The Journal of Financial Crises

Volume 1 | Issue 1

2019

The Lehman Brothers Bankruptcy A: Overview

Rosalind Z. Wiggins
Yale Program on Financial Stability, Yale School of Management

Thomas Piontek
Research & Analysis, Office of Financial Research, U.S. Department of the Treasury

Andrew Metrick
Yale Program on Financial Stability, Yale School of Management

The Lehman Brothers Bankruptcy A: Overview[1]

Rosalind Z. Wiggins[2]
Thomas Piontek[3]
Andrew Metrick[4]

Yale Program on Financial Stability Case Study 2014-3a-V1
October 1, 2014, Revised: July 10, 2015

Abstract

On September 15, 2008, Lehman Brothers Holdings, Inc., the fourth-largest U.S. investment bank, sought Chapter 11 protection, initiating the largest bankruptcy proceeding in U.S. history. The demise of the 164-year old firm was a seminal event in the global financial crisis. Under the direction of its long-time Chief Executive Officer Richard Fuld, Lehman had been very successful pursuing a high-leverage, high-risk business model that required it to daily raise billions of dollars to fund its operations. Beginning in 2006, Lehman began to invest aggressively in real-estate-related assets and soon had significant exposures to housing and subprime mortgages, just as these markets began to sour. Lehman employed a cadre of accountants and risk professionals to continually monitor its balance sheet, key ratios, and risks. It undertook desperate and questionable actions to stay alive. Nevertheless, Lehman ultimately failed because of an inability to finance itself. This overview case provides background information about Lehman's business and key personnel and also the economic

---

[1] This case study is one of eight Yale Program on Financial Stability (YPFS) case modules considering the Lehman Brothers Bankruptcy:

- *The Lehman Brothers Bankruptcy A: Overview*
- *The Lehman Brothers Bankruptcy B: Risk Limits and Stress Tests*
- *The Lehman Brothers Bankruptcy C: Managing the Balance Sheet Through the Use of Repo 105*
- *The Lehman Brothers Bankruptcy D: The Role of Ernst & Young*
- *The Lehman Brothers Bankruptcy E: The Effects on Lehman's U.S. Broker-Dealer*
- *The Lehman Brothers Bankruptcy F: Introduction to the ISDA Master Agreement*
- *The Lehman Brothers Bankruptcy G: The Special Case of Derivatives*
- *The Lehman Brothers Bankruptcy H: The Global Contagion*

Cases are available at the Journal of Financial Crises.

[2] Director, The Global Financial Crises Project and Senior Editor, YPFS, Yale School of Management

[3] Research & Analysis, Office of Financial Research, U.S. Department of the Treasury. **Views and opinions expressed are those of the author and do not necessarily represent official OFR or Treasury positions or policy.**

[4] Janet L. Yellen Professor of Finance and Management, and YPFS Program Director, Yale School of Management

environment during 2006-2008. It may be utilized individually or in connection with any of the other seven YPFS Lehman case studies.

1. Introduction

On September 15, 2008, Lehman Brothers Holdings, Inc. sought Chapter 11 protection, initiating the largest bankruptcy proceeding in United States (U.S.) history. It declared $639 billion in assets and $613 billion in debts. At the time, Lehman was the fourth-largest U.S. investment bank, with 25,000 employees worldwide, a far cry from its humble beginnings in 1844 in Montgomery, Alabama, as a dry-goods store. Despite being thought "too big to fail," the federal government did not employ extraordinary measures to save Lehman, such as the enabling financing it had facilitated for J.P. Morgan Chase's purchase of a failing Bear Stearns just six months earlier. Lehman's demise was a seminal event in the financial crisis that began in the U.S. subprime mortgage industry in 2007, spread to the credit markets, and then burned through the world's financial markets. The crisis resulted in significant and wide losses to the economy. Estimates of the cost to the U.S. economy based on lost output (value of goods and services not produced) range from a few trillion dollars to over $10 trillion (GAO 2013). And this is despite the unprecedented efforts of the U.S. Federal Reserve, the U.S. Treasury, the Federal Deposit Insurance Corporation (FDIC), and the central banks of the world's developed countries to intervene and stabilize their economies.

One cause of Lehman's demise was its significant exposure to the U.S. subprime mortgage and real estate markets. When these markets began to slow down, they sparked a retraction in the "shadow banking system" for short-term loans as concerns about unknown exposures to securitized subprime mortgages spread to other types of assets. Lehman, like most investment banks, relied on these short-term markets to raise billions of dollars each day. Ultimately, it was an inability to secure funding that was Lehman's undoing.

Other factors contributing to Lehman's failure, which are examined in detail in the other YPFS Lehman case studies were: (1) a highly-leveraged, risk-taking business strategy supported by limited equity; (2) a culture of excessive risk-taking; (3) complicated products and corporate structures that spread operations and risks across borders, and (4) regulatory gaps that ignored the systemic risks posed by large global firms like Lehman. These and other issues are examined in detail in the other seven YPFS Lehman case studies. Any of the cases may be utilized individually or with any or all of the others. (See Footnote 1.)

This overview module introduces participants to Lehman Brothers' history, operations, and personnel, as well as the market and regulatory environment in which it found itself in 2007. The balance of this overview module is organized as follows: Section 2 provides a history of Lehman Brothers; Section 3 focuses on Lehman's operations during 2006-2008; Section 4 discusses actions taken and not taken by Lehman's regulators; Section 5 identifies Lehman's executive management and board of directors; Section 6 discusses the causes of the financial crisis; and Appendix A presents a timeline of the major events of the financial crisis.

Questions

1. How does management operate in a crisis, especially when choosing between options that are all unfavorable?
2. What role did shadow banking play in Lehman's collapse?

3. Did Lehman have appropriate corporate governance structures and internal controls in place? Did these structures and controls operate as intended? Were they valuable in affecting a corporate culture that was compliant with the *letter* and *spirit* of the law?
4. What role did dissent play in the corporate context? Is it useful in influencing desirable outcomes? Does employee dissent present investigative opportunities for regulators?
5. Given the complex structures of institutions like Lehman, were the regulators adequately prepared to examine and assess its overall functioning? How can regulators ensure that they stay current on industry developments?
6. Were there gaps in the regulatory scheme? Have changes to the regulatory system adequately addressed these gaps?
7. With the benefit of hindsight, what do you think Lehman's management should have done differently?
8. What should the government regulators have done differently?

2. The History of Lehman Brothers

Lehman's Founding and Early Years

In the mid-1800s, Henry, Emanuel, and Mayer Lehman emigrated from Germany, to Montgomery, Alabama, where, in 1844, they established a small shop selling groceries to the local cotton farmers. Since the farmers often paid their bills in cotton, the brothers soon found that their business relied as much on selling cotton as dry goods. Deciding to focus on trading cotton, in 1858 the brothers established a New York office and were instrumental in setting up the New York Cotton Exchange. The brothers also began trading other commodities, as well as helping companies raise capital in the bond and equity markets. In 1887, Lehman Brothers became a member of the New York Stock Exchange, establishing the company in securities trading and providing a foundation for the underwriting business.

In the early 1900s, Lehman Brothers developed its banking practice by helping to intermediate funding for the emerging group of retail, industrial, and transportation giants that were founded during this period. Robert Lehman, a grandson of Emanuel Lehman, took over the firm in 1925 and led the company until his death in 1969. During Robert Lehman's tenure, Lehman Brothers became a well-known investment bank, working with leading U.S. and international companies in underwriting securities offerings, providing financial advice, and helping in mergers and acquisitions. Lehman Brothers was organized as a partnership and was privately owned and family-controlled until Robert Lehman's death; he was the last of the Lehman family to work at the firm.

Acquisition by and Divestment from American Express

After Robert Lehman's death, the firm went through a period of drift. Then in 1973, the partners brought in Peter G. Peterson, a retired U.S. secretary of commerce and former chief executive officer (CEO) of Bell and Howell to lead the firm. Peterson had a patrician demeanor and a vast number of influential contacts and so was particularly favored by the Lehman investment bankers. Their practice relied on developing long-term relationships in order to secure big financings and mergers. Under Peterson's leadership, Lehman Brothers flourished, becoming profitable and expanding through acquisitions. The firm also established international offices and become a sophisticated global enterprise operating in three business segments: investment banking, capital markets, and client services.

However, during the decade of Peterson's leadership, the financial service industry was changing. First there was the "de-clienting" of the investment banking practice. As more companies hired their own internal financial vice presidents, they selected investment banks on a deal-by-deal basis, rather than on the basis of established relationships. Corporations sought sophisticated new products and solutions such as commercial paper and went with the best deal on offer. Traders—who were viewed as more rough-and-tumble than their investment-banker counterparts—were often the designers of these new offerings, which proved very profitable. In addition, due to deregulation, pension and mutual funds played a larger role in the stock market. Investment firms that attracted these growing funds as clients were able to book huge volumes of trades.

During the recession in the early 1980s, internal conflicts broke out between the investment bankers and traders at Lehman. Although they generated a healthy and growing portion of the profits, traders had only a minority of the partnerships and received a share of the profits that they considered unfairly small. Lewis L. Glucksman, a 20-year Lehman veteran and highly successful trader with a straightforward but engaging style that some bankers thought unsophisticated, challenged Peterson who, in 1983, appointed him co-CEO. Given the opportunity, Glucksman quickly seized control, and within the year, Peterson had announced his retirement, and Glucksman became sole CEO.

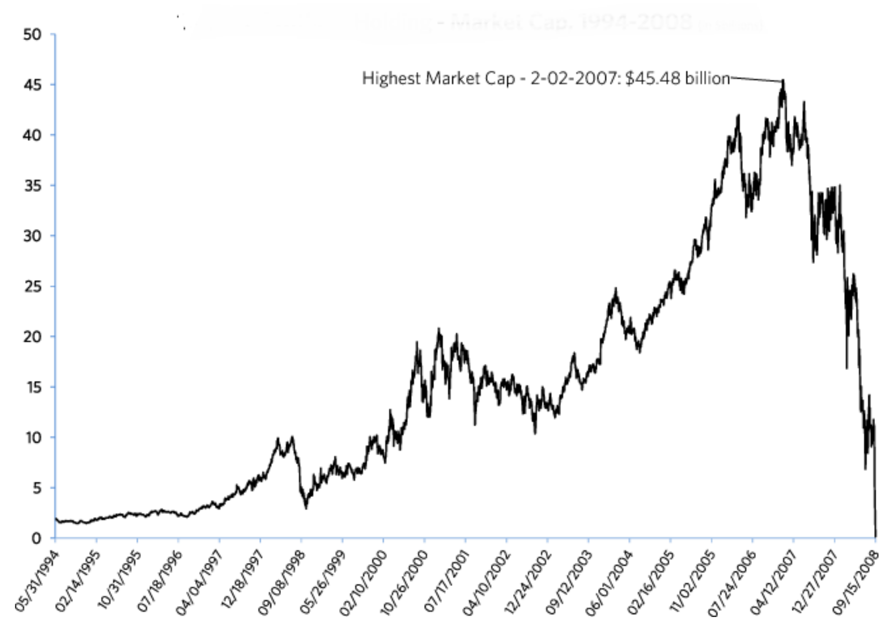
Glucksman, however, was not able to heal the wounds among the partners and rebuild the divided firm into an integrated whole. Some partners left, and profits weakened. In 1984, the year after Glucksman become CEO, the partners sold the firm to American Express, which merged the firm with its Shearson financial subsidiary to become Shearson Lehman Brothers. (For a more detailed narrative of Lehman under Peterson and Glucksman, see Auletta 1986.)

In the 1990s, American Express decided to concentrate on its core businesses in personal finance and travel. In 1994, it spun off Lehman Brothers Holdings in an initial public offering, which capitalized the firm at $3.3 billion. Richard (Dick) Fuld, a lifelong Lehman employee, who had been Lehman's CEO under American Express (and a protégé of Glucksman, sharing some of his character traits), became chairman and CEO of the new firm.

Growth and Expansion

Under the direction of Dick Fuld, Lehman expanded its portfolio of services to include the more risky and complex financial products that were being developed during the 2000s in the wake of deregulation of the financial industry. A particular keystone of this deregulation was the 1999 repeal of the Glass-Steagall Act that had prohibited affiliations between commercial banks and investment banks and their activities.

Figure 1: Lehman Brothers Holding – Market Capitalization 1994-2008 (in $billions)



Source: CRSP data.

Lehman aggressively pursued opportunities in proprietary trading (trading with its own money to make a profit for itself rather than for its clients), derivatives, securitization, asset management, and real estate. In 2000, proprietary trading comprised 14% of the firm's total revenues. By 2006, that figure had increased to 21%. The change in business composition was accompanied by significant growth in revenues and an increase in market capitalization. (See Figure 1.) From 2000 to 2006, the firm's revenue growth of 130% outpaced that of its rivals, Goldman Sachs and Morgan Stanley. During Fuld's tenure, the firm's revenues grew 600%, from $2.7 billion in 1994 to $19.2 billion in 2006. Equity markets recognized this performance by bidding up the firm's stock price such that its market capitalization appreciated by some 340% over the same period. Again, this significantly outpaced its rivals' growth.

3. Lehman in 2006-2008

By 2006 Lehman operated in three business segments: capital markets, investment banking, and investment management, providing a full array of services in equity and fixed income sales, trading and research, investment banking, asset management, private investment management, and private equity. The firm was headquartered in New York and maintained regional headquarters in London and Tokyo, from which it conducted a complex and sophisticated global business (Lehman 2007, 3-14). Lehman's operations were subject to regulation by a number of governmental and industry organizations in the U.S. and abroad including: the U.S. Securities and Exchange Commission (SEC), then the main U.S. regulator for investment banks, and the (U.K.) Financial Services Authority. (See Section 4, Regulator Nonaction below. Also see Wiggins et al. 2014E**,** which describes Lehman's complex structure and the role of its regulated U.S. broker-dealer.)

For several years prior to 2007, the markets for securitization of mortgage-backed securities (MBS) and subprime mortgages had expanded rapidly as a result of the worldwide glut of available funds and the high growth in the U.S. housing market. (See Section 6, Causes of the Financial Crises below.) Initially banks such as Lehman would buy mortgages to incorporate into their MBS, but as securitization became an increasingly profitable business, many of Wall Street's investment banks expanded their operations to include loan origination. Lehman did so by acquiring BNC Mortgage and four other mortgage lenders from 2003 to 2004. By 2007, Lehman was a leading underwriter of—and market-maker in—residential and commercial MBS and was active in all of the areas related to secured lending, structured finance, and securitized products. (In *YPFS* case study Wiggins and Metrick 2014H, we discuss securitization and the role it played in the financial crisis. For a detailed description of Lehman's new strategy and securitization business, see the Examiner's Report**,** Vol. 1, pages 58-114.)

A New Business Strategy

In March 2006, despite rumblings that the housing market had peaked, Lehman Brothers adopted a new business strategy aimed at capitalizing on its significant experience with real estate. (Another reason may have been that the firm had previously been successful in pursuing a counter-cyclical strategy in the 1980s.) Prior to 2006, Lehman would acquire assets primarily to "move" them to third parties through securitization, but with its new strategy, as it sought greater market share and profits, it acquired assets to "store" them as its own investments, retaining the risk and returns of those investments on its books in hopes of greater profits. The targeted growth areas were its proprietary businesses—commercial real estate, leveraged loans (loans to highly leveraged, or speculative-grade, firms that usually offered higher returns in exchange for increased credit and liquidity risk) and private equity—businesses that put more capital at risk, especially if an investment turned sour, and which were more illiquid than Lehman's traditional lines of business.

The firm aggressively bought real-estate-related assets throughout 2006, and by mid-2007, Lehman held significant positions in commercial real estate. This made it difficult for it to raise cash, hedge risks, and/or sell assets to reduce leverage in its balance sheet, all critical to its health in a difficult financial environment (Examiner's Report, Vol. 1, 62-3). Even though the U.S. housing prices began to decline in mid-2006, Lehman continued to originate subprime mortgages and increase its real estate holdings as other parties exited the market.

In August 2007, Lehman announced that it would close its main subprime origination platform and its Korean mortgage business (BNC Mortgage). It also suspended its wholesale and correspondent lending activities at its Aurora Loan Services subsidiary. Yet, in October 2007, it acquired the Archstone Real Estate Investment Trust, the largest residential REIT in the U.S., amid concerns from rating agencies and investors that it was overpaying for the deal.

At the end of its 2007 fiscal year, Lehman Brothers held $111 billion in commercial or residential real-estate-related assets and securities, more than double the $52 billion that it held at the end of 2006, and more than four times its equity. Increasingly, rating agencies and investors expressed concerns regarding these types of assets due to the illiquidity of the market for them and to the substantial losses that other firms experienced in these categories. The constant revaluation by Lehman Brothers of these types of assets would contribute to significant write-offs throughout 2008.

Leverage Concerns

One measure of a company's capital adequacy that investors and regulators look to is leverage, which is the relationship of assets to equity. Lehman computed and reported this measure by dividing assets by stockholders' equity. In November 2007, Lehman reported a leverage ratio of 30.7x (Lehman 2007, 29). This ratio had been 23.9x in 2004 (Ibid.) and had remained somewhat constant until 2006 when Lehman adopted a more aggressive growth strategy. (See Figure 2.)

Lehman's high-leverage, high-risk business model was similar to that of its peers. Each of the largest investment banks took on more leverage leading up to the crisis. This strategy enabled them to pursue growth and increase profits while maintaining limited capital. Figure 3 compares Lehman's leverage to that of its peers (using a measure of total debt divided by stockholders' equity). Excessive leverage would be revealed to be one of the factors contributing to the financial crisis.

Beginning in mid-2007, real estate markets began to show signs of weakening. Lehman and other investment banks came under greater scrutiny regarding the value of their real-estate-related assets and their liquidity. Rating agencies and analysts began demanding that the investment banks reduce their leverage. To reduce leverage, firms have two choices—to increase equity or to sell assets. While Lehman did raise $6 billion in additional capital in early 2008, it preferred to sell assets.

But this strategy proved challenging for Lehman. In January 2008, Fuld instituted a deleveraging strategy to reduce Lehman's real-estate positions, but Lehman was unsuccessful at selling such assets at acceptable prices, given the slowing of the market. Also, Lehman was reluctant to sell such assets at discounted prices. Not only would doing so risk Lehman taking losses on the sold assets, but it would call into question the value of its remaining assets of similar type and compel Lehman to mark them to market value, potentially recognizing losses.

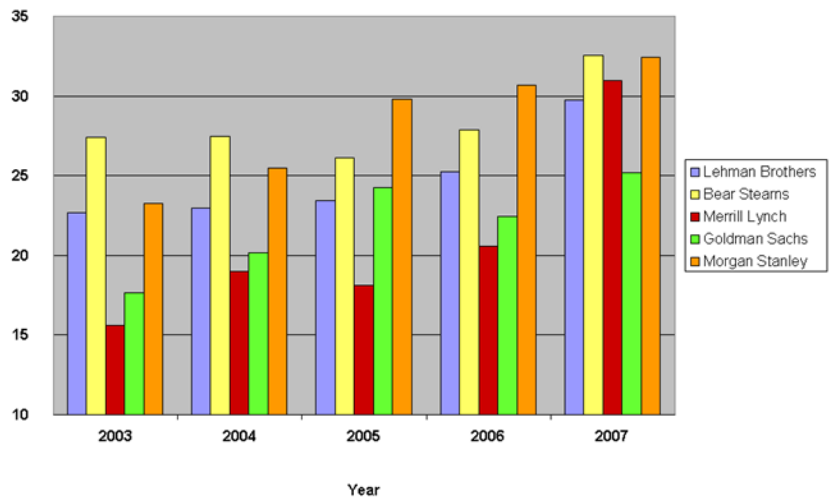
Figure 2: Lehman's Reported Gross Leverage Ratios, 2003-2007

Year	2007	2006	2005	2004	2003
Leverage Ratio Reported*	30.7x	26.2x	24.4x	23.9x	23.7X

*Total assets divided by stockholders' equity.

Source: Lehman 2007, 29.

Figure 3: Leverage Ratios for Major Investment Banks



Leverage Ratio equals total debt divided by stockholder's equity and is regarded as a measure of risk taken by a firm.
Source: Wikicommons from Company Annual Reports.

Repo 105

As solutions failed to materialize, Lehman tried to buy time. It exceeded its internal risk limits and manipulated its liquidity pool—by including assets that were encumbered—and internal stress tests—by not including certain risky assets. (See YPFS case study Wiggins and Metrick 2014B for a discussion of these issues.) In addition, and significantly, Lehman escalated its use of a particular type of sale and repurchase (repo) transaction, known as "Repo 105," to manage its balance sheet and net leverage ratio and to make them appear better than they were.

As noted earlier, like most of its peers, Lehman pursued a highly leveraged business model that required it to raise billions of dollars in funding each day just to operate. Like most investment banks, it relied heavily on the unregulated short-term wholesale funding of commercial paper loans and repos carried by investment banks, hedge funds and other institutional investors—the "shadow banking system."[5]

[5] The shadow banking system is the name given to the network of financial institutions ("shadow banks") that participate in financing activities outside of the federally regulated and insured banking system. This includes hedge funds, investment banks, and money funds. Whereas depository banks insure liquidity through the Federal Reserve System and federal deposit insurance, financial institutions in the shadow banking system gain liquidity by offering assets as collateral for short-term borrowings from other institutions. Shadow banks loan funds through a wide range of securitization and secured funding techniques such as asset-backed commercial paper (ABCP), asset-backed securities (ABS), collateralized debt obligations (CDOs), and repurchase agreements (repos). Although no official estimate is available, the size of this market has been estimated to be between $10 and $16 trillion, or equal to, or in excess of, the U.S. commercial banking sector (Gorton and Metrick 2012, 5; Pozar, et al., 2012, 1).

A sale and repurchase agreement (repo) is essentially a short-term loan that is secured by collateral delivered to the lender by the borrower. The borrower agrees to repurchase the collateral when it repays the loan. Repo 105 was a type of repo in which the collateral delivered equaled at least 105% of the loan. Most repos are treated as "financings," with the collateral remaining on the books of the borrower, but Repo 105s were treated as "sales," and as a result, the borrower (Lehman) could remove from its books the collateral that it delivered to the lender. (See Wiggins et al. 2014C, which discusses these issues in more detail, and Wiggins et al. 2014D, which discusses the role of Lehman's independent auditor.)

Lehman significantly escalated its reliance on Repo 105 transactions during late 2007 and into 2008, removing as much as $50 billion dollars of assets from its balance sheet at quarter-end, impacting its publicly reported leverage ratio. Anton Valukas, the bankruptcy examiner, found that these transactions had a material impact on Lehman's financial results and should have been disclosed in its SEC reporting—which they were not. Dick Fuld later testified, "I have absolutely no recollection whatsoever of hearing anything about Repo 105 transactions while I was CEO of Lehman."

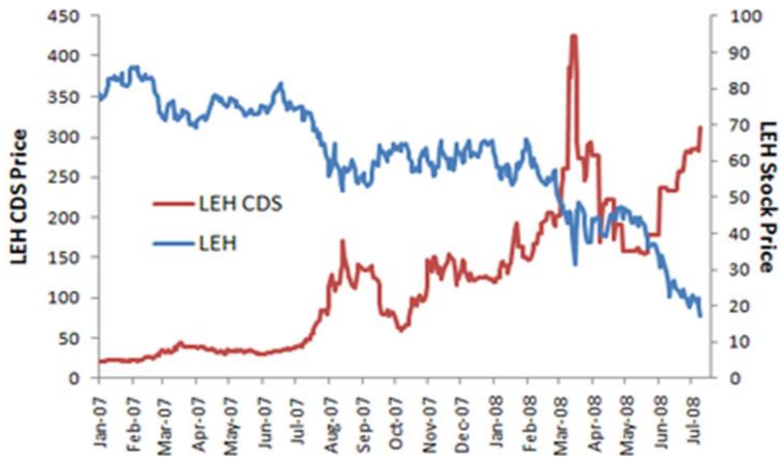
Liquidity Problems

Lehman's long-term assets were being funded by short-term debt (e.g., repo agreements and commercial paper), and Lehman borrowed billions of dollars each day in the overnight wholesale funding markets in order to operate. By early 2008, other institutions were less likely to accept Lehman securities as collateral (or, alternatively, demanded more collateral for a given level of financing, thereby eroding Lehman's ability to continue to carry out its short-term obligations).

Following the near collapse of Bear Stearns in March 2008, precipitated by a liquidity crisis, rumors circulated that Lehman would be the next bank to go under. As Lehman's perceived financial position worsened, it faced a higher cost of credit. Some lenders withdrew from the firm, refusing to roll over its repos, others demanded bigger haircuts (discounts), and still others refused to accept all but a narrow type of collateral, refusing Lehman's real-estate-related assets and rendering them even more ineffective. For example, between June and August 2008, Lehman delivered an additional $9.7 billion to J.P. Morgan Chase to support its securities clearing and triparty services (wherein it acted as agent for Lehman's repo transactions). Also, uncomfortable with the collateralized debt obligations (CDOs) that Lehman delivered, J.P. Morgan requested additional collateral, but would only accept cash.

Other lenders made similar demands, severely restricting Lehman's access to funding. Before its failure, $200 billion of Lehman's assets were funded with secured overnight loans, largely repos, 80% of which came from 10 institutions. Hesitation or stricter standards by a small number of lenders could (and did) cause significant funding problems for the firm.

Figure 4: LEH Stock vs. Default Risk



Source: Bespoke Investment Group.

As further evidence of the market's declining opinion of Lehman's financial health, beginning in mid-2007, the spreads on its credit default swaps (contractual coverage that a party buys to protect itself against the possible default of a corporate or sovereign borrower, i.e., a market-implied, price-based measure of credit risk) began to rise (as shown in Figure 4). (See Examiner's Report, Vol. 4, pages 1066-84 and 1401-81 for discussion of how Lehman struggled with its shrinking liquidity.)

Searching for a Solution

After the demise of Bear Stearns, Lehman began casting around for a long-term strategy that would secure the firm's future and allay the market's fears. It considered several options, including increasing equity, spinning off "toxic" assets (generally real-estate-related assets) into a separate publicly held corporation, and discussing a sale of the firm, or a capital infusion, with the Korea Development Bank. Lehman was successful in raising $6 billion in equity in June 2008, despite a reported second quarter loss of $2.8 billion, its first since it went public, which was caused in part by a $3.7 billion write-down on its portfolio of mortgage-related assets and leveraged loans. But this was not enough to quell the rumors.

A solution failed to materialize, and on September 10, 2008, Lehman announced that it expected $5.6 billion dollars in write-downs on its toxic assets and an expected loss of $3.93 billion for its third quarter. It also announced that it planned to spin off $50 billion of its toxic assets into a publicly traded corporation in order to separate them from the remaining "healthy" firm.

The news did not have the positive effect that Lehman desired. The rating agency Moody's Investors Service announced that it planned to lower Lehman's debt ratings if a "strategic transaction with a strong financial partner" did not occur soon. Even though Lehman continued to desperately seek such a partner, with the intercession of the U.S. Treasury and other government agencies as described below in *Regulator Nonaction,* ultimately it failed to secure a firm commitment within the next week. As a result, it was unable to fund its operations for opening on September 15, compelling it to file for Chapter 11 bankruptcy protection. (See Lehman Brothers press release dated September 10, 2008 and Lehman Brothers press release dated September 15, 2008.)

4. Regulator Inaction

Lehman's operations were subject to supervision by a number of governmental and industry organizations, including its primary regulator, the SEC, the Chicago Mercantile Exchange (CME), which regulated certain derivatives, the Office of Thrift Supervision, which supervised Lehman's thrift subsidiary, and the New York Federal Reserve Bank (NYFED)[6]. After it filed for bankruptcy, many questions were raised about the efficacy of these agencies' oversight. YPFS case studies Wiggins and Metrick 2014B and Wiggins and Metrick 2014C consider the actions of the regulators and many of these questions.

Following the near collapse of Bear Stearns in March 2008, the SEC and the NYFED stepped up their supervision of Lehman; both agencies placed employees on site and required daily reports. Despite reviewing daily reports regarding Lehman's leverage and liquidity, neither agency took any preventive or corrective action pursuant to its authority.

In the aftermath of Lehman's bankruptcy filing, Anton Valukas, the bankruptcy examiner, criticized the agencies for not taking a more active role in preventing the firm's failure: "So the agencies were concerned. They gathered information. They monitored. *But no agency regulated"* (Valukas Statement, 6). He was particularly critical of the SEC, Lehman's primary regulator:

> The SEC *knew* that Lehman was reporting sums in its reported liquidity pool that the SEC did not believe were in fact liquid; the SEC *knew* that Lehman was exceeding its risk control limits; and the SEC *should have known* that Lehman was manipulating its balance sheet to make its leverage appear better than it was. Yet even in the face of actual knowledge of critical shortcomings, and after Bear Stearns' near collapse in March 2008 following a liquidity crisis, the SEC did not take decisive action." (Ibid., 7-8).

(For additional information on this topic see: Examiner's Report, Vol. 4, pages 1482-1536 for a thorough analysis of the government's oversight of Lehman; US SEC, September 15, 2008 for the agency's response to Lehman's bankruptcy; a later statement by Chairman Cox regarding the SEC's supervision of Lehman Cox (2010); and Baxter (September 2010) regarding the Federal Reserve Bank of New York's response to Lehman.)

The Lehman Weekend and the Bankruptcy Filing

On the weekend of September 12-14, 2008, amid repeated pronouncements that the government would not bail out the firm, Timothy Geithner, president of the NYFED, collaborated with Henry (Hank) Paulson, U.S. treasury secretary, and Christopher Cox, chairman of the SEC, to host a meeting of the CEOs of the major Wall Street investment banks to hammer out a private sector solution for Lehman, which ideally would not involve any government or central bank funding.[7] The idea was similar to the 1998 private industry

[6] Although the NYFED did not regulate Lehman, Lehman was a primary dealer required to bid at Treasury auctions and trade directly with the NYFED. The NYFED was also potentially a lender to Lehman and reviewed the bank in that capacity.

[7] In attendance at the emergency meeting called by the NYFED were: John, Mack, CEO, Morgan Stanley; John Thain, CEO of Merrill Lynch; Jamie Dimon, CEO of J.P. Morgan Chase; Lloyd Blankfein, CEO of Goldman Sachs Group; Vikram Pandit, CEO of Citigroup Inc.; Robert Wolf, CEO of UBS, and representatives from the Royal Bank of Scotland Group PLC and Bank of New York Mellon Corp., among others.

solution reached to save the hedge fund Long-Term Capital Management, after its main fund, Long-Term Capital Portfolio L.P. collapsed.[8]

Despite interest from Bank of America and Barclays plc, the discussions at the NYFED failed in part because of the government's refusal to assist with funding Lehman's toxic assets.[9] And in the case of Barclays, the potential deal was subject to a shareholder vote, which could not be secured in the available time, and which U.K. authorities declined to waive.[10]

After failure of the emergency meeting, Lehman realized that it would not be able to raise enough funds to open for business the next day; there just were not enough banks willing to lend it sufficient funds against the assets that it could offer. The Lehman board of directors voted to file for Chapter 11 bankruptcy protection, which was done on September 15, 2008. By so doing, Lehman was granted an opportunity to have certain parts of its operations dismantled in an orderly fashion overseen by a bankruptcy court. However, large blocks of its business, such as its estimated 900,000 derivatives contracts, were not subject to bankruptcy supervision. Counterparty efforts to protect themselves resulted in fire sales amounting to the loss of billions of dollars. (See YPFS case studies McNamara and Metrick 2014F and Wiggins and Metrick 2014G for more discussion on this point.)

In the Examiner's Report, Anton Valukas found that there existed colorable claims against several Lehman officers for filing misleading financial reports.[11] (See Section 5, Lehman Personnel.) However, on May 24, 2012, it was reported that the SEC would close the Lehman file without pursuing action against the firm or any of its former officers (Gallu 2012). Mary Shapiro, the new SEC chairperson, did not confirm the reports. As of early 2014, no government agency has brought any case against any former Lehman officer or director. The bankruptcy case remains ongoing. (See Gallu 2012 regarding the SEC closing its Lehman case, and see Larson 2014 regarding the bankruptcy case.)

---

[8] Following the Asian Financial Crisis in 1997 and the Russian Financial Crisis in early 1998, LTCM's main fund lost $4.6 billion in less than four months during 1998. Concerned about the fund's failure causing a chain reaction and spreading to others, the NYFED worked with the heads of the major Wall Street firms to find a solution. Meeting at the NYFED's offices, on September 23, 1998, fourteen investment and commercial banks (notably excluding Bear Stearns) reached an agreement for a $3.65 billion recapitalization of LTCM. Even so, the fund liquidated and dissolved in early 2000.

[9] Bank of America considered buying Lehman but terminated acquisition talks. The government's willingness to take responsibility for Bear Stearns' most troubled assets led some parties to believe that the government would act in a like manner with respect to Lehman. The U.S. government's refusal to assist with Lehman's most troubled assets led Bank of America to pull out of the talks. The next day, Bank of America announced that it would acquire a different investment bank, Merrill Lynch. See Examiner's Report, Vol. 4, 1516-39 for a description of the Lehman weekend.

[10] Barclays plc pulled out of talks to buy Lehman because of the U.S. government's refusal to guarantee future losses on Lehman's trading positions. (It was also speculated that Barclays used the threat of withdrawal as a negotiating tactic.) A consortium of other investment banks, however, did agree to take up to $40 billion in Lehman's toxic assets to help the deal along, but to no avail. Barclays needed a shareholder vote to approve the deal, a requirement for U.K. publicly listed firms. The only exception was if the U.K. authorities waived the shareholder vote, which the Chancellor of the Exchequer refused to do, killing the deal. Nevertheless, on September 20, 2008, just days after Lehman filed for bankruptcy, Barclays acquired most of Lehman's U.S. assets for $1.35 billion, a deal that the bankruptcy court judge approved only reluctantly.

[11] Valukas also found that similar claims existed against Lehman's independent audit firm, Ernst &Young, which is discussed in YPFS case study Wiggins, et al. 2014 D.

5. Lehman Personnel

Key Executive Officers

Lehman's long-time CEO Dick Fuld was the embodiment of the classic American Horatio Alger story and had become firmly cemented in his role as the face of Lehman Brothers. However, CEOs do not run companies by themselves, nor do they make decisions in a vacuum. Lehman employed thousands of experienced, well-educated professionals to oversee the firm's vast operations. Fuld's cadre of executives was at the helm of the fourth-largest investment bank in the country; they were extremely bright and confident people who had weathered many storms and steered the firm through many successful years. However, Lehman's size and complexity meant that Lehman's executives were only subject to certain details firsthand and relied on subordinates and systems to ensure the firm's smooth operation and compliance with applicable laws and policies.

- *Richard "Dick" S. Fuld, Jr. (Chairman of the Board & Chief Executive Officer)* began his career at Lehman as an intern in 1966 and rose through the ranks as the firm's focus shifted from traditional investment banking to sales and trading in the late 1970s and early 1980s. He was one of the few Wall Street CEOs to rise from the trading side of the business. (He was also a protégé of CEO Lewis Glucksman, Lehman's first CEO with a trading, rather than investment banking, background.) Fuld became CEO in 1994, and during his tenure Lehman aggressively pursued opportunities in proprietary trading, derivatives, securitization, asset management, and real estate. Fuld led the firm through several previous near collapses, such as the 1997 Asian financial crisis, and it was difficult to separate the firm's identity from his own. The peak value of Fuld's Lehman stock before the firm's collapse had been approximately $1 billion. That stock's value had fallen to $56,000 by the time of the firm's bankruptcy. In 2007, Fuld was quoted as saying: "As long as I am alive, this firm will never be sold." He appointed Bart McDade as balance sheet czar in January 2008 and later ousted long-time friend and colleague Joe Gregory (replaced by McDade) and Erin Callan (replaced by Ian Lowitt), following fallout from the second quarter earnings call in June 2008.
- *Joseph "Joe" M. Gregory (President & Chief Operating Officer)* started at Lehman in 1974 in the same trading division as Dick Fuld. He was a long-time, trusted confidant to Fuld and served as president and chief operating officer (COO) of Lehman from 2004 to June of 2008. Joe Gregory resigned in order to communicate to the markets that Lehman was instituting management changes in response to its $2.8 billion loss in the second quarter of 2008.
- *Herbert "Bart" H. McDade (President and Chief Operating Officer)* started at Lehman in 1983 as a trader and steadily assumed positions of greater responsibility. By 2000 he was co-head of the Global Fixed Income division and a member of the firm's operating committee. He then headed the Fixed Income and Equities divisions. In early 2008, he was appointed balance sheet czar by Dick Fuld to lead the firm's deleveraging efforts. In June of 2008, he replaced Joe Gregory as president and COO and led several of the efforts to find capital for the firm, heading negotiations with prospective purchasers and investors. He conceived the "good bank/bad bank" contingency plan that contemplated isolating Lehman's toxic assets in a separate publicly traded company.
- *Erin M. Callan (Chief Financial Officer)* was Lehman's much-celebrated chief financial officer (CFO) during the first half of 2008. She began her career as a tax lawyer with the firm of Simpson, Thatcher & Bartlett and accelerated through the ranks at Lehman to become CFO at age 41. Joe Gregory was her mentor within the

firm. She lost popularity when she was suspected of being the source of a June 2008 leak to the *Wall Street Journal* about Lehman's quest to find a capital infusion. Amid the static from the leak, Callan offered to resign as a token symbol to the markets and left the firm. She was replaced by Ian Lowitt.

- *Ian T. Lowitt. (Chief Financial Officer)* joined Lehman in 1994 from McKinsey & Company and became the co-chief administrative officer, where he was responsible for the global oversight of several corporate units, including, finance, productivity and process improvement, risk management, and technology. Bart McDade promoted him to CFO after McDade was appointed president in 2008.
- *Madelyn Antoncic (Former Chief Risk Officer)* joined Lehman Brothers in 1999 from Barclays Capital, where she was head of Market Risk Management and treasurer for the Americas. She had previously worked at Goldman Sachs and the NYFED. In 2002 she became chief risk officer responsible for firm-wide market, credit, and operational risk and helped build Lehman's risk-management infrastructure into a world-class operation. In 2007 she was named Bank Risk Manager of the Year by *Risk Magazine*. Beginning in 2006, as Lehman loosened its risk limits in support of a new growth strategy, Antoncic resisted, and in September 2007, she took on the new role of global head of financial market policy relations, being replaced as CRO by Christopher O'Meara.
- *Christopher M. O'Meara (Chief Risk Officer)* joined Lehman in 1994 and held various positions in the Finance Division until he was promoted to financial controller in 2001. A year later, he became the firm's global controller. In December 2004, he was promoted to chief financial officer of the firm and served in that position until September 2007, when he was replaced by Erin Callan as CFO. He in turn, replaced Madelyn Antoncic as chief risk officer.
- *Matthew Lee (SVP, Finance)* was a 14-year veteran of Lehman, responsible for balancing the company's global balance sheet for public reporting. He became concerned about a number of alleged accounting irregularities, and in May 2008, sent a letter to Lehman's senior management alerting them to these, including concern over Lehman's use of Repo 105 transactions. The next month his employment was terminated.

The bankruptcy examiner analyzed the fiduciary duties that Lehman's management owed to the firm and their actions and found that colorable claims did not exist with respect to its handling of the level of risk that Lehman had assumed and its liquidity issues. (Examiner's Report, Vol. 1, 52). The examiner did, however, find that colorable claims existed against Lehman officers Dick Fuld, Christopher O'Meara, Erin Callan, and Ian Lowitt for decisions regarding the use of Repo 105 and for filing misleading financial statements that did not disclose such usage (Ibid., Vol. 3, 990-1027).

Lehman's Board of Directors

When Thomas Cruikshank, one of Lehman's former board members and chairman of its audit committee at the time of its demise, testified before the U.S. House of Representatives Financial Services Committee, he described a competent and involved body of advisors: "Board meetings were an active and dynamic affair. Board members probed management, asked numerous questions and demanded and received detailed, cogent answers" (Cruikshank, 3). However, many questions have been raised regarding the role that the Lehman board of directors played in the firm's demise. How active and engaged were the directors? Was the board composed of the right people, given Lehman's growth and its expansion into more sophisticated and complex businesses and products? Most directors did not have financial services or banking backgrounds. Of those who did, their experience was not recent. Did management intentionally keep the board in the dark about certain of Lehman's key weaknesses?

As of September 14, 2008, when the decision to file for Chapter 11 bankruptcy protection was approved, the firm had 10 non-executive members on its board of directors. (Dick Fuld had been a director since 1990 and was elected its chairman in 1994.) As described in Lehman's 2008 Proxy Statement, the non-executive members of the Lehman Board of Directors are listed below.

- *Michael L. Ainslie,* Private Investor and former President and CEO of Sotheby's Holdings. Director since 1996. Age: 64.
- *John F. Akers,* Retired Chairman of International Business Machines Corporation. Director since 1996. Age: 74.
- *Roger S. Berlind,* Theatrical Producer and Private Investor, principal of Berlind Productions. Director since 1985. Age: 77.
- *Thomas H. Cruikshank,* Retired Chairman and CEO of Halliburton Company. Mr. Cruikshank was also the former Chief Financial Officer of Halliburton and is an accountant and a lawyer. Director since 1996. Age: 76. Chairman of the Audit Committee since 2003. The Board of Directors had determined that Mr. Cruikshank was an "audit committee financial expert" as defined under SEC rules.
- *Marsha Johnson Evans,* Retired Rear Admiral, U.S. Navy and former President and CEO of the American Red Cross. Director since 2004. Age: 60.
- *Sir Christopher Gent,* Non-Executive Chairman of GlaxoSmithKline plc. and former CEO of mobile-phone company Vodafone plc. Director since 2003. Age: 59.
- *Jerry A. Grundhofer,* Chairman Emeritus and Retired CEO of U.S. Bancorp. Director since 2008. Age: 63.
- *Roland A. Hernandez,* Retired Chairman and CEO of Telemundo Group, Inc. Director since 2005. Age: 50.
- *Henry Kaufman,* President of Henry Kaufman & Company, Inc., an investment management and economic and financial consulting firm. Previously, Mr. Kaufman was the chief economist at Salomon Brothers. Director since 1995. Age: 80. Chairman of the Risk Committee since 2003.
- *John D. Macomber*, Principal of JDM Investment Group. Previously Mr. Macomber was a McKinsey & Co. consultant and CEO of chemical-maker Celanese Corporation. Director since 1994. Age: 80.

The Board met eight times in each of 2006 and 2007 (and in 2007, acted by unanimous consent twice).

The Lehman *Finance and Risk Committee* was composed of Kaufman (Chairman), Berlind, Evans, Hernandez, and Akers. The committee "reviews and advises the Board of Directors on the financial policies and practices of the Company, including risk management" (Lehman 2008, 11). The Committee held two meetings in each of 2006 and 2007.

The Lehman *Audit Committee* was composed of Cruikshank (Chairman), Ainslie, Berlind, and Gent. "The Audit Committee assist[ed] the Board of Directors in fulfilling its oversight of the quality and integrity of the Company's financial statements and the Company's compliance with legal and regulatory requirements" (Ibid., 9). The Committee was also responsible for retaining the independent registered public accounting firm, which was Ernst & Young. The committee met seven times during 2006 and 11 times during 2007. The Audit Committee also met separately with Ernst & Young without management present so that the independent auditors might "speak freely."

Lehman's board and committee composition, and the number of meetings held, was not unusual in the industry. Anton Valukas, the bankruptcy examiner did not find that actionable claims existed against the Board.

(For more information concerning the board, see Statement of Thomas Cruikshank before the House of Representatives Financial Services Committee. See the Examiner's Report (Vol. 1,188-202) for a discussion of the Board's duty to the firm and an analysis regarding Lehman's risk-taking activities. See the Examiner's Report (Vol. 3, 945-8 and 991-2) for discussion of Lehman's use of Repo 105 transactions. Also, Larcker and Tayan 2010 provide a comparison of the Lehman Board to that of Goldman Sachs.)

6. Causes of the Financial Crisis

During much of the late 1990s and into the early 2000s many emerging-markets and commodity-rich countries experienced large current account surpluses and sought safe assets to invest in, traditionally sovereign and government agency debt. At the same time, there was significant growth in institutional cash pools, such as pensions, money market funds, and hedge funds, which also demanded these safe assets. As demand for these safe assets outstripped supply, a global savings glut resulted.

During the same period, booming U.S. housing prices and low interest rates combined to create an exuberant mortgage market. Mortgage-backed securities (MBS), whereby investors purchased the right to a stream of payments fueled by a pool of underlying mortgages, became very popular. As U.S. housing and mortgages had traditionally been considered stable investments, and because at this time mostly lower-risk "prime" mortgages were used, many of these MBS received high investment-grade ratings. Prior to 2003, the market in MBS had been dominated by the government-sponsored entities, the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac), and also enjoyed an implied governmental guarantee.

In response to the savings glut, banks became more involved in producing MBS. As demand continued, banks combined MBS with other types of asset-backed securities (ABS), such as those based on credit card receivables, auto loans and student loans, to sell them as a new type of bond-like security called collateralized debt obligations (CDOs). Payments under the CDOs were to be made out of the flow of repayment from the underlying MBS and ABS making up the CDO. Again, because of the mortgages underlying the CDOs, many received investment-grade ratings.

CDOs proved very popular and were aggressively sold to investors in all the world's major markets. By 2007, CDOs had become a significant portion of the ABS market. To meet the demand for MBS and CDOs, banks began pooling not just prime mortgages but also riskier subprime loans and a greater portion of the securities underlying CDOs became MBS, and then subprime MBS. Over time, lenders loosened underwriting standards in order to increase the quantity of subprime mortgages that could be pooled. As they became common, CDOs and other structured debt were routinely used as collateral for repo transactions.

CDOs were termed structured instruments because they were divided into different tranches based on the timing of payments and the payment priority given the holder of a particular tranche (higher-rated tranches were guaranteed payment before lower-rated tranches). Creating tranches allowed investors to choose at what level of risk to invest and allowed investment firms to create investment-grade tranches from even sub-prime mortgages. Lehman's troubles were due in part to the fact that it retained some of the low-rated tranches of the CDOs it generated, and these tranches were the first to get into trouble when the housing market cooled.

2007 Shocks and Contagion

When the housing boom began to stall in 2006, a number of CDOs and MBS based on subprime mortgages were downgraded. This sent a tremor of panic through the market because there was great uncertainty about the identity of the owners of the affected securities and the amount of their exposure. As a consequence, firms began to withdraw from their accounts and horde their cash. These concerns soon began to impact other classes of structured instruments. The credit markets began to seize, led by a dramatic decline in sales of commercial paper.

As the markets became unsure of the underlying value of ABSs, firms with exposures to ABSs found that their lenders demanded greater discounts (haircuts), restricted the types of collateral they would accept, or even refused to rollover their repos. Borrowers such as Lehman saw their liquidity needs and costs rapidly increase. In response, they sold assets to raise cash for collateral as lenders' requests escalated and then to fund redemptions as clients pulled back from the firms. The result was that high-quality assets were often sold at fire-sale prices, further aggravating an overall depressed and anxious market.

Both greater haircuts for repo lending and fire-sale pricing of assets squeezed Lehman's liquidity to a point that it was unable to fund itself, resulting in its bankruptcy on September 15, 2008. This shock to the already weakened global financial markets led to a widespread and unprecedented liquidity crisis that would eventually require the central banks of the world's major financial markets to take unprecedented actions to prevent total collapse.

(In YPFS case study Wiggins and Metrick 2014 H, we consider in detail how the subprime mortgage crisis and liquidity crisis led to Lehman's demise and the impact of its filing on the world's economies. In addition, see Gorton 2010 for further insight on how a U.S. subprime mortgage crisis turned into a global financial crisis.)

References

Auletta, Ken, *Greed and Glory on Wall Street: The Fall of House of Lehman*, Random House, NY 1986.

Baxter, Thomas C. Jr., EVP & General Counsel, Federal Reserve Bank of New York*, Statement by Thomas C. Baxter, Jr. [before the] Financial Crisis Inquiry Commission*, September 1, 2010.

Cox, Christopher, *Statement of Christopher Cox Former Chairman, U.S. Securities and Exchange Commission before the Committee on Financial Services U.S. House of Representatives*, April 20, 2010.

Cruikshank, Thomas, *Statement by Thomas H. Cruikshank to the House Financial Services Committee*.

Federal Reserve Bank of St. Louis, The Financial Crisis, *Financial Crisis Timeline* available at https://www.stlouisfed.org/financial-crisis/full-timeline , accessed January 31, 2019.

Gallu, Joshua, *SEC Staff Ends Probe of Lehman Without Finding Fraud*, Bloomberg, May 24, 2012.

Gorton, Gary B., *Questions and Answers about the Financial Crisis: Prepared for the U.S. Financial Crisis Inquiry Commission,* February 20, 2010.

______________, and Andrew Metrick, *The Financial Crisis of 2007-2009* (April 18, 2012), prepared for The Handbook of Major Events in Economic History (Routledge; forthcoming) edited by Randall Parker and Robert Whaples.

Larcker, David and Brin Tayan, *Lehman Brothers: Peeking Under the Board Façade*, Stanford Closer Look Series, June 4, 2010.

Larson, Erik, *Lehman Settles Freddie Mac Claim for $767 Million*, Bloomberg, February 13, 2014.

Lehman Brothers Holdings Inc. Form 10-K for fiscal year ended November 30, 2007.

___________________, *Press Release: Lehman Brothers Announces Preliminary Third Quarter Results and Strategic Restructuring*, September 10, 2008 (LB 9/10/08 Press Release).

_________, *Press Release: Lehman Brothers Holdings Inc. Announces it Intends to File Chapter 11 Bankruptcy Petition; No Other Lehman Brothers' U.S. Subsidiaries or Affiliates, Including its Broker-Dealer and Investment Management Subsidiaries, are Included in the Filing,* September 15, 2008 (LB 9/15/08 Press Release).

_________, Schedule 14A (Proxy Statement), March 5, 2008.

McNamara, Christian M., and Andrew Metrick, *The Lehman Brothers Bankruptcy F: Introduction to the ISDA Master Agreement*, Yale Program on Financial Stability Case Study 2014-3F-V1, November 2014.

Pozsar, Zoltan, Tobias Adrian, Adam Ashcraft, and Hayley Boesky, *Shadow Banking* Federal Reserve Bank of New York Staff Reports, no. 458, July 2010: revised February 2012.

U.S. Government Accounting Office, *Financial Regulatory Reform: Financial Crisis Losses and Potential Impacts of the Dodd-Frank Act*, GAO-13-180: Published: Jan 16, 2013. Publicly Released: Feb 14, 2013.

U.S. Securities and Exchange Commission, *Statement Regarding Recent Market Events & Lehman Brothers (Updated)*, 2008-198. (September 15, 2008).

Valukas, Anton R., *Report of Examiner, United States Bankruptcy Court*, Sydney, In Re. Lehman Brothers Holdings, Inc., et al., Chapter 11 case no. 08-13555, Vol. 1, 2-27. (Examiner's Report).

_________, *Statement by Anton R. Valukas Examiner, Lehman Brothers Bankruptcy before the Committee on Financial Services United States House of Representatives regarding "Public Policy Issues Raised by the Report of the Lehman Bankruptcy Examiner,"* April 20, 2010 (Valukas Statement).

Wiggins, Rosalind Z., and Andrew Metrick, *The Lehman Brothers Bankruptcy B: Risk Limits and Stress Tests,* Yale Program on Financial Stability Case Study 2014-3B-V1, October 2014 (Wiggins and Metrick 2014B).

Wiggins, Rosalind Z., and Andrew Metrick, *The Lehman Brothers Bankruptcy C: Managing the Balance Sheet through the Use of Repo 105*, Yale Program on Financial Stability Case Study 2014-3C-V1, October 2014 (Wiggins and Metrick 2014C).

Wiggins, Rosalind Z., Rosalind L. Bennett and Andrew Metrick, *The Lehman Brothers Bankruptcy D: The Role of Ernst & Young* Yale Program on Financial Stability Case Study 2014-3D-V1, October 2014 (Wiggins et al. 2014D).

Wiggins, Rosalind Z., and Andrew Metrick, *The Lehman Brothers Bankruptcy E: The Effect on Lehman's Broker-Dealer*, Yale Program on Financial Stability Case Study 2014-3E-V1, October 2014 (Wiggins and Metrick 2014E).

Wiggins, Rosalind Z., and Andrew Metrick, *The Lehman Brothers Bankruptcy G: The Special Case of Derivatives*, Yale Program on Financial Stability Case Study 2014-3G-V1, November 2014(Wiggins and Metrick 2014G) .

Wiggins, Rosalind Z., and Andrew Metrick, *The Lehman Brothers Bankruptcy H: The Global Contagion,* Yale Program on Financial Stability Case Study 2014-3H-V1, October 2014 (Wiggins and Metrick 2014H).

Development of this case has been supported by a generous grant from the Alfred P. Sloan Foundation to the Yale Program on Financial Stability.

Appendix 1: Timeline of Financial Crisis Major Events

2006	
June	U.S. housing prices peak and start to decline.
2007	
Jan.–July	Massive downgrades of mortgage-backed securities by rating agencies.
January 2	Top 20 subprime mortgage underwriter Ownit Mortgage Solutions files for Chapter 11 bankruptcy protection, claiming assets less than $10 million and debts owed of $170 million.
February 27	Freddie Mac announces that it will no longer buy the most risky subprime mortgages and mortgage-related securities.
April 2	New Century Financial Corporation, the second largest subprime mortgage lender, files for Chapter 11 bankruptcy protection.
June 7	Bear Stearns informs investors that it is suspending redemptions from its High-Grade Structured Credit Strategies Enhanced Leverage Fund, which had invested heavily in subprime mortgage–backed securities. A group formed by Kreditanstalt für Wiederaufbau (KfW), a German government-owned development bank and several commercial banks, bail out German bank IKB, whose Rhinebridge structured vehicle suffered heavy losses from the downturn in subprime mortgages.
August	Problems in mortgage and credit markets spill over into interbank markets; haircuts on repo collateral rise; asset-backed commercial paper (ABCP) issuers have trouble rolling over their outstanding paper. Outstanding U.S. ABCP drops almost $200 billion.
August 9	BNP Paribas, Frances largest bank, halts redemptions on three investment funds.
August 10	The Federal Reserve adds $38 billion in reserves and issues a statement reaffirming its commitment to provide liquidity.
August 16	Fitch Ratings downgrades Countrywide Financial, the country's largest subprime lender, to BBB+, its third lowest investment-grade rating, and Countrywide borrows the entire $11.5 billion available in its credit lines with other banks.
August 17	Run on Countrywide Financial.

September 9	Run on U.K. bank Northern Rock, the United Kingdom's fifth-largest mortgage lender.
September 14	The Chancellor of the Exchequer authorizes the Bank of England to provide liquidity support for Northern Rock.
December	**National Bureau of Economic Research subsequently declares December to be the business cycle peak.**
December 12	The Federal Reserve announces the creation of the Term Auction Facility (TAF) that will auction term funds to depository institutions.
December 15	Citibank announces it will take its seven structured investment vehicles (with a value of $49 billion) onto its balance sheet.
2008	
January 11	Bank of America announces that it will purchase Countrywide Financial in an all-stock transaction worth approximately $4 billion.
February 17	The Treasury of the United Kingdom takes Northern Rock into state ownership.
March 11	The Federal Open Markets Committee increases its swap lines with the European Central Bank by $10 billion and the Swiss National Bank by $2 billion and also extends these lines through September 30, 2008. Federal Reserve announces creation of the Term Securities Lending Facility (TSLF) to promote liquidity.
March 16	JP Morgan Chase announces that it will purchase Bear Stearns for $2 per share, less than 7% of its market value just two days prior, with $30 billion in assistance from the NYFED.
March 17	The Federal Reserve Board establishes the Primary Dealer Credit Facility (PDCF), extending credit to primary dealers at the primary credit rate against a broad range of investment grade securities.
July 13	The Federal Reserve Board authorizes the NYFED to lend to Fannie Mae and Freddie Mac, if necessary.
July 30	U.S. Congress passes the Housing and Economic Recovery Act of 2008 that was designed to address the subprime mortgage crisis. It established the Federal Housing Finance Agency (FHFA) and was intended to restore confidence in the Government Sponsored Enterprises (GSEs) but ultimately led to the conservatorship of Fannie Mae and Freddie Mac.
August 6	American Home Mortgage Investment Corporation, once the tenth largest (nonsubprime) mortgage lender, files for Chapter 11 bankruptcy protection.

September 7	The Federal government places Fannie Mae and Freddie Mac in government conservatorship.
September 10	Lehman Brothers preannounces expected $5.6 billion of write-downs on toxic mortgages and an expected loss of $3.93 billion for its third quarter. Moody's threatens to lower Lehman's debt ratings if a "strategic transaction with a strong financial partner" does not occur. Lehman's stock drops 40% to $4.22, down a total of 90% from its November 2007 value of $67.73.
September 12-14	The CEOs of the major Wall Street investment banks meet at the NYFED to try and reach a solution to save Lehman. The U.S. Treasury and Federal Reserve refuse to provide financial guarantees for a Lehman transaction. Despite interest, Bank of America and Barclays fail to close a deal.
September 15	**Lehman Brothers announces that it will file for Chapter 11 bankruptcy protection.** Bank of America announces that it is in talks to purchase Merrill Lynch for $38.25 billion in stock. The final agreement reflects that Merrill Lynch was sold for about US $50 billion or $29 per share, a 70.1% premium over its September 12 closing price or a 38% premium over its book value of $21 a share. The Fed doubles the TSLF size to $200 billion and widens the asset set eligible as collateral for Treasury loans. A group of banks including Citigroup and J.P. Morgan set up a $70 billion fund to increase liquidity. The European Banking Community injects €30 billion, and the Bank of England injects £5 billion into their respective economies. The Dow Jones falls 504.49 points (4.4%), its worst percentage decline since reopening after the 9/11 terrorist attacks. London's FTSE 100 Index closes down 291.80 points (3.9%).
September 16	The Federal Reserve bails out AIG, acquiring a 79.9% equity stake for $85 billion to keep it solvent. Eventually the government would hold 92% and invest a total of $152 billion. The Reserve Primary Fund, a money market fund (MMF), "breaks the buck," causing a run on MMFs.

September 17	The U.S. Securities and Exchange Commission announces a temporary emergency ban on short selling in the stocks of all companies in the financial sector. The Dow Jones falls 449.36 points (4.0%). The FTSE 100 Index closes down 221.10 points (2.25%). Russia suspends trading on its stock market for two days after the worst market fall since the country's 1998 financial collapse, and the Finance Ministry pledges a total of $60 billion of funds to help local banks.
September 18	The Federal Reserve coordinates with the Bank of England, the European Central Bank, the Bank of Japan, and the Swiss National Bank to inject an additional $184 billion into the world's banking systems to compensate for the lack of active lending.
September 19	News of the "bad bank" bailout plan and short-selling ban helps world stock markets soar. The Dow Jones climbs 387.97 points (3.39%). FTSE 100 closes up 431.3 points (8.80%). The U.S. Treasury announces a temporary guarantee of MMFs, and the Federal Reserve announces the Asset-Backed Commercial Paper Money Market Mutual Funds Liquidity Facility.
September 25	The authorities seize Washington Mutual, the largest savings and loan in the U.S., with $300 billion in assets.
September 28	The FDIC announces assistance for the Wachovia merger with Wells Fargo, and the Federal Reserve increases the size of the TAF.
September 29	The U.S. House of Representatives fails to pass the Bush Administration's $700 billion bailout plan, triggering the biggest one-day point drop in the history of the Dow Jones, 778 points (7.0%). The FTSE 100 also drops 418.80 points (5.30%). The U.K. nationalizes mortgage lender Bradford and Bingley. Belgian, Dutch and Luxembourgian governments bail out the Belgium-Dutch bank Fortis. Iceland takes control of the country's third largest bank, Glitnir.
September 30	Iceland guarantees all bank deposits for two years in an effort to stabilize its banks. French, Belgian, and Luxembourgian governments bail out Belgian bank Dexia.
October 3	U.S. Congress approves the Troubled Asset Relief Program (TARP), authorizing expenditures of $700 billion.

	The Dow Jones closes down 582.94 points (1.50%). The FTSE 100 gains 171.80 points (2.26%)
October 7	Control of two of Iceland's three largest privately owned banks, Landsbanki and Glitnir, is handed over to receivers appointed by the Financial Supervisory Authority. Federal Reserve announces the creation of the Commercial Paper Funding Facility (CPFF) to provide a liquidity backstop to U.S. issuers of commercial paper.
October 8	Central banks in the U.S., England, China, Canada, Sweden, Switzerland, and the European Central Bank cut interest rates in a coordinated effort to aid the world's economies.
October 13	Major central banks announce unlimited provision of liquidity to U.S. dollar funds; European governments announce system-wide bank recapitalization plans.
October 14	The U.S. Treasury invests $250 billion in nine major banks. FDIC announces the creation of the Temporary Liquidity Guarantee Program (TLGP).
November 23	Federal Reserve, Treasury and FCI agree to provide Citigroup a package of guarantees, liquidity access, and capital.
November 25	Federal Reserve announces the Term Asset-Backed Securities Loan Facility (TALF) to support the issuance of Asset Backed Securities (ABS).
2009	
January 16	The U.S. Treasury Department, Federal Reserve, and FDIC announce a package of guarantees, liquidity access, and capital for Bank of America totaling $118 billion.
February 17	President Obama signs into law the American Recovery and Reinvestment Act of 2009, which includes a variety of spending measures and tax cuts intended to promote economic recovery.
May	Results of the Supervisory Capital Assessment Program ("bank stress tests") are announced. Many banks are required to announce additional capital.
June	**The National Bureau of Economic Research subsequently declares June to be the business cycle trough.**
October	U.S. unemployment rate peaks at 10.0 percent.

Sources: Federal Reserve Bank of St. Louis and Gorton and Metrick (2012).