of National Public Radio (2009) says:

It’s easy to contrast the two men, Henry Paulson and Ben Bernanke, this kind of headstrong, tall, bold bulldog in Henry Paulson and the much softer, quieter, bookish Bernanke.

Alan Blinder, Bernanke’s former colleague at Princeton, says (2013):

[T]he chairman of the Fed had come from the cloistered halls of academia. But Paulson had been the head of Goldman Sachs, a lion of Wall Street, a King of the Universe, a man who had spent his life in the rough-and-tumble of the financial world. (He collected birds of prey as a hobby, which, some people claimed, told you something.)

Finally, Geithner says (p. 154):

Hank was a bullet-headed former Goldman investment banker and CEO, as imposing and action-oriented as Ben was deferential and measured.

It is natural to suppose that an “imposing and action-oriented” person would take charge in the Lehman crisis, and a “deferential” person would not.

Paulson’s personality is illustrated by an incident in Sorkin’s book, one involving SEC Chairman Cox (p. 366). On the afternoon of September 14, Paulson told Cox to call Lehman’s executives and tell them to file for bankruptcy. Several hours later he learned that Cox had not made the call, and Sorkin reports:

After barging in and slamming the door, Paulson shouted, “What the hell are you doing? Why haven’t you called them?”

Cox, who was clearly reticent about using his position in government to direct a company to file for bankruptcy, sheepishly offered that he wasn’t certain if it was appropriate for him to make such a call.

"You guys are like the gang that can't shoot straight!" Paulson bellowed. "This is your fucking *job*. You have to make the phone call."

Geithner (p. 189) confirms that Paulson "yelled at Cox to pick up the phone and get Lehman to move," and he also quotes the put-down about "the gang that can't shoot straight." Cox called Lehman's board of directors shortly after this conversation.[34]

The Treasury Secretary has no legal authority over the SEC Chair, but Paulson bullied Cox into following his orders. There is no account of Paulson treating Fed officials as harshly as he treated Cox. On the other hand, there are no recorded incidents in which Fed officials resisted Paulson's instructions about Lehman.

[34] Paulson describes the same conversation on pp. 219-220 of his memoirs. In Paulson's account, his language is more polite but the message is the same. He says, "I finally walked into Chris's office around 7:15 PM and urged him to move quickly to execute the SEC's plan" [for bankruptcy]. Paulson quotes himself as telling Cox, "It is essential that you call the company now."

14. EXPLAINING THE DECISION

Why didn't the Fed rescue Lehman? The reasons given by Fed officials–inadequate collateral and lack of legal authority–are not credible. We are left, therefore, to speculate about the real reasons.

In my reading of the evidence, there are two likely factors. The first, which many others have suggested, is politics. Henry Paulson, who made the Lehman decision, feared the political firestorm that would have followed a rescue.

The second factor is that policymakers thought, or at least hoped, that Lehman's bankruptcy would not severely damage the financial system. This factor helps explain why Paulson put political considerations first, and why Fed officials did not push back against Paulson's decision.

After the fact, policymakers have said that they knew Lehman's failure would be a "catastophe," a "calamity," a "nightmare," and "an epic disaster." But once again, the real-time record does not support policymakers' claims.

14.1 FEAR OF POLITICAL BACKLASH

The "bailouts" of 2008 produced virulent criticism from politicians, economists, and the media, and there is evidence that this criticism influenced the decision to let Lehman fail.

The Reaction to Bear Stearns and the GSE's

The Bear Stearns rescue in March provoked criticism from across the political spectrum. As Sorkin (p. 38) puts it, "attacking the rescue plan was one of the few completely bipartisan affairs." Liberal Congressman Barney Frank said the government had paid "ransom" to financial institutions. Conservative Senator Jim Bunning said the rescue was "socialism."

Former Fed officials also questioned the rescue. Paul Volcker called it "a direct transfer of mortgages and mortgage-backed securities of questionable pedigree from an investment bank to the Federal Reserve," which took the Fed to "the very edge of its lawful and implied powers" (April 8, 2008).

Stinging criticism came from an old friend of Fed officials: Vincent Reinhart, who had retired in 2007 as Director of the Board's Division of Monetary Affairs. In a speech at the American Enterprise Institute (April 28, 2008), Reinhart called the Bear rescue the "worst policy mistake in a generation," comparable to the Fed's mistakes during the 1930s Depression and the 1970s Great Inflation. The rescue, said Reinhart, "eliminated forever the possibility the Fed could serve as an honest broker" in future financial crises.

Timothy Geithner describes the reaction to the Bear rescue and says, "it was jarring to be a target myself, with critics questioning not just my choices but my motives" (p. 159).

On September 7, the government took over Fannie Mae and Freddie Mac. Geithner says (p. 175):

> The reaction to Fannie and Freddie quickly made the backlash over Bear look mild. Senator Bunning, who had said the Bear deal's assault on free enterprise made him feel like he lived in France, now said he felt like he lived in China. Senator Obama and the Republican presidential nominee, John McCain, both expressed outrage about public rescues of private firms...

Media Coverage of the Lehman Crisis

During the week of September 8, the Lehman crisis replaced Fannie and Freddie as the top story in the financial news. The media reported intensively on the search for an acquirer, Paulson's no-public-money declaration, and the gathering of Wall Street CEOs at the New York Fed. On September 13, the Financial Times reported that "Lehman Brothers is facing a weekend of desperate negotiations," with a headline saying, "solution sought before opening of markets" on September 15 (Sender, 2008). Paulson (p. 212) confirms that the press "was expecting a big announcement on Lehman before the Asian markets opened."

Journalists expressed strong opposition to a public rescue of Lehman. Bernanke mentions two examples in his memoirs (p. 261): the FT's declaration that, after the Fannie and Freddie actions, "further such rescues should be avoided like the plague;" and the Wall Street Journal's view that a Lehman rescue would imply "a new de facto federal policy of underwriting Wall Street that will encourage even more reckless risk-taking."

The media presented the policy issue as a dichotomous choice between a Lehman bankruptcy and a "bailout." On September 12, the Journal asked, "Should the U.S. government let a big institution fail rather than stage another potentially costly bailout?" (Schuman, 2008). When LBHI filed for bankruptcy, the media reported that policymakers had chosen the failure option, with the Journal saying, "the government had to draw a line somewhere" (quoted in Geithner, p. 190).

In response to the Lehman crisis, the Fed lent $28 billion to LBI and greatly expanded its lending to other investment banks through the PDCF. Yet these actions received little attention as the media focused on the LBHI bankruptcy filing.

Effects on Paulson

Treasury Secretary Paulson decided that the Federal Reserve would not rescue Lehman. Was he influenced by the political opposition to bailouts? Several pieces of evidence suggest that he was.

Perhaps the most striking evidence is the "Mr. Bailout" remark in Paulson's September 11 call with Bernanke and Geithner. Wessel (p. 14) quotes Paulson as saying, "I'm being called Mr. Bailout. I can't do it again." Sorkin and Geithner (who was on the call) also report versions of this statement. Paulson does not report that he used the phrase "Mr. Bailout," but he does say, "I emphasized that there would be no public assistance for a Lehman bailout" (p. 186).

Sorkin's book contains other relevant vignettes. One is a meeting at the Board of Governors on September 9, two days after the GSE takeovers, at which Ben Bernanke comments on Paulson (p.

239):

"The negative publicity is really getting to him," Bernanke acknowledged of Paulson, who had spoken to him yesterday morning and gotten an earful about the press coverage.

Political criticism also comes up in Paulson's September 12 remarks to the Wall Street CEOs at the New York Fed (p. 302):

"There's no consensus for the government to get involved; there is no will to do this in Congress," [Paulson] said, stammering and stuttering at one point about how Nancy Pelosi had been all over him about bailouts.

The FCIC published a brief but telling email from Jim Wilkinson, Paulson's Chief of Staff, to Press Secretary Michele Davis on September 9 (FCIC chronology, Tab 32):

I just can't stomach us bailing out lehman. Will be horrible in the press don't u think?

It is reasonable to suppose that Wilkinson's sentiment reflected Paulson's thinking, or influenced it.

14.2 EXPECTATIONS ABOUT THE COSTS OF LEHMAN'S FAILURE

Some commentators suggest that policymakers let Lehman fail in part because they cvunderestimated the consequences. David Wessel, for example, says of Bernanke and Paulson (p. 274):

Had they realized how much damage Lehman's bankruptcy would wreak, they might have had [another] option ready, one that showed some of the same creativity they exercised at other points in the crisis....

Here I examine policymakers' expectations about the effects of Lehman's failure. I first review policymakers' retrospective accounts of what they expected, and then examine the real-time evidence, which tells a different story.

Policymakers' Statements After the Bankruptcy

As discussed in Section 9.2, Ben Bernanke first addressed the Lehman bankruptcy in

Congressional testimony eight days later. He downplayed the effects, saying “investors and counterparties had had time to take precautionary measures.” But Bernanke soon backed away from this testimony, and told the FCIC, “I regret not being more straightforward there.”

Except for that initial testimony, Bernanke has said consistently that he knew the effects of Lehman’s failure would be dire. In his 2009 interview with the FCIC, Bernanke says (pp. 25-26):

> We knew–we were very sure that the collapse of Lehman would be catastrophic. We never had any doubt about that.

Bernanke lists some effects that policymakers expected, including “huge impacts on funding markets” and “a huge loss of confidence in other financial firms.” He then reiterates:

> So there was never any doubt in our minds that it would be a calamity, catastrophe, and that we should do everything we could to save it.

In his 2010 testimony to the FCIC, Bernanke says (p. 22):

> [L]et me just state this as unequivocally as I can. As you know, before I came to the Fed Chairmanship I was an academic, and I studied for many years the Great Depression, financial crises, and this is my bread and butter. And I believed deeply that if Lehman was allowed to fail, or did fail, that the consequences for the U.S. financial system and the U.S. economy would be catastrophic.

In his 2015 memoirs, Bernanke describes his reaction when Geithner told him that Lehman would fail (p. 268):

> It was a terrible, almost surreal moment. We were staring into the abyss.... “All we can do,” Tim said, in a classic Geithner-ism, “is put foam on the runway.” The phrase itself conveyed what we all knew: Lehman’s collapse, like the crash landing of a jumbo jet, would be an epic disaster, and, while we should do whatever we could, there wasn’t much we could do.

Paulson and Geithner also say in their memoirs that they expected severe damage from Lehman’s failure. Paulson (p. 225) says he “worked hard for months to ward off the nightmare we foresaw with Lehman.” Geithner (p. 187) quotes himself as telling Bernanke, “It’s going to be a calamity.”

However, not every official claims that the Fed foresaw a calamity. Board General Counsel

Alvarez gives a different account in his interview with FCIC staff in July 2010 (about 44:00 in the audio recording). An interviewer asks, “What did you see those downsides as being if you pulled the plug on Lehman?” Alvarez says in part:

When Bear Stearns fell, that was unexpected, really unexpected... but once Bear Stearns did collapse and got sold off, the market was more attentive and they were looking at Lehman as the next one to fail... The market had signs that they should protect themselves from Lehman... [T]here was a lot more preparation, the market had an opportunity to shield itself, and I think we thought that the market was preparing itself better. And then when Lehman failed, it really did send reverberations throughout the market that were greater than I think we expected.

The statement that policymakers thought “the market had an opportunity to shield itself” is similar to Bernanke’s initial testimony about Lehman. The difference is, Alvarez gave this account in 2010, after Bernanke had settled on a different story.

Real-Time Evidence

Several sources help us understand policymakers’ expectations about the Lehman failure. In my reading of the evidence, Fed officials were uncertain about how this unprecedented event would affect the economy. They saw risks, but also expressed hope that the effects would be contained. They were *not* sure that the bankruptcy would be catastrophic.

Bernanke and Paulson on September 12 One bit of evidence comes from Henry Paulson’s memoirs (p. 187). Paulson describes his meeting with Ben Bernanke on the morning of Friday September 12, and quotes Bernanke as saying, “We can only *hope* that if Lehman goes, the market will have had a lot of time to prepare for it.” (Emphasis added.) If this quote is accurate, Bernanke’s attitude was somewhere between confidence that markets were prepared, which he suggested in his September 23 testimony, and certainty of disaster.

After their meeting, Bernanke and Paulson had a conference call with their staffs and SEC Chair Cox. Wessel (p. 11) summarizes the discussion:

Paulson and Bernanke assured each other–and the others on the call–that all the companies and traders that did business with Lehman had been given time to protect themselves from a possible Lehman bankruptcy. They comforted themselves that, since the Bear Stearns bailout, the Fed had found new ways to lend to other investment houses that might be hurt by a Lehman collapse.

Wessel's report that Bernanke and Paulson "assured each other" and "comforted themselves" suggests, again, that policymakers were uncertain of the effects of a Lehman failure and hoped for the best.

The September 14 Meeting at the New York Fed Another bit of evidence comes from the meeting at which General Counsel Baxter told Lehman executives to file for bankruptcy. Challenged to defend this decision, Baxter and Alan Beller, a lawyer representing the SEC, expressed optimism about limiting the damage from the bankruptcy. Their view was based on actions the Fed was taking, including the PDCF expansion and support for LBI, and the good news that Bank of America was buying Merrill Lynch.

Similar accounts appear in Sorkin (pp. 357-359) and in attorney Harvey Miller's written testimony to the FCIC. According to Sorkin, when Miller said the bankruptcy would have dire effects, Beller replied, "We have a program to calm the markets." Baxter reiterated, "We have a program." When Miller continued to object, Beller said, "Look, we will have a series of [press] releases that we are fairly confident will calm the markets tomorrow."

The September 16 FOMC Meeting The Federal Open Market Committee held a regularly scheduled meeting on the morning of Tuesday, September 16–after Lehman's bankruptcy filing but before the AIG rescue. The transcript was released in 2014. Meeting participants included two people who were present at the New York Fed over the previous weekend: Governor Warsh and William Dudley, the head of the New York Fed's Markets Group.

Most of the meeting was a normal FOMC discussion of the prospects for growth and inflation, and of the federal funds rate target. There was also a broad discussion of "strains in financial markets," with general agreement that the effects were uncertain. When people mentioned Lehman Brothers, it was usually to praise the decision to let it fail. All in all, it does not seem that anyone thought it obvious that the bankruptcy was a calamity.

For our purposes, the highlights of the meeting are the following:

- Chairman Bernanke opens the meeting by saying:

> The markets are continuing to experience very significant stresses this morning, and there are increasing concerns about the insurance company AIG.

Bernanke also reports, "there are very significant problems with dollar funding in other jurisdictions–in Europe and elsewhere," and says he will propose currency swap lines. He does not mention Lehman Brothers.

- Dudley, in his capacity as Open Market Manager, briefs the Committee on developments in financial markets. He discusses the Lehman failure along with a number of other topics. He notes several effects of the bankruptcy: "intensified pressure on Morgan Stanley and Goldman Sachs," including decreases in their share prices; withdrawals from money market funds; and disruptions in trading by LBI (despite the fact that LBI was still in business). Dudley does not discuss how the bankruptcy will affect the overall financial system or economy.

- Three Fed Presidents praise the decision to let Lehman fail: James Bullard of St. Louis, Jeffrey Lacker of Richmond, and Thomas Hoenig of Kansas City. Hoenig, for example, says (p. 51):

> I think what we did with Lehman was the right thing because we did have a market beginning to play the Treasury and us, and that has some pretty negative consequences as well, which we are now coming to grips with.

Only one person questions this view, President Eric Rosengren of Boston. He says (p. 51), "I think it's too soon to know whether what we did with Lehman is right."

- Governor Warsh discusses the Fed's responses to the Lehman failure, such as the PDCF expansion. His assessment is fairly upbeat (pp. 61-62):

I think the work that was done over the past few days on Lehman Brothers should make us feel good in one respect. Market functioning seems to be working okay–by which I mean that the plumbing around their role in the tri-party repo business, due in part to the Fed's actions, seems to be working. It's ugly. The backroom offices of these places are going crazy. There's a lot of manual work being done. So they wouldn't give it high marks. But it looks as though positions are being sorted out in a tough workmanlike way, and so that's encouraging.

Warsh also downplays the importance of the Lehman failure relative to the problems at AIG:

Other than the CDS moves and the equity moves on the other broker-dealers, Goldman Sachs and Morgan Stanley, I don't think that [the Lehman bankruptcy] is the real specter that's casting some question over broader financial institutions. I think the Lehman situation, no matter what judgment we made this past weekend about whether or not to provide official-sector money, is not what is driving markets broadly outside of the investment banks. What's driving the broader uncertainty are questions about institutions like AIG that were rated AAA, that were so strong that counterparties didn't need collateral, and that were a certain bet to be a guarantor around stable value funds and all sorts of other products.

- At the end of the meeting, Bernanke summarizes the discussion and adds his assessment of inflation and the real economy. He also discusses financial stresses (p. 71):

Conditions clearly have worsened recently, despite the rescue of the GSEs, the latest stressor being the bankruptcy of Lehman Brothers and other factors such as AIG.

Bernanke mentions a number of problems, including tight credit conditions and difficulties in raising capital for financial institutions. Yet his conclusion is equivocal:

[T]he medium-term implications of the recent increases in financial stress for the economy are difficult to assess. We may have to wait for some time to get greater clarity on the implications of the last week or so.

- Bernanke recommends no change in the federal funds rate target of 2%, and the Committee approves unanimously. In the statement accompanying its decision, the Committee gives equal weight to "the downside risks to growth" and "the upside risks to inflation."[35]

[35] President Rosengren of Boston advocates a quarter-point cut in the funds rate, but he is not a voting member of the Committee.

14.3 THE SHIFT ON AIG

To understand the Lehman episode fully, we must understand why policymakers abandoned their no-bailout position on September 16 to rescue AIG. As I have discussed at length, the explanation that AIG had better collateral than Lehman is not credible. It is challenging to discern policymakers' motives, but we can make our best assessment of the available evidence.

Paulson and Geithner initially opposed an AIG rescue. It appears that they maintained this position until September 16, when they changed their minds. What caused this change?

Two factors appear relevant. First, policymakers decided that an AIG bankruptcy would be disastrous for the economy, in part from studying the firm and in part from observing the aftermath of the Lehman bankruptcy. Second, as many commentators suggest, the Lehman episode made it somewhat easier to justify an AIG rescue to politicians. Because of these two developments, fear of economic disaster trumped fear of political criticism when policymakers decided what to do about AIG.

The Last-Minute Change in Policy

Until the very end, AIG's crisis paralleled Lehman's in many ways. AIG was threatened by a liquidity crisis and asked the Fed for help. Policymakers refused, and worked to arrange a private-sector rescue. It appears that, until September 16, policymakers sincerely intended not to aid AIG; their refusal of assistance was not just a bargaining position.

AIG first requested Fed assistance on September 9. In his memoirs, Timothy Geithner says (p. 176): "At the time, I still thought it was almost inconceivable that the Fed would ever help out a troubled insurance company." Geithner maintained that position for the rest of the week. The Congressional Oversight Panel for TARP quotes Geithner as saying that, on the night of September 14, "it still seemed inconceivable that the Federal Reserve could or should play any role in preventing AIG's collapse" (COP, p. 52).

On Monday September 15, Geithner organized the consortium of financial institutions that considered a private-sector rescue of AIG (see Section 12.3). According to Sorkin, Geithner told the group, "I want to be very clear: Do not assume you can use the Fed balance sheet" (p. 383). That evening, he reiterated, "There's no government money for this" (p. 388).

Geithner reports that he changed his mind after a conference call with Treasury and Fed officials at 3:00 AM on September 16. He says (p. 193):

A few days earlier, I thought there was no way we should help an insurance company. By early Tuesday, September 16, I had changed my mind. Letting AIG fail seemed like a formula for a second Great Depression. It was essential that we do everything in our power to try to avoid that.

On September 15, Secretary Paulson took the same position in public that Geithner was taking at the New York Fed. Reporters at Paulson's news conference asked him about efforts to rescue AIG, and he replied (quoted in Sorkin, p. 386):

Let me say that what is going on right now in New York has nothing to do with any bridge loan from the government. What's going on in New York is a private-sector effort....

The next day, Geithner persuaded Paulson to change his mind. Sorkin relates (p. 396):

However resistant Hank Paulson had been to the idea of a bailout, after getting off the phone at 10:30 AM with Geithner, who had walked him through the latest plan, he could see where the markets were headed, and it scared him.... [Chief of Staff] Jim Wilkinson asked incredulously, "Are we really going to rescue this insurance company?" Paulson just stared at him as if to say that only a madman would just stand by and do nothing.

Paulson's acquiescence to Geithner's plan contrasts with his behavior in the Lehman episode. As discussed above, when Geithner suggested assistance to Lehman, Paulson told him "to stand down."

<u>Fears About an AIG Failure</u>

Policymakers say they rescued AIG because its failure would have been disastrous for the economy. In his FCIC interview, Bernanke says, "if we let it fail, the probability was 80 percent that we would have had a second depression" (p. 25). Paulson told a Congressional committee, "had AIG failed... unemployment easily could have risen to the 25% level reached in the Great Depression" (House Oversight Committee, 2010). Geithner (p. 194) says the Fed rescued AIG because "it was our only hope of avoiding unimaginable carnage."

By themselves, these statements do not fully explain the different treatment of AIG and Lehman. Policymakers did not rescue Lehman even though, they say, they expected the firm's failure to be "a catastrophe" and "an epic disaster." However, the real-time evidence suggests that policymakers were more worried about AIG than about Lehman, especially on September 15-16.

One reason was that policymakers observed the immediate results of the Lehman failure. Henry Paulson and economist Alan Blinder (2013) summarize these developments with the same phrase: "All hell broke loose." Stock prices fell sharply and there were upward spikes in the LIBOR-OIS spread and CDS premiums for the remaining investment banks. On the evening of September 15, Paulson heard the "startling" news that General Electric was having trouble selling commercial paper, which led him to worry about another Great Depression (pp. 227-228). The next morning, Paulson learned that LBIE's UK bankruptcy administrator had seized assets belonging to LBIE's customers, "a completely unexpected–and potentially devastating–jolt" (p. 230).

A complementary source of concern was information received by policymakers about AIG. Geithner says he "went into that weekend [September 13-14] with very little knowledge about the company" because the Fed did not supervise AIG (p. 184). He assigned a staff group to study the company's situation, and its reports were dire. At 3:16 AM on September 16, Geithner received an analysis suggesting that AIG's failure would do more damage than Lehman's, because of AIG's derivatives positions and its retail businesses, among other factors (Congressional Oversight Panel, fn 252).

Participants in the September 16 FOMC meeting also seem more worried about AIG than about

Lehman, as discussed above. In his opening remarks, Bernanke mentions "increasing concerns about the insurance company AIG" and does not mention Lehman. Governor Warsh says that AIG, not Lehman, "is the real specter that's casting some question over broader financial institutions."

A final piece of evidence is Bernanke's Congressional testimony on September 23. On that occasion, Bernanke downplays the effects of the Lehman bankruptcy, saying "counterparties had time to take precautionary measures," but says the failure of AIG "would have severely threatened global financial stability" (see Section 9.2).

Political Effects of Lehman's Failure

Many commentators suggest that the Lehman bankruptcy changed policymakers' political calculations. When Congress and the public observed the panic that followed the bankruptcy, opposition to bailouts diminished somewhat, and that made policymakers more willing to rescue AIG and other firms. Nocera (2009) says, "Lehman had to die so that the rest of Wall Street could live." Some compare the Lehman failure to the attack on Pearl Harbor, which persuaded Congress to enter World War II (e.g, Ickes, 2009).

Fed policymakers have not discussed the politics of the AIG rescue. However, Bernanke suggests that Lehman's bankruptcy was critical to political support for another public rescue, the TARP. He writes (p. 291), "It seems clear that Congress would never have acted absent the failure of *some* large firm and the associated damage to the system."

15. CONCLUSION

In his 2015 memoirs, Ben Bernanke says (p. 291):

> I do not want the notion that Lehman's failure could have been avoided, and that its failure was consequently a policy choice, to become the received wisdom, for the simple reason that it is not true.

At another point, Bernanke says (p. 288):

> If a means of saving Lehman did exist, given the tools then available, we were not clever enough to think of it during those frenetic days.

This paper disputes Bernanke's claims. It *is* true that Lehman's failure could have been avoided, and policymakers did not need to be clever to achieve that outcome. Lehman only needed the kind of liquidity support that the Fed provided to other financial institutions. In particular, Lehman probably could have survived if the Fed did not restrict its access to the Primary Dealer Credit Facility on September 14.

In his final speech as Fed Chair, Bernanke (2014) says:

> Fostering transparency and accountability at the Federal Reserve was one of my principal objectives when I became Chairman in February 2006.

Bernanke discusses transparency about interest-rate policy, and then says:

> As it happened, during the crisis and its aftermath the Federal Reserve's transparency and accountability proved critical in a quite different sphere–namely, in supporting the institution's democratic legitimacy.

Transparency, Bernanke says, requires "thoughtful explanations of what we are doing and why" to Congress and the public.

Yet Fed officials have not been transparent about the Lehman crisis. Their explanations for their actions rest on flawed economic and legal reasoning and dubious factual claims. The Financial Crisis Inquiry Commission pushed officials for better explanations and for supporting evidence, but to no avail.

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