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The Lehman Brothers Bankruptcy B: Risk Limits and Stress Tests¹

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Abstract

Investment banks are in the business of taking calculated risks. Risk management infrastructure facilitates the safe pursuit of profits and the balancing of associated risks. By 2006, Lehman Brothers was thought to have a very respectable risk management system, and even its regulator, the Securities and Exchange Commission, viewed its risk framework as being fully compliant with regulatory requirements. In its public disclosures, Lehman characterized its risk controls as “meaningful constraints on its risk taking” and evidence of its continued financial stability. Beginning in late 2006, however, Lehman began dismantling its carefully crafted risk management framework as it pursued a new high-leverage growth strategy. During the next two years, it exceeded many risk limits, aggressively increased a number of risk metrics, disregarded its risk procedures, and excluded risk management personnel from key decisions. In October 2007, it replaced its well-regarded chief risk officer with a seasoned deal maker who lacked professional risk management experience. This case considers the value of a risk management system and how it functioned (and then did not) to constrain risk taking at Lehman. It also considers the role of its regulator.

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.*

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1. Introduction

In March 2006 Lehman Brothers adopted a new business strategy to grow its proprietary business with a focus on commercial real estate, leveraged loans, and private equity—businesses that consumed more capital, and that were generally riskier and more illiquid than Lehman’s traditional lines of business. The firm financed this expansion with its customary short-term borrowings from the overnight wholesale funding markets, significantly increasing its leverage. This aggressive new strategy would eventually lead to the firm abandoning much of its state-of-the-art risk management framework and would ultimately result in the firm’s demise.

Investment banks are in the business of taking calculated risks; Lehman’s risk management framework was supposed to enable it to safely pursue profits while balancing associated risks. By 2006, Lehman Brothers was thought to have a very respectable risk management system, and its regulator, the Securities and Exchange Commission (SEC), viewed its risk framework as being fully compliant with regulatory requirements. In its public disclosures Lehman characterized its risk controls as “meaningful constraints on its risk taking” and evidence of its continued financial stability.

Beginning in late 2006, however, Lehman began dismantling its risk management framework in pursuit of its new growth strategy. It exceeded many risk limits, aggressively increased a number of risk metrics, disregarded its risk procedures, and excluded risk management personnel from key decisions (Examiner’s Report, vol. 1, 46). In September 2007, Lehman’s well-regarded chief risk officer (CRO) and management “agreed to disagree,” and a new CRO was installed (World Bank). (Also see Footnote 6.)

During 2007, as the real estate crisis worsened, Lehman continued to pursue deals without the benefit of key risk metrics. By late 2007, because of its concentration in real estate assets and external developments, Lehman found it harder and more expensive to access funding.

In March 2008, after the fire sale of Bear Stearns to JPMorgan Chase, the SEC embedded personnel at Lehman to more closely monitor its financial situation. Although SEC personnel became aware that Lehman was violating its risk limits, the agency did not make additional inquiries or require the firm to reduce its risk taking. The agency would be criticized for sitting idly by while the firm collapsed. On September 15, 2008, unable to fund its operations, Lehman filed for bankruptcy, initiating the largest bankruptcy in United States history.

This case will enable readers to (1) become familiar with the elements of a risk management framework, (2) consider the effectiveness of such a system given the constraints and pulls of business, and (3) evaluate the role of regulators in enforcing risk management so as to minimize risks to the entity’s financial stability.

The balance of this case is organized as follows: Section 2 discusses the role of risk management at Lehman, and Section 3 discusses risk appetite, a novel metric that was at the center of Lehman’s risk management system. Section 4 describes the growth strategy that Lehman adopted in 2006 that led to the changes in its risk management, which are described

in Section 5. Section 6 concludes with a discussion of the regulatory environment and the role of the regulators.

Questions

1. Does a risk framework really matter?
2. What are the elements of an effective risk framework?
3. Can a risk management system ever be an effective constraint on excessive risk taking given the pressure to pursue profits?
4. What should the regulator's role be?

2. Risk Management at Lehman

In 1999, Lehman enhanced its risk management department by hiring Madelyn Antoncic to be its global head of risk policy. Antoncic came to the firm with a PhD in economics, and years working in market risk and selling structured products at Goldman Sachs and Barclay's. In 2002, Antoncic was promoted to chief risk officer, a position that she would hold until December 2007.⁴ With the support of management, she set out to build a "world-class risk function," one that would combine talented personnel, validated metrics and limits, and integrated procedures into a framework of constant monitoring. Monitoring risks and the remedial procedures were intended to ensure that the firm maintained an organized balance of risk and designed to maximize returns while not running afoul of its financial targets.

Lehman's Risk Infrastructure: An Integrated Framework

Antoncic's background enabled her to understand the risk analytics, as well as the business, something that she thought crucial to a successful risk structure. Under Antoncic's direction, Lehman's Global Risk Management Division (GRMD) was an independent global function within the firm that worked collaboratively with the businesses to set appropriate limits and proactively assist in structuring deals, while minimizing risk. Risk managers advised regarding new business, new or enhanced products, and client concentrations. The GRMD was charged with three core functions, as shown in Figure 1.

Figure 1: Lehman's Global Risk Management Division (GRMD) Three Core Functions

Core Function	Implementing Task
Understand and identify all risks.	Create metrics to measure the risk for all products.
Ensure that appropriate limits are in place for all transactions and products.	Define a "risk appetite."
Protect the firm against "catastrophic" loss.	Measure and monitor "tail risk."

Source: Lehman Risk Presentation 2007, 18.

⁴ See YPFS case study Wiggins et al. 2014A for biographical information about key Lehman officers.

GRMD pursued these objectives through four groups: Market Risk Management, Credit Risk Management, Quantitative Risk Management, and Risk Control and Analysis. The first two of these groups, Market Risk Management and Credit Risk Management, had global and firm-wide responsibility for their respective areas. The latter two groups, Quantitative Risk Management and Risk Control and Analytics, provided firm-wide technical support to the firm's risk operations. Additional functions relating to sovereign and operational risk, proprietary trading, and strategic partners were directed by the CRO as shown in Figure 2.

Figure 2: Lehman Risk Management Function: An Integrated Framework

Position/Department	Scope of Responsibility
Executive Administration	All risk areas globally
Chief Risk Officer	All risk areas globally
Market Risk Management	Market risk globally
Credit Risk Management	Credit risk globally
Quantitative Risk Management	Market, credit, and operational risk analytics and model validation
Risk Control and Analysis	Risk reporting & analysis, credit ratings, data integrity, policies and procedures, and technology
Sovereign Risk Management	Responsible for non-U.S. political, economic, and social conditions and events
IMD Risk Management	Risk Management for the investment division, including asset management and private equity
Operational Risk Management	Operational risk globally
Proprietary Trading, Strategic Partnerships and Principal Investing Risk Management	Management for global trading strategies, global principal strategies, and global strategic investments

Source: Lehman Risk Presentation 2007, 12.

Talented Personnel

By 2007 the GRM had 398 risk management staff (up from 156 in 2005), and Lehman touted that "Risk Management is one of the core competencies of the Firm and is an intrinsic component of our control system" (Lehman Risk Presentation 2007, 14). Lehman's risk management policy was distributed firm-wide and supported by detailed procedures. As CRO, Antoncic sat on the management committee and reported to the chief administrative officer, who was a member of the executive committee and reported to the chairman and chief executive officer. As was noted in the firm's presentation:

Risk Management is one of the core competencies of the Firm and is an intrinsic component of our control system. As a result of our focus on continuously enhancing our risk capabilities, in the current challenging environment, we feel confident that our risk position is solid... [t]he overall philosophy of [the] Firm is that we have zero tolerance for ignoring limits and internal process.

As CRO, Antoncic hired risk managers who were highly qualified professionals, many of whom were either former traders, former desk quants or had relevant business experience in addition to their PhDs. At Lehman, risk managers were embedded at the trading desks to act as advisors, not police. They met daily with business unit management regarding large

and unusual transactions and limits. They actively monitored adherence to risk limits and quickly reported exceptions and counseled as to remedies. (For more detail regarding the organization and responsibilities of GRMD, see pages 5-16 of the Lehman Risk Presentation 2007 and the SEC's CSE Review.)

Risk Models and Limits

Lehman, like most investment banks, utilized various models and methodologies to constantly measure the different types of risks that it was undertaking in the numerous parts of its business. It would typically establish a limit (usually expressed as a dollar value) as the safe level of risk that the company would take on in a particular area, e.g., portfolio limits, single-transaction limits, country limits, and counterparty credit limits. Limits were recommended by the GRMD, approved by the executive committee, and then disseminated down throughout the organization, so that a particular trading desk or division would have an established operating limit.

The GRMD would then employ different methodologies and models on a daily basis to constantly measure the company's performance against this limit. These methodologies and metrics included value-at-risk (VaR), maximum potential exposure (MPE), risk appetite, and risk equity. Which metric was used depended on the firm's businesses. For example, VaR was used with respect to monitoring the firm's market risk. Because Lehman placed particular focus on its use of a somewhat novel risk appetite limit, we discuss it in detail below in Section 3.

The Quantitative Risk Management Group (QRM) of the Lehman GRMD was responsible for developing, implementing and maintaining the risk methodologies and systems used by the risk management subgroups to monitor the firm's major risks—market risks, credit risks, and operational risks. A model validation subgroup also validated the pricing models used by the firm's trading units. Lehman reported the results of its risk monitoring to the SEC as part of its obligations as a Consolidated Supervised Entity (CSE). (See discussion in Section 6.)

(For more information, see Lehman Quantitative Risk Policy Manual for details of how QRM operated. See Lehman Market Risk Overview 2008 and Lehman 2007 Form 10-K, Item 1A Risk Factors, 14-21 for the firm's disclosures regarding risks.)

Stress Testing

While risk limits were designed to measure the daily risk that the firm took on, the GRMD was also charged with monitoring the impact that an unlikely but catastrophic event would have on the firm. This was done by running stress scenarios that simulated significant socioeconomic events and their accompanying financial impacts. Some of the stress tests utilized by Lehman simulated the 9/11 attacks, the collapse of Long-Term Capital Management, the Russian financial crisis and Black Monday. Lehman reported the results of its stress tests to the SEC as part of its CSE obligations.

Although Lehman's stress tests included several that were designed to simulate a significant downturn in the mortgage and real estate markets, it did not run stress scenarios that simulated a widespread mortgage crash as happened. "No one could have predicted a downturn of the magnitude and scale that occurred; it had never happened before, such a downturn without a precipitating economic event. This time, the housing crash was the precipitating event" (Antoncic, 2010).

(For a detailed analysis of Lehman's risk management, see Examiner's Report, Vol. 8, Appendix 8 (detailed analysis of Lehman's risk management). For the various stress scenarios that Lehman applied, see Lehman Risk Presentation 2007, Appendix.)

3. Risk Appetite Limit

Although most of its peer firms managed credit risk and market risk separately, Lehman chose to also utilize a combined metric, risk appetite, to manage its risks on an integrated basis. Risk appetite represented the firm's overall risk tolerance and was based on its budgeted financial targets. Lehman often described risk appetite as being at "the center of our approach to risk" (Lehman Risk Presentation 2007, 23). The risk appetite represented the quantity that the firm was "prepared to lose" in a year from market, counterparty, credit, and event risk. It was defined and measured at a 95% level of confidence (Ibid, 21-23).

Firm-wide risk appetite limits were recommended by GRMD and approved by the Executive Committee in January after the board had approved the firm's budget. Once determined, like other limits, the firm-wide risk appetite limit was cascaded down throughout the firm to the different divisions, businesses, and regions. Trading-desk heads allocated limits to individual desks. Limits were monitored daily and jointly by the business people and risk managers. (See Examiner's Report, Vol. 8, Appendix 10 for analysis of the 2007 and 2008 risk appetite limit calculations.)

Figure 3: Lehman's Formula for Calculating Risk Appetite

- **We start with our financial targets.**
- **We take into account a potential simultaneous slowdown in customer flow and banking activities (origination/advisory), which would negatively impact our financial targets, since revenue shortfalls can also come from non-risk-taking activities**
- **Then we subject ourselves to two constraints:**
 - **maintaining a minimally acceptable annual ROE [Return on Equity]**
 - **ensuring compensation adequacy, including maintaining sufficient headcount to protect the franchise for the long term.**

Source: *Lehman Risk Presentation 2007, 22.*

While Lehman's use of risk appetite was somewhat novel at the time,⁵ the SEC found the measure to have some useful merit:

From a practical perspective, the RA exposure metric serves as a useful comprehensive risk tool for senior management. When used in conjunction with the "standard" risk management tools (daily VaR, MPE, etc.), RA may facilitate more active comprehensive risk management than most firms' tools allow. However, from a statistical and financial theory perspective, the RA metric has some notable limitations. Whether it makes sense to compare one unit of market risk (from an annualized VaR) with one unit of credit risk (from a statistical aggregation technique) with one unit of event risk (from a set of subjectively specified stresses in some instances), is open to debate. Also, the degree of subjective parameterization, which is required for the calculation to be made, raises some questions. More broadly, while aggregating to a single metric is appealing, the benefits of doing so must be weighed against the risk of having risk measures become less meaningful" (SEC CSE Review, 61).

Risk Appetite Usage

As with other risk limits, once the risk appetite limit was established and disseminated, GRMD monitored daily usage against the risk appetite limit allocated to different departments and businesses to determine the company's overall risk appetite usage. Breaches of the limit were reported to management and resolved according to firm policy, which took into consideration the cause of the breach. (A similar process would have been followed for other types of breaches as well.) An "active" breach caused by trader activity would likely be reduced immediately and the trader reprimanded. In limited cases, an "active" breach of a limit would be preapproved to take advantage of an opportunity. A "passive" breach caused by a move in the market price or some other unintentional act, would either be reduced immediately or held and reduced over a period of time. (See Figure 4.)

⁵ Also it should be noted that risk appetite has become much more popular and more utilized as a metric than it was in 2008.

Figure 4: Lehman's Treatment of Risk Limit Breaches

Type of Breach	Escalation	Resolution
Active Breach/ Trader Action: The breach occurs because of trader activity.	Bring to management's attention.	The position is reduced. And the trader is reprimanded, up to and including compensation adjustment and termination.
Active Breach/Oppportunistic: The limit is breached due to a preapproved action that takes advantage of an attractive opportunity.	None, as overage would have been preapproved by management.	Position maintained and managed.
Passive Breach: The limit is breached due to market swing(s).	Bring to management's attention.	Evaluate position and generally reduce slowly or offset.

Source: *Lehman Market Risk Management 2008; Examiner's Report; Antoncic 2010.*

4. Lehman's 2006 Growth Strategy

In early 2006 Lehman adopted a new business strategy. It intended to grow by increasing commercial real estate, leveraged loans, and private equity—businesses that consumed more capital and were generally riskier and more illiquid than its traditional lines of business. This change represented a switch from a low-risk brokerage model to a high-risk, capital-intensive banking model. Prior to 2006, Lehman would acquire assets such as loans, primarily to “move” them to third parties, such as through securitization. With its new strategy, Lehman acquired assets to “store” them as its own investments, retaining the risk and returns of those investments on its books. The acquisitions were supported by increases in debt.

Even before adopting the new strategy, Lehman was highly leveraged and like its investment bank peers, borrowed billions of dollars daily to fund operations. (See YPFS case study Wiggins et al. 2014A for more discussion of Lehman's business model.) An increase in its illiquid assets posed the risk, among others, that it might eventually have difficulty identifying sufficient assets to provide as collateral for needed borrowings and that it might be unable to sell assets quickly if it needed to in order to raise cash other than through borrowings.

Lehman began increasing its position in these three classes of high-risk assets in 2006. Shortly thereafter, the real estate market began to slow down and then dramatically

declined. Lehman encountered difficulty in its planned securitizing of mortgages and was constrained to retain many more than it had intended. Yet, in May 2007, Lehman joined with the Tishman Speyer firm to purchase Archstone Real Estate Investment Trust, the largest residential REIT in the country, for approximately \$22 billion, an amount that several market analysts and rating agencies thought was excessive and one that required Lehman to take on more debt.

By late 2007, Lehman held assets of \$700 billion on equity of \$25 billion with \$675 billion of liabilities, most of which were short term. Still, well into the first quarter of 2008, as the subprime crisis unfolded and its competitors fled the increasingly “sticky” real-estate-related assets, Lehman continued to purchase them.

The company doubled its holdings in various types of illiquid investments from \$87 billion in 2006 to \$175 billion by the end of the first quarter of 2008. By May 31, 2008, Lehman had \$50.4 billion, plus an additional \$9.5 billion of corporate debt and equity, in real-estate-related assets. (YPFS case study Wiggins et al. 2014 A discusses Lehman’s shift in assets in more detail.)

Lehman’s exposure to the commercial real estate market was much greater than that of its competitors, despite its smaller size. A July 2008 report by the Office of Thrift Supervision (OTS Report), which regulated one of the Lehman subsidiaries, found Lehman “materially overexposed” in real estate and related assets. The report concluded that there were “major failings in the risk management process” and cast a somber tone: “The ability to sell or otherwise dispose of a very substantial portion of its exposure, without having to accept fire-sale prices, together with a possible capital raise, may be key to the survival of LBHI as an independent firm” (OTS Report, 2). Despite this conclusion, however, the bankruptcy examiner did not uncover any actions taken by the OTC to try to prevent Lehman’s further demise and criticized it, as well as the SEC and the Federal Reserve (the Fed), for not doing more. (See Section 6 The Regulatory Framework below. Also see Examiner’s Report, Vol. 8, Appendix 8.)

5. Changes in Lehman’s Risk Management after 2006

As it pursued its new growth strategy, Lehman made several changes to its risk management system and exceeded and disregarded a number of its risk limits, important controls that were designed to monitor financial integrity.

Escalation of Risk Appetite Limits

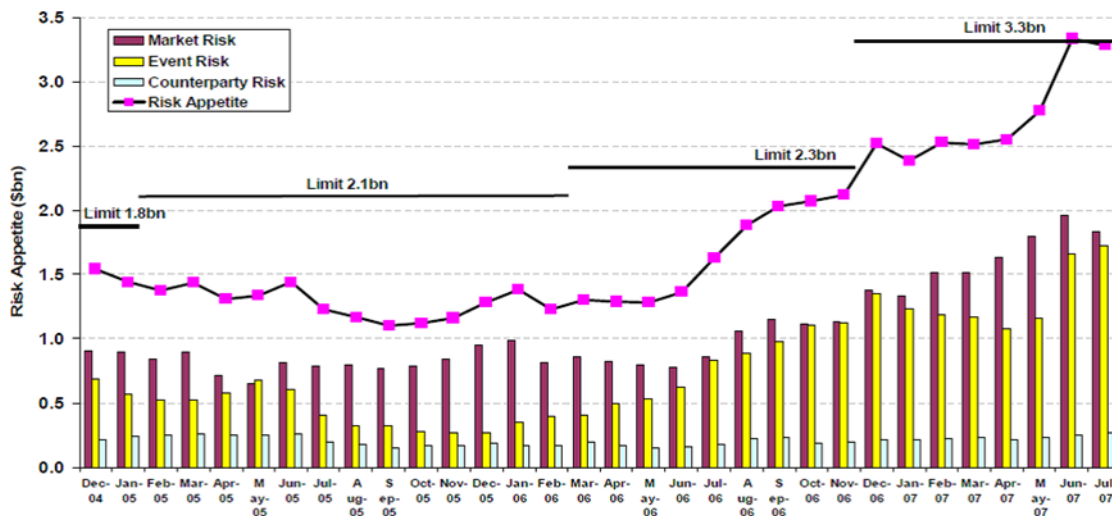
According to Lehman’s policy and practice, GRMD reviewed risk appetite levels each year and recommended the next year’s risk appetite to the executive committee for approval. From 2004 to 2006, increases in the company-wide risk appetite limit had been modest, increasing from \$1.8 billion to \$2.1 billion in 2005, and then to \$2.3 billion in 2006. Prior to

its adoption of the new growth strategy, Lehman’s firm-wide risk appetite usage had stayed well under its risk appetite limit, as shown in Figure 5.

At the end of 2006, Lehman management altered the formula for calculating risk appetite and adopted a risk appetite limit of \$3.3 billion for 2007 in support of the new strategy, over the objections of Antoncic, the chief risk officer. This was a much greater increase than had been implemented in the past. Had the old formula been utilized, the risk appetite would have been set at \$2.5 billion. (See Examiner’s Report, Vol. 8, Appendix 10 for a detailed analysis of the 2006 and 2007 risk appetite limits.)

With the adoption of the new growth strategy, there was also a noticeable increase in Lehman’s risk appetite usage against the limit. The Archstone acquisition was excluded from the usage calculation for a number of months, and when added in, immediately caused an overage, which persisted, even when the firm increased the risk appetite limit to \$3.5 billion in September 2007. In January 2008, the executive committee increased the risk appetite limit to \$4 billion, and based on the new calculation, the overage was eliminated. Had the pre-2006 calculation been used, the level would have been set at \$2.46 billion (Ibid.).

Figure 5: Average Monthly Risk Usage Total Firm



Source: Lehman Risk Presentation 2007, 22.

Personnel Changes

From mid-2006 onward, there were other changes in how the company viewed risk besides the increasing risk appetite usage. Increasingly, the GRMD staff found themselves marginalized. Risk managers were consulted less and excluded from meetings that they had previously been part of. What had been routine consultative discussions became push and pull contests. As the environment changed, Antoncic walked a fine line, continuing to try to negotiate risks out of deals or limit the number of new risky transactions. However,

progressively, as it pursued its growth strategy Lehman relied less on its risk management framework and personnel (Examiner's Report, vol. 1, 46). In September 2007, Lehman announced that Antoncic would assume the new position of global head of financial market policy relations as of December 31, 2008⁶ (Ibid., 46 and 149). Christopher O'Meara, a former chief financial officer, who was regarded as very knowledgeable about the business, but who had little experience in managing risk, became the new CRO. During his first months as CRO, O'Meara also spent significant time backstopping Erin Callan in her new role as chief financial officer, a role that many inside and external to the firm felt she was ill prepared for (Examiner's Report, Vol. 8, Appendix 8, 48).

Disregard of Risk Limit Overages

O'Meara aligned the GRMD with management's business objectives in favor of approving deals, including treating the risk appetite limit as a "soft guideline," notwithstanding Lehman's continuing representations to the SEC, rating agencies, and its board that the limit was a "meaningful constraint on the firm's risk taking" (Examiner's Report, Vol. 1, 51 and 139-154). During 2007, numerous individual risk limits were repeatedly breached and not remedied: (1) risk limits with respect to its principal investments, (2) concentration limits on its leveraged loan and commercial real estate business, (3) single transaction limits on leveraged loans, and (4) single transaction limits in the leveraged-lease bridge loans and commercial real estate areas. (Ibid., 50). There was so much confusion in the firm that several executives emailed each other questioning whether they even had limits (Ibid.).

The Archstone Deal

The most outsized example of Lehman's disregard for its risk limits was its purchase of the Archstone REIT with Tishman Speyer in a deal valued at approximately \$22 billion. The deal was announced on May 29, 2007, and received repeated reviews by Lehman's board and management prior to closing in October of that year. "The Archstone deal was an enormous commitment by Lehman, both in terms of debt financing and equity. After bringing in BofA [sic] and Barclays, Lehman agreed to make a permanent equity investment of \$250 million; agreed to purchase bridge equity of approximately \$2.3 billion; and also agreed to fund various debt tranches totaling \$8.5 billion" (Examiner's Report, Vol.1, 110). Despite the size of the deal, however, Lehman's risk management personnel had "minimal input" in reviewing the transaction (Ibid., 108).⁷ At first, the Archstone deal was excluded from the

⁶ The press release issued by Lehman included the following wording: "She [Antoncic] has been the global head of Risk Management for the past five years having joined the Firm in 1999 as head of risk policy. During this time she oversaw the development and implementation of our comprehensive risk framework. In recognition of her many accomplishments, she was named bank risk manager of the year by Risk magazine last year."

⁷ Following its annual review, the OTC issued a negative report "criticizing Lehman for being 'materially overexposed' in the commercial real estate market and for entering into the Archstone deal without sound risk management practices. The report concluded that Lehman's breach of risk limits, caused largely by the Archstone deal, contributed to 'major failings in the risk management process.'" (Examiner's Report, vol.1, 112 (footnotes omitted)).

firm's risk usage calculations. When added, the deal caused Lehman to exceed its firm-wide risk appetite limit, an overage that persisted for months. Management finally informed the board of the overage at the October 2007 board meeting but did not disclose the full extent of the overage or that on that day the firm's risk appetite usage was \$4.269 billion, \$769 million above its risk appetite limit of \$3.5 billion (Ibid., 141-44). The overage generally remained outstanding in various amounts, until January 14, 2008, when the firm-wide risk appetite limit was increased to \$4 billion, using a new aggressive calculation, as discussed in Section 5 (Ibid., 153).

The bankruptcy examiner also considered Lehman's disregard of its limits, finding it "unwise," but ultimately concluded that management's disregard of a voluntary and internal risk management system did not rise to an actionable claim:

Although Lehman's risk appetite limits ultimately provided little or no limiting function at all, the examiner does not find that the decision to exceed or disregard these limits gives rise to a colorable claim of breach of fiduciary duty. These internal limits were intended only for the guidance of Lehman's own management; they did not put any legal constraints on the scope of management's authority. And because business in general and investment banking in particular is an inherently risky enterprise, Lehman's management was entitled to pursue a countercyclical growth strategy based on its evaluation of the markets and of Lehman's business, even if that strategy necessarily posed a risk to the firm. Moreover, Lehman's risk appetite limit overages were reported to the SEC. The examiner does not find that management's decision to increase and then exceed Lehman's risk appetite levels gives rise to a colorable claim for breach of fiduciary duties. (Examiner's Report, Vol. 1, 180-1).

Stress Tests Altered

When it first developed its stress tests, Lehman had excluded its proprietary investments, which were then a small portion of its assets. However, as the company pursued its new strategy and as its proprietary positions in commercial real estate investments, private equity investments, and leveraged loan commitments (its riskiest positions) became a greater portion of its holdings, it never sought to include these in its stress test calculations (Examiner's Report, Vol.8, Appendix 12). In addition, Lehman also excluded the Archstone deal from its stress tests (Ibid.). As a result, as the financial markets experienced increasing turmoil, and the real estate markets seized, Lehman operated without a measure of just what risks it was assuming.

6. The Regulatory Framework

The SEC's Consolidated Supervised Entity (CSE) Program

In 2004, the SEC implemented a new program designed to supervise investment banks that were the parents of regulated broker-dealers that otherwise would have become subject to the requirements of the Basel II regulations in order to continue doing business in the

European Union. The consolidated supervised entity (CSE) program was designed to allow the SEC to monitor a CSE holding company or its unregulated affiliates for financial or operational weaknesses that might place U.S. regulated broker-dealers and other regulated entities at risk.

In 2004, Lehman, like most of its investment bank peers, voluntarily became a CSE, subjecting its entire business to SEC supervision. As a CSE, Lehman was required to, and was found to, meet certain capital requirements and to maintain a system of internal controls and risk management incorporating certain specified financial metrics: capital, leverage, liquidity, risk management, and stress tests. The firm was required to provide information to the SEC on a regular basis, and it was found to have done so. The SEC had the authority to impose additional supervisory conditions or other sanctions on Lehman if it failed in any material way to comply with the CSE program requirements. (Lehman was also required to report on risk limits in its annual report and periodic reports on Form 10-K and 10-Q.) One SEC official described the program thus:

The CSE program provides consolidated supervision to investment bank holding companies that is designed to be broadly consistent with Federal Reserve oversight of bank holding companies. This prudential regime is crafted to allow the Commission to monitor for, and act quickly in response to, financial or operational weakness in a CSE holding company or its unregulated affiliates that might place regulated entities, including U.S.- and foreign-registered banks and broker-dealers, or the broader financial system at risk” (Colby 2007).

In its role as regulator, the SEC regularly met with Lehman to discuss its business operations. Various reports that illustrated the company’s risk usage and profile were shared on a periodic basis. As noted earlier, in 2005 the SEC found that Lehman’s risk management systems were very adequate for its then current business.⁸ However, one must question how closely the agency monitored changes in Lehman’s business and reevaluated the sufficiency of these systems as Lehman’s business model changed.

After the fire sale of Bear Stearns to JPMorgan Chase in March 2008, SEC personnel were embedded at Lehman on a continuous basis and received financial data daily. At some point, SEC personnel became aware of the many risk limit overages at Lehman. However, the SEC did not exercise its powers to compel Lehman to take any remedial or precautionary action regarding these issues.

After Lehman filed for bankruptcy, the SEC was criticized for sitting idly by while the firm collapsed. Within just weeks, the remaining two stand-alone investment banks, Morgan Stanley and Goldman Sachs, had announced their intention to become bank holding companies subject to regulation by the Fed and subject to its arguably more robust risk management requirements and oversight. Thus, considering that Bear Stearns had been acquired by JPMorgan Chase in March 2008, and that Merrill Lynch was to be acquired by

⁸ “[T]he market and credit risk management function at Lehman is robust given their current risk profile. Taking into account planned enhancements, Lehman will meet or exceed the minimum CSE standards” (SEC CSE Review).

Bank of America shortly after Lehman's collapse, the independent investment bank model had ceased to exist.

The SEC quickly terminated the CSE program, conceding that "voluntary regulation doesn't work":

As I have reported to the Congress multiple times in recent months, the CSE program was fundamentally flawed from the beginning, because investment banks could opt in or out of supervision voluntarily. The fact that investment bank holding companies could withdraw from this voluntary supervision at their discretion diminished the perceived mandate of the CSE program, and weakened its effectiveness" (SEC Press Release, Sept. 26, 2008).

Yet, the question of what the SEC could have done to stave off Lehman's demise remains unanswered, and skepticism persists about whether the enhanced risk management systems required by the Fed will be any more effective at preventing the next financial crisis. As Anton Valukas, Lehman Bankruptcy Examiner, later argued, "So the agencies were concerned. They gathered information. They monitored. But no agency regulated."

(For further information on this point see the SEC's CSE Review of Lehman and this NY Times article discussing the CSE program, *Labaton 2008*.)

The Role of the Federal Reserve

Prior to October 2008

In the months prior to Lehman's demise, the New York Federal Reserve (NYFed), similar to the SEC, had examiners on site at the bank. According to Thomas C. Baxter, executive vice president and general counsel for the NYFed, it monitored Lehman, not as its regulator, but as a potential lender (Baxter 2010). After the near failure of Bear Stearns and its purchase by JPMorgan in March 2008, the NYFed introduced two new financing vehicles to address the liquidity crunch that the banks were experiencing—the term securities lending facility (TSLF) and the primary dealer credit facility (PDCF)—and sent small teams of two monitors into each of the four remaining major investment banks, Goldman Sachs, Merrill Lynch, Morgan Stanley, and Lehman Brothers, something it had never done before. Although the NYFed received daily financial information from Lehman and ran stress tests to evaluate its financial worthiness during its final months, it has maintained that its purpose was only that of a concerned lender and not as the (presumably more responsible and powerful) supervisor or regulator of the bank (Ibid.).

October 2008 and Later

Once the remaining investment banks became bank holding companies subject to regulation by the Fed, it wasted no time. In October 2008, the Fed issued Supervisory Letter 08-08 and Supervisory Letter 08-09, providing guidance to the new bank holding companies and setting out the key elements to an effective risk management program:

- (1) Active board and senior management oversight;
- (2) Adequate written policies, procedures, and limits;
- (3) Adequate risk measurement, monitoring, and management information systems;
- (4) Comprehensive internal controls.

A bank's policies were expected to reflect the size and sophistication of the bank operations and to be in writing. Directors were expected to have an understanding of the types of risk the banks take on and to periodically review reports on the company's risks. Special emphasis was placed on firm-wide compliance, reviewing risk across business lines and legal entities.

Regulations proposed by the Fed under the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank), and approved as final in February 2014, subsume the above Fed Bank Holding Company rules and continue the emphasis on firm-wide comprehensive risk management functions for U.S. and foreign bank holding companies with over \$50 billion in assets. The final rule implements capital planning and stress testing requirements as an enhanced prudential standard. Covered bank holding companies with over \$50 billion in assets are required to establish an enterprise-wide risk management committee, including a committee of the board of directors, to whom the CRO would report (dually with reporting to the CEO). The companies must comply with enhanced risk management and liquidity risk management standards, conduct liquidity stress tests, and hold a buffer of highly liquid assets, based on projected funding needs during a 30-day stress event. In addition, publicly traded U.S. bank holding companies with total consolidated assets of \$10 billion or more must also establish enterprise-wide risk committees (Federal Reserve 2014). (See the testimony of Anton R. Valukas (2010) before the House Committee on Financial Services, discussing the role of the SEC and the Fed in overseeing Lehman.)

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