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PREDICTING A HEART ATTACK: THE FUNDAMENTAL OPACITY OF EXTREME LIQUIDITY RISK

*William O. Fisher**

ABSTRACT

After 150 years of business, Lehman Brothers ran out of cash and credit and filed for bankruptcy on September 15, 2008. As a publicly traded company, Lehman had filed all the reports required by U.S. securities law. But the hundreds of pages of words and numbers provided no timely warning of lurking liquidity death. The risks of triparty repurchase financing and the endgame Lehman would have to play if a self-magnifying credit drain hit were, as it turned out, inherently opaque. Disclosure, the traditional securities law “fix,” was destined to fail in this case, raising the question of whether it might fail in others as well.

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* Professor, University of Richmond School of Law. Siri Kalburgi, Martin McElroy, Jordan Yanev, and Adam Cain researched selected topics. Alison Britton and Malcolm Lowe contributed superb word-processing skills. The Los Angeles office of Analysis Group gathered analyst reports, credit rating actions, and credit default swap and stock prices. William K. Black, professor of economics and law at the University of Missouri-Kansas City, offered provocative comments. Attendees at presentations to both the faculty at Richmond and the 2012 annual meeting of the Southeastern Association of Law Schools made useful suggestions, as did Professor Corinna Lain of the University of Richmond School of Law, who read multiple drafts. Adam Copeland, a senior economist at the Federal Reserve Bank of New York whose work this Article cites repeatedly, also reviewed the paper and graciously commented on it in draft form. Neither the help they rendered nor their acknowledgement here should suggest that any of those named above agree with the analysis this Article presents.

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INTRODUCTION

In the financial world, a liquidity crisis is a heart attack.¹ When a financial firm does not have the cash it needs to operate, it dies. In 2008, Lehman Brothers Holdings Inc. (Lehman) suffered such a fatal cash crisis, cardiac arrest.² Those who owned Lehman common stock lost virtually everything.³

Lehman's stock traded on the New York Stock Exchange.⁴ Lehman therefore filed the complete package of extensive disclosure documents required by federal securities laws.⁵ Yet all the words and numbers in those filings failed to alert investors to a significant probability that the company would suffer a liquidity death. This Article asks why, and the answer is not encouraging: extreme liquidity risk is inherently opaque. It is impossible to disclose it, in a timely way, to investors.

Section I describes Lehman's demise, concentrating on triparty repurchase transactions that drained Lehman of liquidity and the failure of last-ditch efforts to orchestrate a merger that would have saved something for the shareholders. Section II explains that Lehman's disclosures provided virtually no warning of the risks inherent in the repurchase deals or the endgame that Lehman would play out as it died. Section III derives lessons learned from Lehman's experience—in particular that the disclosure failure was inevitable.⁶

1. See Report of Anton R. Valukas at 1402, *In re Lehman Bros. Holdings Inc.*, No. 08-13555 (JMP) (Bankr. S.D.N.Y. Mar. 11, 2010) [hereinafter Examiner Report] (quoting witness's assertion that corporations that go bankrupt die of "cancer," but "financial firms [like Lehman] die of heart attacks" caused by a liquidity crisis); *id.* (quoting an internal Lehman email asserting that investment banks "go bankrupt . . . because they run out of financing, not because the value of their assets falls below the value of their liabilities").

2. *Id.* at 1401–02.

3. Lehman's stock price closed at twenty-one cents per share on September 15, 2008, the first trading day after the firm filed for bankruptcy, and the stock was trading at eight cents by October 15, 2008. These and all other Lehman stock prices are taken from the S&P Capital IQ data on file with author and *Temple Law Review* [hereinafter S&P CAPITAL IQ DATABASE].

4. Lehman Bros. Holdings Inc., Annual Report (Form 10-K), at 1 (Jan. 29, 2008) [hereinafter Lehman 2007 10-K]. All citations to securities filings include filing dates. Lehman Brothers Holdings Inc. issued the publicly traded stock. That holding company owned a broker-dealer subsidiary named Lehman Brothers Inc. *Id.* at 5. Unless otherwise stated, this Article uses "Lehman" to refer to the holding company.

5. Section 12(a) of the Securities Exchange Act prohibits brokers from trading stocks through a national securities exchange unless the stocks are registered under that Act. 15 U.S.C. § 78l(a) (2012). Companies registering stock must file Forms 10-K, 10-Q, and 8-K. 17 C.F.R. § 240.13a-1 (2014); 17 C.F.R. § 240.13a-11; 17 C.F.R. § 240.13a-13. With exceptions not applicable here, they must also file proxy statements when they solicit the right to vote stockholders' shares. 15 U.S.C. § 78n (2012); 17 C.F.R. § 240.14a-2; 17 C.F.R. § 240.14a-101.

6. This Article does not address the contention that Lehman was insolvent before 2008 because its Aurora subsidiary originated and sold Alt-A loans; Lehman sold those loans on through securitizations; and Lehman recognized neither the losses on the Alt-A loans it held nor the liability created by those it sold. See *Public Policy Issues Raised by the Report of the Lehman Bankruptcy Examiner: Hearing Before the H. Comm. on Fin. Servs.*, 111th Cong. 122, 126–27 (2010) (statement of William K. Black, Associate Professor of Economics & Law, University of Missouri-Kansas City). That view derives lessons, *id.* at 132–39, 141–44, that are different from those that this Article draws, as this Article concentrates on the risks created by the nature of triparty repurchase transactions and the endgame that Lehman—like other financial institutions at the time—played out as it lost its life.

I. WHAT HAPPENED TO LEHMAN

This Section tracks Lehman through 2008, from a promising beginning to complete disaster. This Section then focuses on two factors that contributed to Lehman's collapse—liquidity declines forced by counterparties in triparty repurchase agreements (repos) and unsuccessful efforts to find, with the assistance of the U.S. government, a lifesaving merger as Lehman went down.

A. *The Short Story and the Big Picture*

As 2008 opened, five firms dominated United States investment banking.⁷ Lehman was one. Bear Stearns (Bear) was another. Lehman appeared stable, having closed its 2007 fiscal year with profits of \$4.192 billion compared with \$4.007 billion the year before.⁸ Bear looked shaky with 2007 profits totaling only \$233 million, an almost ninety percent decline from the more than \$2 billion the firm earned in 2006.⁹

In March 2008, Bear collapsed.¹⁰ Its liquidity—access to funds necessary to run its business—dropped from \$18 billion on Monday, March 10, to virtually nothing by Friday, March 14.¹¹ As the Financial Crisis Inquiry Commission later concluded, “Bear had run out of cash in one week.”¹²

Nevertheless, Bear survived in an altered form through a government-assisted merger. On Thursday, March 13, the Federal Reserve Bank of New York (the Fed) made an emergency loan to JPMorgan Chase (JPM) so that JPM could loan the money to Bear,¹³ and the Treasury Secretary told the Bear CEO, “You’re in the government’s hands now.”¹⁴ On Friday evening, March 14, the Fed told Bear that the emergency funding would end that weekend and that Bear had only Saturday and Sunday to make a lifesaving deal.¹⁵ The government selected JPM as the merger partner for that deal,¹⁶

7. ROBERT W. KOLB, *THE FINANCIAL CRISIS OF OUR TIME* 87–88 (2011).

8. Lehman 2007 10-K, *supra* note 4, at 85. Lehman’s fiscal year ran from each December 1 to the following November 30. *Id.* at 1.

9. The Bear Stearns Cos., Annual Report (Form 10-K), at F-5 (Jan. 29, 2008).

10. For useful summaries of Bear’s collapse, see the “Background to the Merger” section of Bear’s proxy statement seeking shareholder approval of the Bear-JPM merger. The Bear Stearns Cos., Definitive Proxy Statement (Schedule 14A), at 27–36 (Apr. 28, 2008) [hereinafter Bear Proxy Statement]; see also WILLIAM D. COHAN, *HOUSE OF CARDS: A TALE OF HUBRIS AND WRETCHED EXCESS ON WALL STREET* 3–168 (2009); NAT’L COMM’N ON THE CAUSES OF THE FIN. AND ECON. CRISIS IN THE U.S., *THE FINANCIAL CRISIS INQUIRY REPORT* 280–91 (2011), available at http://fcic-static.law.stanford.edu/cdn_media/fcic-reports/fcic_final_report_full.pdf [hereinafter FCIC REPORT].

11. FCIC REPORT, *supra* note 10, at 289 & fig.15.1, 478.

12. *Id.* at 288. Bear’s treasurer later said, “It really went from Wednesday morning to Thursday afternoon, twenty-four hours from solvent to dead.” COHAN, *supra* note 10, at 60.

13. Bear Proxy Statement, *supra* note 10, at 28; *Bear Stearns, JPMorgan Chase, and Maiden Lane LLC*, BOARD OF GOVERNORS OF THE FED. RES. SYS. (Aug. 2, 2013), http://www.federalreserve.gov/newsevents/reform_bearstearns.htm.

14. HENRY M. PAULSON, JR., *ON THE BRINK* 103 (2010).

15. Bear Proxy Statement, *supra* note 10, at 29; PAULSON, *supra* note 14, at 105.

16. PAULSON, *supra* note 14, at 105 (describing Paulson’s call to the JPM CEO at 4:30 p.m. on Friday, March 14, in which the Secretary told JPM that “we needed to get the deal done by the end of the weekend”); *id.* at 107 (“Under normal circumstances, I would have preferred to find multiple potential bidders to at least

and, throughout that weekend, Treasury Secretary Henry Paulson and Fed President Timothy Geithner urged the merger on JPM.¹⁷ Ultimately, JPM agreed to buy Bear for about \$10 per share.¹⁸ The government made the merger possible by loaning \$29 billion to a new limited liability company called Maiden Lane, which bought those Bear assets that JPM refused to take.¹⁹ The Bear board approved the merger on March 24, 2008.²⁰

As Bear agonized through its crisis, Lehman announced on March 18 that it had earned \$489 million in the first quarter of its 2008 fiscal year—a profit, but far below the \$1.15 billion it earned in the same quarter the previous year.²¹ Lehman also disclosed a \$1.8 billion reduction in asset values (a write-down).²² The second quarter was worse, with Lehman projecting on June 9 and announcing on June 16 a \$2.8 billion loss together with a \$3.7 billion write-down.²³ On September 10, Lehman published preliminary third-quarter figures showing a further \$3.9 billion loss and an additional \$5.6 billion write-down.²⁴

Bad as they were, these accounting losses did not drive Lehman directly to its death. They contributed to lenders' loss of confidence.²⁵ But so did announcements on

create the semblance of competition. But I didn't believe there was another buyer for Bear Stearns anywhere in the world—and certainly not one that could get a deal done in 36 hours.”)

17. *Id.* at 106–07.

18. Bear Proxy Statement, *supra* note 10, at 30–36.

19. *Bear Stearns, JPMorgan Chase, and Maiden Lane LLC*, *supra* note 13. JPM also loaned “roughly \$1 billion to Maiden Lane in a loan that [was] subordinated to the loan from the [Federal Reserve Bank of New York] for repayment purposes.” *Id.* JPM would thus “take the first \$1 billion loss on the Bear portfolio.” PAULSON, *supra* note 14, at 120.

20. Bear Proxy Statement, *supra* note 10, at 38.

21. Lehman Bros. Holdings Inc., Current Report (Form 8-K), Ex. 99.1 (Press Release) 1, 8, 13 (Mar. 18, 2008) [hereinafter Lehman Press Release Mar. 18, 2008]; Lehman Bros. Holdings Inc., Conference Call: First Quarter Earnings 3 (Erin Callan, CFO) (Mar. 18, 2008) (transcript on file with author) [hereinafter Lehman First Quarter Conference Call]; *see also* Lehman Bros. Holdings Inc., Quarterly Report (Form 10-Q), at 4 (Apr. 9, 2008) [hereinafter Lehman 1Q 10-Q] (comparing Lehman's 2008 first quarter income to its 2007 first quarter income). Seeking Alpha maintains the text of the Lehman conference calls cited in this Article. *LEH, SEEKING ALPHA*, <http://seekingalpha.com/symbol/LEH/transcripts> (last visited July 8, 2014). The author downloaded the text of the calls into Word documents, then formatted and paginated those documents. The cited page numbers are those from the Word documents retained by the author.

22. Lehman Press Release Mar. 18, 2008, *supra* note 21, at 13; Lehman 1Q 10-Q, *supra* note 21, at 53–54; Lehman First Quarter Conference Call, *supra* note 21, at 5 (Erin Callan, CFO). The write-down figure in the text here and elsewhere is the valuation reduction net of what Lehman called the “impact of certain economic risk mitigation strategies.” Lehman Press Release Mar. 18, 2008, *supra* note 21, at 13; Lehman 1Q 10-Q, *supra* note 21, at 54.

23. Lehman Bros. Holdings Inc., Current Report (Form 8-K), Ex. 99.1 (Press Release) 1, 7, 9 (June 9, 2008) [hereinafter Lehman Press Release June 9, 2008]; Lehman Bros. Holdings Inc., Current Report (Form 8-K), Ex. 99.1 (Press Release) 1, 99.2 (Attach. I) (June 16, 2008) [hereinafter Lehman Press Release June 16, 2008]; Lehman Bros. Holdings Inc., Quarterly Report (Form 10-Q), at 4, 68 (July 10, 2008) [hereinafter Lehman 2Q 10-Q]; Lehman Bros. Holdings Inc., Conference Call: Second Quarter Earnings 5 (Ian Lowitt, CFO) (June 16, 2008) (transcript on file with author) [hereinafter Lehman Second Quarter Conference Call].

24. Lehman Bros. Holdings Inc., Current Report (Form 8-K), Ex. 99.1 (Press Release) 1, 10, 99.2 (Attach. I) (Sept. 10, 2008) [hereinafter Lehman Press Release Sept. 10, 2008]. As a result of its bankruptcy, Lehman never filed a Form 10-Q for this quarter.

25. Examiner Report, *supra* note 1, at 16.

September 9 and 10 that credit rating agencies were reviewing Lehman for a possible downgrade.²⁶ So did September 9 and 10 press reports that a possible infusion of money from Korean investors had definitively fallen through.²⁷ In the end, it was lack of ready cash that sent the firm to the morgue. As the court-appointed examiner put it after an exhaustive study, Lehman filed bankruptcy on September 15 because it “no longer had sufficient liquidity to fund its daily operations.”²⁸

Lehman’s collapse provides the case study for this Article. Bear’s near collapse provides the context. The Article now turns to two particular factors that drove Lehman’s liquidity crisis: triparty repurchase agreements and endgame failure.

B. Triparty Repurchase Agreements

In 2008, U.S. investment banking firms relied extensively on repos.²⁹ Lehman’s capital structure included billions of dollars of repo financing.³⁰ At the end of its second quarter in 2008, Lehman financed almost thirty percent of all its assets by triparty repos.³¹

1. How Repos Worked

In a repo transaction, a seller or borrower (typically a broker-dealer or a hedge fund) sold a basket of securities to a buyer, and the seller promised to repurchase the securities at a future date.³² Economically, a repo transaction functioned as a secured loan.³³ Thus, when the dealer or hedge fund sold the securities, it received (or effectively borrowed) cash from the buyer (lender). When the dealer or hedge fund bought the securities back, it paid a larger sum of cash, with the difference effectively

26. *Fitch Places Lehman Brothers on Rating Watch Negative*, FITCHRATINGS (FitchRatings, New York, N.Y.), Sept. 9, 2008; Blaine A. Frantz & Robert Young, *Moody’s Places Lehman’s A2 Rating on Review with Direction Uncertain*, MOODY’S INVESTORS SERVICE (Moody’s, New York, N.Y.), Sept. 10, 2008; Scott Sprinzen & Tanya Azarchs, *Lehman Brothers Ratings Placed on Watch Negative; Capital-Raising Uncertainty Cited*, RATINGSDIRECT (Standard & Poor’s, New York, N.Y.), Sept. 9, 2008.

27. Susanne Craig et al., *Lehman Faces Mounting Pressures*, WALL ST. J., Sept. 10, 2008, at A1.

28. Examiner Report, *supra* note 1, at 12. The Examiner’s attorneys reviewed “approximately 34,000,000 pages of documents,” “interviewed more than 250 individuals,” and retained a financial analysis firm. *Id.* at 29, 32, 36. Not including appendices, the report covers 2,209 pages, with 8,197 footnotes.

29. At the end of the second quarter of 2008, Lehman financed 46% of the financial instruments it owned through repos or repo-equivalent transactions, with the percentages for the other major investment banks as follows: 50% (Morgan Stanley), 39% (Goldman Sachs), 28% (Merrill Lynch), and 55% (Bear Stearns). DARRELL DUFFIE, *HOW BIG BANKS FAIL AND WHAT TO DO ABOUT IT* 30, 31 tbl.3.1 (2011).

30. *See* Examiner Report, *supra* note 1, at 3 (“Lehman funded itself through the short-term repo markets and had to borrow tens or hundreds of billions of dollars in those markets each day from counterparties to be able to open for business.”).

31. *See* Lehman 2Q 10-Q, *supra* note 23, at 5 (stating that Lehman had \$639.432 billion in assets at end of quarter); *id.* at 84 (stating that Lehman had \$188 billion in triparty repos).

32. FED. RESERVE BANK OF N.Y., *TRI-PARTY REPO INFRASTRUCTURE REFORM* 5 (2010).

33. *See* Viral V. Acharya & T. Sabri Öncü, *The Repurchase Agreement (Repo) Market, in REGULATING WALL STREET* 319, 321 (Viral V. Acharya et al. eds., 2011) (stating that “repos are essentially secured loans”); *see also* Lehman 2007 10-K, *supra* note 4, at 87 (referring to “[s]ecurities sold under agreements to repurchase” as “[c]ollateralized financings”); Examiner Report, *supra* note 1, at 797–98 (“Lehman’s electronic accounting systems automatically treated all repo transactions as financing transactions, *i.e.*, borrowings.”).

constituting interest on the loan.³⁴ The percentage of that repurchase payment over the amount the buyer paid for the securities was called the interest rate or the repo rate.³⁵ During the term of the repo, the seller in a sense “owed” the buyer the amount that the seller had agreed to pay to repurchase the securities.³⁶ The basket of securities, while owned by the buyer, served as collateral in this loan-like transaction because, if the seller/borrower failed to repurchase, the buyer/lender could sell the securities and use the proceeds to cover or reduce its loss on the loan.³⁷ In accordance with industry practice, this Article refers to the seller as the borrower and the buyer as the lender.

To protect itself against the possibility that repoed securities would not sell for their stated value and therefore fully cover the loan if the borrower did not repurchase, the lender typically imposed a “haircut”—loaning to the borrower an amount of cash below the market (or, if there was no market, estimated) value of the securities at the time of purchase.³⁸ For example, if a lender loaned a borrower \$90 by paying \$90 to buy a basket of securities valued at \$100, the lender thereby imposed a 10% haircut. The haircut protected not only against the possibility that the market value of the securities might fall during the term of the repo deal,³⁹ but also against the possibility that the borrower and the lender had overvalued the securities when agreeing to the repo deal, as might happen if the securities were not trading in an active market so that their value was uncertain.⁴⁰ The haircut accounted as well for the possibility that the securities might prove difficult to sell quickly, as might be true if they were thinly traded.⁴¹

The haircuts therefore differed for different categories of securities according to the risk that the type of security was mispriced, the risk that it might lose its value during the repo’s term, or the risk that it might be difficult to quickly sell. Thus, the haircut for U.S. Treasuries was quite low, because Treasuries had little risk of being mispriced or suddenly losing value and could be immediately sold into an organized market, while other securities—such as those providing payments from a pool of residential mortgages or commercial loans—carried a greater mispricing risk, were harder to sell,⁴² and accordingly were subject to larger haircuts.⁴³

34. Andrew W. Lo, *Reading About the Financial Crisis: A Twenty-One-Book Review*, 50 J. ECON. LIT. 151, 158 n.12 (2012) (book review).

35. FED. RESERVE BANK OF N.Y., *supra* note 32, at 5.

36. Lo, *supra* note 34, at 158 n.12.

37. Kenneth D. Garbade, *The Evolution of Repo Contracting Conventions in the 1980s*, 12 ECON. POL’Y REV. 27, 27–28 (2006).

38. Examiner Report, *supra* note 1, at 1091–92.

39. FED. RESERVE BANK OF N.Y., *supra* note 32, at 5.

40. See Gary Gorton & Andrew Metrick, *Securitized Banking and the Run on the Repo*, 104 J. FIN. ECON. 425, 444 (2012) (“Higher haircuts could . . . adjust for the *uncertain* value of the collateral . . .”) (emphasis added).

41. ADAM COPELAND ET AL., *THE TRI-PARTY REPO MARKET BEFORE THE 2010 REFORMS* 22 (2010) [hereinafter COPELAND, TRI-PARTY MARKET] (“[M]ore liquid securities are easier to sell quickly, [are] more able to [sell into a market that can] absorb a large increase in supply and [are] thus less prone to firesale prices Therefore, collateral which is considered more liquid will typically receive lower haircuts.”).

42. Examiner Report, *supra* note 1, at 1091–92.

43. ADAM COPELAND ET AL., *REPO RUNS: EVIDENCE FROM THE TRI-PARTY REPO MARKET* 12–13, 32 tbl.II (2013) [hereinafter COPELAND, REPO RUN EVIDENCE]; *id.* at 51 n.1 (explaining that the article uses the

None of the risks inherent in the different types of collateral matured unless the borrower defaulted. Hence, haircuts for the same collateral varied from dealer to dealer, reflecting lenders' conclusions that some dealers were greater default risks than others.⁴⁴

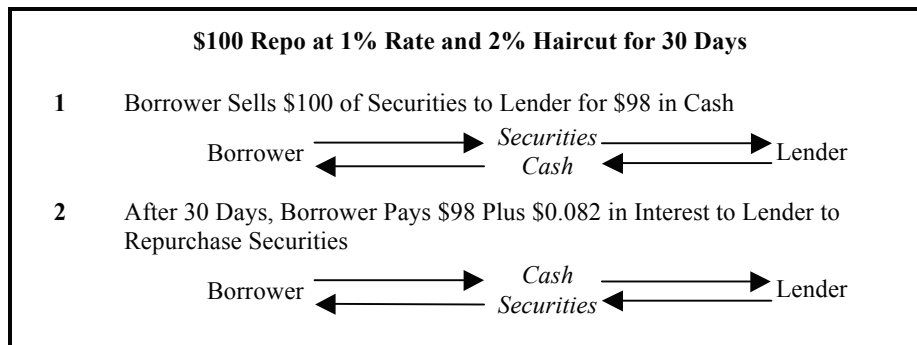
a. Bilateral Repos

Financial firms engaged in both bilateral repos and triparty repos. Figure 1 diagrams a *bilateral* repo—one simply between a borrower and a lender—in two steps.⁴⁵

Step 1. The borrower sold \$100 worth of securities to the lender for \$98, with the \$2 difference constituting a 2% haircut. The borrower promised in this example to buy the securities back at the end of thirty days, which constituted the term of the repo.⁴⁶ The borrower agreed to a repurchase price equal to the \$98 loaned, plus 1% interest (the repo rate). To implement this agreement in Step 1, the borrower transferred ownership of the securities to the lender, and the lender sent the cash to the borrower.

Step 2. At the end of the 30-day loan, the lender sold the securities back to the borrower. The borrower paid the lender \$98.082, with the \$0.082 equal to 1% annual interest on \$98 multiplied by the percentage of one year covered by the loan.⁴⁷

Figure 1: Bilateral Repo



term “margin” in this revision instead of “haircut” to measure overcollateralization); *see also* COPELAND, TRI-PARTY MARKET, *supra* note 41, at 47 fig.7 (showing the median haircut—from the beginning of July 2008 up to Lehman’s bankruptcy on September 15, 2008—for U.S. Treasuries just under 2%, for debentures issued by federal agencies about 2%, for mortgage-backed securities issued by such agencies a bit over 2%, for other Fed-eligible securities a little higher but under 3%, and for nonFed eligible securities at about 5%).

44. COPELAND, REPO RUN EVIDENCE, *supra* note 43, at 13–14, 43–47 (Apx. C).

45. This figure largely duplicates the one found in FED. RESERVE BANK OF N.Y., *supra* note 32, at 5.

46. In the trade, the term was called the “tenor.” Adam Copeland et al., *Key Mechanics of the U.S. Tri-Party Repo Market*, 18 ECON. POL’Y REV. 17, 21 (Nov. 2012) [hereinafter Copeland, *Key Mechanics*]. This Article uses “term” as more intuitive.

47. *See id.* at 21 n.9 (describing rate calculation). One percent of \$98 is \$0.98. The percentage of one year covered by the loan is 8.33% or 30/360. Figure 1 rounds the interest payment to the nearest tenth of a cent.

b. Triparty Repos

The repos on which this Article focuses, however, were not bilateral, but triparty repos. Triparty repos included a clearing bank as the third party. A description of a 2008 triparty repo financing over forty-eight hours provides an accessible understanding of this financing mechanism.⁴⁸ Figure 2 diagrams that financing in seven steps.⁴⁹ Assume for this example an overnight term and that the borrower was a securities dealer.⁵⁰

Step 1. The dealer and a lender agreed—before 10:00 a.m. on Day 1⁵¹—on a repo for the coming night.⁵² The agreement included the amount of cash that the lender would provide, the overnight term of the loan, the repo rate, the acceptable securities to be repoed (the collateral), and the haircuts on the collateral.⁵³ The acceptable collateral⁵⁴ was defined by categories of securities, with agreements often permitting more than one category,⁵⁵ different haircuts for different categories,⁵⁶ and sometimes a percentage limit on different categories.⁵⁷ The repos were therefore “general collateral” transactions in which the borrowing dealer could provide any securities that fit into the categories on which the borrower and lender agreed.⁵⁸ Although the dealer and the lender agreed to the repo by 10:00 a.m., no particular securities were allocated to the repo until trading ended.⁵⁹

Assume that during that trading day, the dealer purchased Security A (either to expand its inventory or to hold as an investment),⁶⁰ financing that purchase in large part

48. The text describes triparty repos in 2008. See *infra* note 392 for a discussion of changes since that time.

49. See FED. RESERVE BANK OF N.Y., *supra* note 32, at app. I (illustrating this process through a diagram).

50. See *id.* at 6 (stating that triparty borrowers were “typically fixed-income securities broker-dealers”).

51. This part of the transaction was bilateral. *Id.* at 9. The clearing bank played no role. COPELAND, TRI-PARTY MARKET, *supra* note 41, at 8.

52. See COPELAND, REPO RUN EVIDENCE, *supra* note 43, at 41 (“A [lender] and a [borrower] typically agree on a tri-party repo before 10 a.m. Conversations with market participants suggest that at least 90% of a dealer’s tri-party repos are arranged before that time.”).

53. *Id.*

54. See COPELAND, TRI-PARTY MARKET, *supra* note 41, at 74 app. B (listing examples of collateral used in triparty repos); PAYMENTS RISK COMM., TASK FORCE ON TRI-PARTY REPO INFRASTRUCTURE 19 (2010) [hereinafter 2010 PAYMENTS RISK COMM.] (containing another list at a higher level of generalization).

55. 2010 PAYMENTS RISK COMM., *supra* note 54, at 37.

56. See COPELAND, TRI-PARTY MARKET, *supra* note 41, at 11–12 (providing three simplified schedules of collateral and haircuts).

57. See Copeland, *Key Mechanics*, *supra* note 46, at 24 (providing as a simplified example the following: “Only U.S. Treasuries, agency securities, and investment-grade, U.S.-dollar corporate bonds are acceptable. No more than 30 percent of the portfolio may be corporate bonds.”).

58. *Id.* at 20, 21 n.11.

59. COPELAND, REPO RUN EVIDENCE, *supra* note 43, at 41–42 (stating that the morning agreement determines the “set of acceptable collateral,” but that trades settle with specific securities in the afternoon allocation).

60. See COPELAND, TRI-PARTY MARKET, *supra* note 41, at 5 (“Dealers hold securities for several reasons. Some securities constitute inventories as part of the dealer’s market-making business, others are part of the proprietary holdings of the dealer as a form of investment.”).

by a loan that the dealer had to repay at the close of business. The second panel of Step 1 in Figure 2 shows the purchase of Security A. It also shows the intraday loan used to purchase Security A. Assume that the dealer planned to repay the loan with money from a repo into which Security A would be placed.

When the markets closed,⁶¹ the dealer had many different repos to fill with securities⁶² and many different securities, including the one just bought, that the dealer hoped to place in repos. The dealer faced “a relatively high-dimensional and complex mathematical programming problem,”⁶³ which could be solved by allocating securities among repos in a manner that maximized the dollars borrowed or minimized borrowing costs.⁶⁴

Step 2. At the point of this challenging allocation, the clearing bank swung into action. The dealer kept all securities that might be used in triparty repo transactions—including Security A—in one or more accounts at the clearing bank. The clearing bank provided computer programs to help the dealer allocate securities among repo deals.⁶⁵ Using those programs, perhaps supplemented with manual intervention by the dealer,⁶⁶ the dealer allocated its securities among repos and locked them into those deals between 6:00 p.m. and 6:30 p.m.⁶⁷ Assume that the dealer allocated Security A to the example repo in Figure 2.

Step 3. Like the dealers, the lenders in the triparty repos had accounts at the clearing bank.⁶⁸ The clearing bank transferred the securities allocated to the example repo (including Security A) from the dealer’s account to the lender’s account (because the transaction took the form of a *sale* of the securities to the lender), and the clearing bank transferred the cash being loaned from the lender’s account to the dealer’s account.⁶⁹ The dealer then used the cash from the repo to pay off the intraday loan that the dealer had taken out to buy Security A.⁷⁰

Step 4. In the morning of Day 2, the clearing bank “unwound” the transaction. *All* repos were unwound before 8:30 a.m.—whether they were only for an overnight term or for a term of days or weeks, or were open repos that continued automatically until terminated by the lender or the dealer.⁷¹ In the unwind, the clearing bank transferred

61. *See id.* at 13 (stating that Fedwire closed at 3:30 p.m. and DTC at 4:30 p.m.).

62. *See* Copeland, *Key Mechanics*, *supra* note 46, at 23–24 (stating that a larger dealer may have triparty repo relationships with twenty or more lenders, with each relationship potentially involving multiple deals on any given day).

63. *Id.* at 23.

64. *Id.* at 26.

65. Examiner Report, *supra* note 1, at 1086; Copeland, *Key Mechanics*, *supra* note 46, at 24.

66. Copeland, *Key Mechanics*, *supra* note 46, at 26.

67. COPELAND, REPO RUN EVIDENCE, *supra* note 43, at 42; Copeland, *Key Mechanics*, *supra* note 46, at 24.

68. Copeland, *Key Mechanics*, *supra* note 46, at 19.

69. COPELAND, REPO RUN EVIDENCE, *supra* note 43, at 42.

70. Examiner Report, *supra* note 1, at 1087. In practice, since the newly purchased security would be repoed with a haircut, the repo proceeds would not cover the entire intraday purchase loan, and the dealer would have to use its own money to make up the difference.

71. *See* Examiner Report, *supra* note 1, at 1112 (confirming that all of Lehman’s triparty repos—including term repos—were unwound each morning); COPELAND, TRI-PARTY MARKET, *supra* note 41, at 13 (“All repos are unwound, including term[] repos and open repos that are rolled over . . .”); FED.

the securities from the lender's account (including Security A) back to the dealer's account,⁷² which was essential as the dealer had to have the securities during the day in order to conduct its business—the buying and selling of securities.⁷³ And, very importantly, the *clearing bank* repaid the lender in the unwind by directly or indirectly transferring *the clearing bank's cash* to the lender's account.⁷⁴ *That repayment constituted an advance—or intraday loan—by the clearing bank to the dealer during Day 2.*⁷⁵ That transfer gave the lender immediate access to the cash, which was now in the lender's account at the clearing bank.⁷⁶

Step 5. Of course, the dealer wanted to repo the securities again for the coming night and would, in the morning of Day 2, make arrangements to do so.

Step 6. At the end of Day 2, the allocation process would proceed again, locking Security A into another overnight repo.

Step 7. After that allocation, the clearing bank would transfer securities (including Security A) to the repo lender, and, this time, the money from the lender would, directly or indirectly, travel to the clearing bank's own account *to pay off the intraday loan from the clearing bank to the dealer.*⁷⁷

c. *Continuous Funding Through Repos*

Provided that lenders continually agreed to overnight repos in the same amount,⁷⁸ the process could continue indefinitely (see the last panel in Figure 2). But the particular securities used to collateralize even an open repo could change from day to day, as the dealer's inventory changed through daily purchases and sales. The only restriction on this practice was the requirement that the repoed securities allocated to each repo each night needed to fall within the categories permissible for that repo.⁷⁹ Thus, Security A could be allocated at the end of Day 2 to a different basket of securities than the basket to which it was allocated for a repo at the end of Day 1.

RESERVE BANK OF N.Y., *supra* note 32, at 9–10 (explaining that all unwinding occurred before 8:30 a.m. each day).

72. Copeland, *Key Mechanics*, *supra* note 46, at 22.

73. Acharya & Öncü, *supra* note 33, at 328 (“The purpose of the unwind is to allow the dealer access to the securities in its collateral pool to settle sales, which occur throughout the day.”).

74. The repayment to the lender could be made electronically from the clearing bank's own account to the lender's account at the clearing bank, or made from the clearing bank's own account to the dealer's account at the clearing bank, then on from the dealer's account to the lender's account.

75. See Examiner Report, *supra* note 1, at 1418 (confirming that Lehman's clearing bank advanced an intraday loan to Lehman each day in the unwind of Lehman's repos); PAYMENTS RISK COMM., TASK FORCE ON TRI-PARTY REPO INFRASTRUCTURE: FINAL REPORT 5 (2012) [hereinafter 2012 PAYMENTS RISK COMM.] (stating that the unwind “required the Clearing Banks to extend intraday credit to the Dealers from 8:30 in the morning until all collateral allocations were finalized and ‘locked up,’ in the evening”).

76. ADAM COPELAND ET AL., POLICY ISSUES IN THE DESIGN OF TRI-PARTY REPO MARKETS (PRELIMINARY) 26 (rev. 2011) [hereinafter COPELAND, POLICY ISSUES].

77. FED. RESERVE BANK OF N.Y., *supra* note 32, at 10.

78. This might happen by default. See Acharya & Öncü, *supra* note 33, at 322 (“Overnight repos constitute about half of all repo transactions, and most of them are open; they roll over automatically until either party chooses to exit.”).

79. COPELAND, TRI-PARTY MARKET, *supra* note 41, at 13.

Note that, in the example, the dealer continuously financed its purchase of Security A. When the dealer bought Security A on Day 1, the dealer did so with cash from an intraday loan. The dealer paid off that Day 1 intraday loan with the proceeds of the loan from the overnight repo. The dealer then paid off the repo loan with the Day 2 intraday loan from the clearing bank, obtained in the unwind. And the dealer paid off that Day 2 intraday loan with the proceeds of the repo loan at the end of Day 2. This chain of loans permitted the dealer to finance the purchase of Security A for the entire cycle and provided the dealer with the advantages (and imposed the risks) of leverage.⁸⁰

Figure 2: Triparty Repo

1	Dealer and Lender Agree to Overnight Repo	8:30–10:00 a.m. Day 1
	Dealer Buys Security A, Financing the Purchase with a Loan To Be Repaid at the End of the Day	During Trading on Day 1
2	Allocation of Dealer Securities to This Repo, Including Security A	3:30–6:30 p.m. Day 1
3	<p style="text-align: center;">REPO BEGINS</p> <p>Dealer Account at Clearing Bank → Securities, Including Security A → Lender Account at Clearing Bank</p> <p>← Cash</p> <p><i>Used to Pay Off Security A Purchase Loan</i></p>	6:30 p.m. Day 1
4	<p style="text-align: center;">REPO ENDS with Unwind and Intraday Loan</p> <p>Dealer Account at Clearing Bank ← Securities, Including Security A ← Lender Account at Clearing Bank</p> <p>← Clearing Bank's Own Account → Cash</p> <p><i>Intraday Debt Initiated</i></p>	8:30 a.m. Day 2
5	Dealer and Lender Agree to Overnight Repo	8:30–10:00 a.m. Day 2
6	Allocation of Dealer Securities to This Repo, Including Security A	3:30–6:30 p.m. Day 2
7	<p style="text-align: center;">REPO BEGINS</p> <p>Dealer Account at Clearing Bank → Securities, Including Security A → Lender Account at Clearing Bank</p> <p>← Clearing Bank's Own Account → Cash</p> <p><i>Intraday Debt Paid Off</i></p>	6:30 p.m. Day 2
Repeat Steps 4 Through 7		

80. WILLIAM A. KLEIN ET AL., BUSINESS ORGANIZATION AND FINANCE 8, 344–46 (11th ed. 2010).

d. *Haircuts and Collateral Cushion for the Clearing Bank*

Before leaving the structure of triparty repos, both the morning unwind and the associated intraday debt that the dealer owed to the clearing bank merit more elaboration. While the unwind had the advantage of returning securities to the dealer so that the dealer could use them during its business day, the clearing bank needed to protect itself during the day—both on the intraday loan it extended to the dealer for triparty repos and on any other daytime credit that the clearing bank provided to the dealer, such as credit to buy new securities.⁸¹ The clearing bank did so through a lien on securities that the dealer (and its affiliates, including its parent holding company) had in accounts at the clearing bank.⁸²

During the day, as the dealer bought and sold securities, the particular securities in its accounts at the clearing bank changed continually.⁸³ To control the relationship of this shifting collateral to the amount of the intraday loan and other daytime credit, the clearing bank employed a tool called net free equity (NFE).⁸⁴ Essentially, NFE equaled the amount by which the value of the securities in the dealer and affiliate accounts at the clearing bank⁸⁵ exceeded the amount the dealer had borrowed—including particularly the amount borrowed through the intraday loan in the unwind—plus any unused, unsecured credit the clearing bank was willing to extend.⁸⁶

As long as NFE was positive, the dealer could call on the positive balance for cash, but the clearing bank could refuse to execute any transaction to which the dealer committed with a third party if consummation of that deal would drive NFE below zero.⁸⁷ Thus, NFE directly affected the amount of cash available to the dealer.

The NFE arrangement and related lien made the intraday loan from the clearing bank to the dealer a secured loan. And just as the overnight lender needed to be sure that the repo collateral was sufficient to cover the debt if the dealer defaulted on the overnight loan, so the clearing bank needed to be sure that the collateral for its intraday loan was sufficient to protect against a dealer default on that debt. To protect against the possible insufficiency of the collateral, the clearing bank—like the overnight lenders—might haircut the value of the securities in the dealer's account, before computing the value that those securities added to the dealer's NFE. Dollar for dollar, such haircuts reduced the dealer's NFE, and therefore, dollar for dollar, those haircuts reduced a dealer's daytime liquidity.

81. See *supra* notes 71–76 and accompanying text for a discussion of the unwind process.

82. COPELAND, POLICY ISSUES, *supra* note 76, at 12 n.8. Thus, the Clearing Agreement between Lehman's broker-dealer subsidiary and JPM gave JPM "a continuing security interest in, lien upon and right of set-off as to" accounts that the broker-dealer had at JPM. Examiner Report, *supra* note 1, at 1088. In 2008, the Lehman holding company guaranteed the broker-dealer's obligations and gave JPM a lien on the holding company's accounts at JPM to satisfy that guarantee. *Id.* at 1115–17. New agreements in August, and revisions to those agreements in September, expanded the liens and the guarantee. *Id.* at 1151–52.

83. FED. RESERVE BANK OF N.Y., *supra* note 32, at 10.

84. COPELAND, TRI-PARTY MARKET, *supra* note 41, at 13–14.

85. The NFE calculation took into account all the securities that the dealer held in accounts at the clearing bank, not just those securities financed by the repos. Copeland, *Key Mechanics*, *supra* note 46, at 26.

86. See Examiner Report, *supra* note 1, at 1093 (describing NFE in the JPM-Lehman relationship).

87. See *id.* at 1094 (stating that "[i]f a trade would put Lehman's NFE below zero, the trade would not be permitted").

If the clearing bank concluded that haircuts imposed by overnight lenders did not provide adequate protection, the clearing bank could impose higher haircuts during the day. Moreover, the clearing bank might decide that it needed some extra cushion—beyond haircuts on individual securities—to protect itself against the risk that the dealer would fail to pay on the intraday loan. The clearing bank might reason that while a particular overnight lender—one of maybe sixty⁸⁸—took only a *part* of the risk that the dealer would default overnight because that lender loaned against only *part* of the dealer's portfolio, the clearing bank during the day took the risk that the dealer would default on the intraday loan that covered *all* of the dealer's securities financed through triparty repos with *all* lenders.⁸⁹ That outsized risk might warrant a collateral cushion in addition to haircuts.

Of course, a clearing bank could only impose haircuts and could only require a collateral cushion if it had the power to work its will. The daily unwind provided that power. A clearing bank was not contractually required to unwind in the morning. To the contrary, the clearing bank possessed the discretion to unwind—and provide the related intraday loan to the dealer—or not.⁹⁰ A clearing bank's refusal to unwind would condemn a dealer to a swift and almost certain death, as without the unwind's intraday loan, the dealer would be unable to repay the overnight lenders and would therefore be unable to repurchase the securities that were its stock in trade.⁹¹ The clearing bank's ability to virtually destroy a dealer by simply refusing to unwind gave the clearing bank enormous bargaining power to demand haircuts and collateral cushions.⁹²

88. Lehman borrowed from "over 60" lenders in the triparty market on September 8, 2008. COPELAND, TRI-PARTY MARKET, *supra* note 41, at 56.

89. *Id.* at 43–44 ("The [clearing banks'] exposures to individual [dealers] were . . . very large: the largest individual portfolio was over \$400 billion This exposure implie[d] that if a large [dealer] were to fail during the day, the clearing bank would have to take a massive amount of collateral on its balance sheet.").

90. *See id.* at 14 ("It is important to highlight that the unwind [was] at the discretion of the clearing bank. . . . [T]he clearing bank ha[d] the contractual right to refuse to unwind the repos For example, if a clearing bank felt that a dealer might have to declare bankruptcy during the day, it could choose to protect itself by not unwinding."); Examiner Report, *supra* note 1, at 1068 ("[JPM] acted as LBI's [the Lehman broker-dealer subsidiary] principal clearing bank pursuant to a Clearance Agreement between [JPM] and LBI. The most significant component of [JPM's] clearing services was 'triparty repo' clearing."); *id.* at 1088 ("The Clearance Agreement . . . provided for the extension of credit to LBI by [JPM], but at [JPM's] sole discretion. [JPM] could . . . 'at any time decline to extend such credit at [JPM's] discretion, with notice.'").

91. *See* Examiner Report, *supra* note 1, at 1135 ("One option available to [JPM] was to cease unwinding triparty repos in the morning, which would result in [Lehman's] default on payment obligations (causing government securities not to trade and investors to lock up)."); COPELAND, TRI-PARTY MARKET, *supra* note 41, at 14 ("Practically speaking, refusing to unwind the repos of a dealer would almost certainly force that dealer into default.").

92. Conversations between JPM and Lehman, during which JPM made its last demand for an additional \$5 billion in cash collateral, illustrate both parties' appreciation of this power. JPM told Lehman that it would not unwind the triparty repos the next day unless Lehman posted the cash. Examiner Report, *supra* note 1, at 1163. Lehman's Treasurer rhetorically asked, "What is to keep you from asking for \$10 billion tomorrow?" *Id.* at 1162. JPM's CEO "responded: 'nothing' and 'maybe we will.'" *Id.* Lehman posted the \$5 billion. *Id.* at 1165.

e. Matched Book Repos

Before turning specifically to Lehman's repo financing, it is critical to understand one more transaction—this one involving both the bilateral repo market and the triparty repo market. In addition to using repos to finance securities in inventory and held for investment, a dealer might engage in “matched book” transactions.

In matched book transactions, the dealer loaned money to a counterparty, like a hedge fund, in a bilateral repo transaction by which the dealer bought a security from the hedge fund.⁹³ The dealer then repoed that same security in the triparty market, effectively using the money the dealer borrowed in the triparty deal to finance the loan that it made to the hedge fund in the bilateral deal.⁹⁴ This was profitable if the dealer could borrow in the triparty market at a lower repo rate than the hedge fund would pay in the bilateral market.⁹⁵ It was also profitable if the dealer could lend in the bilateral market on a repo with a larger haircut, then borrow at the same interest rate in the triparty market through a deal with a smaller haircut—thereby effectively getting the difference between the haircuts as free additional cash with which to work.⁹⁶

Such matched book deals necessarily increased the amount that the dealer borrowed in the triparty market. And if the haircut in the triparty leg was the same or less than that in the bilateral leg, the dealer used none of its own cash in matched transactions. Even better, provided the clearing bank did not haircut the securities during the day to any greater extent than the lender in the triparty leg did during the night, the transaction did not decrease the dealer's NFE during the day.⁹⁷ The matches

93. See Jeremy C. Stein, Member, Bd. of Governors of the Fed. Reserve Sys., Remarks at the Federal Reserve Bank of New York Workshop on Fire Sales as a Driver of Systemic Risk in Triparty Repo and Other Secured Funding Markets 5–6, 8 (Oct. 4, 2013) (describing an example of a “matched book” deal).

94. See COPELAND, REPO RUN EVIDENCE, *supra* note 43, at 14 (“To some extent, the securities that [a] dealer[] obtain[ed] as collateral in the bilateral repo market [were] rehypothecated by the dealer and used as collateral in the tri-party repo market. In these cases, the dealer's role [was] to serve as an intermediary between [lenders] in tri-party repo (e.g., money market mutual funds . . .) and a dealer's prime-brokerage clients (e.g., hedge funds.); Arvind Krishnamurthy et al., *Sizing Up Repo* (forthcoming) (manuscript at 7) (on file with author) (stating that dealer banks “use repos” in part “to finance repo loans they provided to clients such as hedge funds,” “re-hypothecat[ing] the collateral they receive from hedge funds to use as collateral in their repos with cash lenders”); *id.* at 8 (“Repos between . . . a dealer bank and a hedge fund are typically bilateral, while repos between dealer banks and [cash lenders] are typically tri-party.”); *id.* at 16 (describing linked deals in which “dealer bank A lends \$1 to a hedge fund via a repo (collateralized by \$1.02 of Treasuries), and then borrows the \$1 from dealer bank B via a repo (collateralized by the same \$1.02 of Treasuries), who then borrows \$1 from a [money market fund] (collateralized by the same \$1.02 of Treasuries).”).

95. See COPELAND, TRI-PARTY MARKET, *supra* note 41, at 5 (“The broker dealer earn[ed] profits on the difference between interest rates on the bilateral repo with the hedge fund and on the tri-party repo with the cash [lender].”); Krishnamurthy et al., *supra* note 94, at 8 (repos in the bilateral and triparty markets may have different repo rates).

96. See COPELAND, TRI-PARTY MARKET, *supra* note 41, at 5–6 (explaining that “if the haircut in tri-party [was] lower than the haircut the broker dealer obtain[ed] from its client, then the broker dealer [was] able to generate cash, which [could] be used to earn an additional return”); see also *id.* at 65, 66 fig.26 (showing the difference between haircuts in the two markets, with the haircuts noticeably higher in the bilateral market for all kinds of collateral other than Treasuries and with the spread greater for lower quality collateral).

97. See Copeland, *Key Mechanics*, *supra* note 46, at 26 (explaining that the effect of any haircuts is included in the value of a dealer's securities held in a clearing bank).

generated their own leverage, or, put another way, the matched transactions were pure leverage deals.

2. How Lehman's Repos Went Wrong

Triparty repos allowed a dealer to finance its securities with debt.⁹⁸ Moreover, repo debt was comparatively cheap, as compared with long-term debt available through the public market.⁹⁹ But the structure of the repos gave both the clearing bank and the lenders the power to squeeze the dealer's liquidity. Lehman felt the squeeze from both sides.

a. Clearing Bank Demands for Haircuts and a Collateral Cushion

In the early 2000s, there were two principal clearing banks for triparty repo transactions—JPM and the Bank of New York.¹⁰⁰ A dealer typically selected only one.¹⁰¹ Lehman selected JPM.¹⁰²

Through February 2008, JPM extended the daily unwind loan to Lehman without imposing *any* haircut on Lehman-owned securities for purposes of computing NFE.¹⁰³ So Lehman had (through the NFE arrangement) more available cash with which to work during the day than it had during the night.¹⁰⁴

In early 2008, however, JPM came alive to the considerable risk it ran on the intraday credit.¹⁰⁵ The Fed urged JPM to consider this danger,¹⁰⁶ and dealers' increased use of less liquid securities in repo financings further fueled JPM's concern.¹⁰⁷ JPM

98. See *supra* Part I.B.1.c.

99. Like haircuts, interest rates varied with the type of collateral, with repos using more risky securities made at higher repo rates. In September 2008, Lehman paid just under 2% for repo financing secured by Treasuries, between 2% and 2.1% for repos secured by agency debentures, and between 2.2% and 2.5% for repos secured by corporate debt. COPELAND, TRI-PARTY MARKET, *supra* note 41, at 60 fig.22. All these rates, however, were below what Lehman paid for debt or debt-like financing through public offerings. For example, Lehman paid 6.75% on \$1.5 billion in unsecured ten-year debt in December 2007 and 7.50% on \$2 billion in unsecured thirty-year debt in May 2008. Lehman Bros. Holdings Inc., Current Report (Form 8-K), Ex. 4.01 (Fifteenth Supplemental Indenture) 2 (Dec. 21, 2007); Lehman Bros. Holdings Inc., Current Report (Form 8-K), Ex. 4.01 (Sixteenth Supplemental Indenture) 2 (May 13, 2008). Lehman also sold three series of preferred stock in 2008, with various terms, paying 7.95% on the first sale, 7.25% on the second, and 8.75% on the third. Lehman Bros. Holdings Inc., Current Report (Form 8-K), at 2 (Feb. 12, 2008); Lehman Bros. Holdings Inc., Current Report (Form 8-K), at 2 (Apr. 4, 2008); Lehman Bros. Holdings Inc., Current Report (Form 8-K), at 2 (June 12, 2008).

100. Examiner Report, *supra* note 1, at 1085.

101. COPELAND, TRI-PARTY MARKET, *supra* note 41, at 9.

102. Examiner Report, *supra* note 1, at 1084.

103. *Id.* at 1094.

104. See *id.* at 1095–96 (“Before February 2008, [JPM] required no triparty-investor margin, so [JPM’s] payment of \$19 million cash in the morning to repay the lender (a cash advance for the benefit of Lehman) in concert with the receipt of the \$20 million of [repoed] securities would give Lehman an immediate \$1 million ‘surplus’ of NFE.”).

105. *Id.* at 1094–95.

106. *Id.*

107. See Hearing on “Too Big to Fail: Expectations and Impact of Extraordinary Government Intervention and the Role of Systemic Risk in the Financial Crisis” Before the Financial Crisis Inquiry

therefore decided to impose haircuts during the day equal to those that the overnight lenders required, and so advised Lehman on February 26, 2008.¹⁰⁸ Beginning on March 17, 2008 (after Bear's near death), JPM started with a daytime haircut equal to twenty percent of the nighttime amount, planning to increase to the full overnight amount by the end of June.¹⁰⁹ JPM incorporated the haircuts into the NFE calculation, thereby reducing Lehman's available daytime cash.¹¹⁰

JPM then concluded that even daytime haircuts equal to the overnight haircuts did not adequately protect JPM on the intraday loan. JPM reasoned that, "unlike any single triparty [lender], [it] took on a [dealer's] *entire* triparty repo book each day."¹¹¹ Moreover, as JPM saw it, the overnight haircuts did not "fully reflect" the risk that it would be hard for JPM, in the event of a dealer default, to sell "the increasingly large amount of structured, difficult-to-value securities that were being financed through the triparty repo program."¹¹² Nor did those haircuts adequately account for the risk that a dealer had overvalued repo-financed securities.¹¹³

On June 2, JPM accordingly advised Lehman that it needed about \$6 billion in extra collateral to both reach 100% of the haircut imposed by overnight lenders (up from the 20% being covered at that time) and to provide a collateral cushion (that JPM called a "risk-based margin") to protect itself against these additional risks.¹¹⁴ In response, Lehman posted \$5 billion of collateral on June 19,¹¹⁵ with the difference between the \$6 billion demanded and the \$5 billion posted probably explained by JPM's concession that Lehman could have an extension, from the end of June until mid-August, of the deadline to reach 100% of the overnight haircuts.¹¹⁶ Just like the daytime haircuts, the collateral cushion reduced Lehman's NFE.¹¹⁷

Commission 242–43 (2010) [hereinafter *FCIC Hearing*] (statement of Barry Zubrow), available at http://fcic-static.law.stanford.edu/cdn_media/fcic-testimony/2010-0901-Transcript.pdf ("The triparty business was originally . . . designed to help broker-dealers finance government and agency inventories. And we I think collectively woke up as an industry and found at the end of '07, beginning of '08, that . . . a significant portion of the financing . . . had shifted into less liquid, harder-to-value securities . . .").

108. Examiner Report, *supra* note 1, at 1095 (describing a February 2008 internal JPM recommendation to impose daytime haircuts); *id.* at 1096–97 ("Lehman and [JPM] representatives discussed these new collateral requirements . . . on a February 26, 2008 conference call. . . . [JPM] offered to implement this plan 'incrementally.'").

109. *Id.* at 1097–98; Barry Zubrow, *Written Statement of Barry Zubrow Before the Financial Crisis Inquiry Commission 3* (Sept. 1, 2010), available at http://fcic-static.law.stanford.edu/cdn_media/fcic-testimony/2010-0901-Zubrow.pdf.

110. Examiner Report, *supra* note 1, at 1095–96.

111. Zubrow, *supra* note 109, at 3; *see also* Examiner Report, *supra* note 1, 1099 n.4009 (summarizing an interview with a JPM collateral risk manager and stating: "[JPM's] 'concentration risk' to the broker-dealer borrower was much higher than that of any triparty [lender].").

112. Zubrow, *supra* note 109, at 3–4.

113. *See* Examiner Report, *supra* note 1, at 1099–1100 (describing JPM's new "risk-based margin" as taking into account "liquidation risk" to cover securities' one-day price volatility and "price risk," which is the risk that illiquid securities are overpriced).

114. *Id.* at 1101–02.

115. *Id.* at 1102.

116. Zubrow, *supra* note 109, at 4; Examiner Report, *supra* note 1, at 1104.

117. Initially, JPM imposed a \$5 billion charge on NFE available to Lehman's broker-dealer subsidiary. Examiner Report, *supra* note 1, at 1104 n.4030. But the Lehman holding company owned the securities posted

In early July, Lehman posted another \$1 billion.¹¹⁸ And, as time went by, Lehman posted additional collateral, sometimes substituting one asset for another.¹¹⁹ By September 4, Lehman had posted collateral *that Lehman priced* at about \$8 billion to protect JPM against risks posed by the intraday loans created by the triparty repo unwind.¹²⁰

In late August and early September, JPM disagreed with Lehman's pricing because some of the assets Lehman had posted consisted of "illiquid, structured debt instruments."¹²¹ In particular, Lehman had included collateralized debt obligations (CDOs) that JPM's outside valuation consultant determined were worth less than the value Lehman assigned.¹²² When JPM told Lehman that such collateral was not acceptable, Lehman responded that it was running out of unencumbered assets.¹²³

On September 9, JPM nevertheless requested an additional \$5 billion in collateral from Lehman.¹²⁴ Lehman posted \$4.6 billion from September 9 through September 11, with \$3.6 billion of this in cash and money market funds.¹²⁵ JPM then *again* reconsidered its exposure to Lehman.¹²⁶ Once more, JPM concluded that some of the collateral Lehman had posted was not worth the values that Lehman used.¹²⁷

JPM therefore decided that Lehman was still \$5 billion short,¹²⁸ and demanded on September 11 that Lehman post that amount in cash—indisputably worth its stated amount—by the morning of September 12, or JPM would not unwind.¹²⁹ Lehman scraped together and posted that money,¹³⁰ and JPM unwound the triparties on the

to satisfy this collateral cushion demand, and when the holding company transferred the securities back to its own account, JPM charged the \$5 billion against the holding company's NFE. *Id.* at 1104 n.4030, 1121–22; Zubrow, *supra* note 109, at 4–5.

118. Examiner Report, *supra* note 1, at 1103.

119. *Id.* JPM sought, through this and other collateral demands, to protect itself on intraday exposure to Lehman not only from the triparty repo unwind but also from other transactions. Zubrow, *supra* note 109, at 5–6. So the numbers are somewhat hard to relate to the repos. See *infra* note 129.

120. Examiner Report, *supra* note 1, at 1126.

121. Zubrow, *supra* note 109, at 5.

122. Examiner Report, *supra* note 1, at 1105–09.

123. *Id.* at 1106.

124. *Id.* at 1134, 1138.

125. *Id.* at 1141–43.

126. *Id.* at 1158–60.

127. *Id.* at 1159.

128. *Id.* at 1160.

129. FCIC Hearing, *supra* note 107, at 276; Examiner Report, *supra* note 1, at 1161, 1163–65; Zubrow, *supra* note 109, at 7. Although the \$5 billion demand was linked directly to the triparty unwind, the amount may also have reflected JPM's concern over its exposure to Lehman on derivative transactions and novations. Examiner Report, *supra* note 1, at 1163; Zubrow, *supra* note 109, at 5. But those exposures seem modest in comparison with the near \$100 billion triparty intraday loan. Compare Zubrow, *supra* note 109, at 2 (stating JPM's intraday loans regularly totaled over \$100 billion dollars), with Examiner Report, *supra* note 1, at 1130 (referring to a September 5, 2008, internal JPM document setting JPM's derivatives exposure to Lehman at about \$1.9 billion).

130. Examiner Report, *supra* note 1, at 1165; see also FCIC REPORT, *supra* note 10, at 333 ("Lehman 'delivered the \$5 billion in cash only by pulling virtually every unencumbered asset it could deliver'" (quoting Lehman complaint against JPM in the bankruptcy)).

morning of September 12,¹³¹ which was Lehman's last business day before bankruptcy.¹³² Even so, there was a serious question whether JPM would unwind on Monday, September 15, as JPM was concerned that if it unwound, Lehman would be unable to find overnight lenders and would therefore default on the September 15 intraday loan, leaving JPM with assets that might sell for less than the amount of that loan.¹³³

Dollar for dollar, the daytime haircuts and ever-increasing collateral cushion upon which JPM insisted ate into Lehman's NFE, reduced the amount of money that Lehman could borrow from JPM each day to run its business, and eroded Lehman's liquidity.

b. Flight by Lenders Who Proved Information Insensitive Until Shock

Turning from the clearing bank to the lenders, Lehman's triparty repo borrowing fell off a cliff. As Fed staffers later observed, "the collapse . . . was not at all gradual, but rather concentrated in the week before the firm declared bankruptcy."¹³⁴ Indeed, during that last week, the value of the securities Lehman posted as collateral in triparty repos declined by about 37%,¹³⁵ "from \$150 billion funded by over 60 [lenders] on September 8, 2008, to \$95 billion funded by around 40 [lenders] on September 12, the Friday before [the firm] filed for bankruptcy"—a \$55 billion drop in secured financing.¹³⁶ And perhaps \$21 billion of the \$95 billion that remained was trapped in multiday repos.¹³⁷ The lenders on those repos may have wanted to get out but could not because their repo contracts made a quick exit impossible.¹³⁸

While it is difficult to untangle the impact of all the factors that could have contributed to the large and sudden decline in Lehman's triparty repos,¹³⁹ some lenders

131. Zubrow, *supra* note 109, at 7.

132. See Examiner Report, *supra* note 1, at 1535 (noting Lehman filed for bankruptcy on Monday, September 15).

133. See *FCIC Hearing*, *supra* note 107, at 188 (statement of Barry Zubrow). The JPM Chief Risk Officer testified:

[G]oing into that weekend, the triparty book of financing was obviously held by [lenders], and the question would then come up on Monday morning, the 15th, as to whether or not we would be able to do an unwind and provide intraday financing. And certainly over the weekend . . . we were very concerned that there would not be sufficient [lender] counterparties to continue to finance on the night of the 15th without a strategic resolution of the entire Lehman situation. . . . It certainly appeared to us at that point that there was not going to be [lender] appetite to continue to finance Lehman's operations.

Id.

134. COPELAND, REPO RUN EVIDENCE, *supra* note 43, at 19.

135. *Id.* at 39 fig.6.

136. COPELAND, TRI-PARTY MARKET, *supra* note 41, at 56.

137. See *id.* at 56 (quoting Examiner Report, *supra* note 1, at 1536 n.5994).

138. See *id.* (stating "it is possible some of the investors that remained with Lehman were stuck in term trades and unable to pull back their funds without breaking legal contracts").

139. Fed staff later offered this analysis:

We can think of five reasons for the decrease in collateral posted by Lehman Brothers in the tri-party repo market. First, [lenders] . . . may have pulled back . . . to protect themselves against the increased risk of a Lehman Brothers' default. . . . Second, Lehman Brothers was forced to post

almost certainly stopped loaning “to protect themselves against the increased risk of a Lehman Brothers’ default.”¹⁴⁰ JPM’s Chief Risk Officer said later that, by September 12, “some of the largest [lenders] pulled back entirely, refusing to provide Lehman with the overnight financing it desperately needed to keep operating.”¹⁴¹ Repos with Fidelity, for example, dropped from \$12 billion on September 5 to \$2 billion on September 12,¹⁴² and, at the end, Fidelity was pulling back the rest of its overnight triparties from Lehman.¹⁴³ Lenders may have refused to loan even against high-quality collateral.¹⁴⁴ Indeed, the triparty repos based on the highest-quality securities—U.S. Treasuries and Agency debentures—declined so precipitously¹⁴⁵ that the percentage of total repos supported by the high-quality securities drastically declined.¹⁴⁶

Importantly, the lenders did not slowly adjust deal terms as Lehman’s fortunes faded. Haircuts, by category of collateral, hardly changed at all.¹⁴⁷ Nor did the interest rates that Lehman paid change when adjusted for type of collateral.¹⁴⁸

additional collateral with counterparties for other types of transactions over this time, which may have reduced its tri-party repo portfolio. Third, in reaction to rumors of Lehman Brothers’ upcoming demise, hedge funds and other Lehman clients were moving their business to other dealers and thus withdrawing their collateral from Lehman Brothers. . . . Fourth, the wind-down or deleveraging of the short-dated (primarily overnight) matched books in Treasuries, agency debt, and agency MBS likely played a part Fifth, and finally, in facing a run by investors, Lehman Brothers may have been selling collateral to raise money.

COPELAND, REPO RUN EVIDENCE, *supra* note 43, at 19.

140. *Id.*

141. Zubrow, *supra* note 109, at 8.

142. FCIC REPORT, *supra* note 10, at 331.

143. Examiner Report, *supra* note 1, at 1161 n.4298.

144. See COHAN, *supra* note 10, at 513 (“Lehman’s counterparties and overnight repo financing sources ‘started to go wiggly on us,’ a Lehman executive said, ‘and once people won’t take your good collateral it was only a matter of days before we were in Bear mode.’”).

145. COPELAND, TRI-PARTY MARKET, *supra* note 41, at 57 fig.20 (showing triparty repo collateral posted by Lehman over time, divided by category of securities used, revealing—between September 8 and 14—a collapse in repos based on U.S. Treasuries and Agency debentures).

146. *Id.* at 58 (“Alongside the decrease in collateral posted by Lehman Brothers, there was a shift in the composition of the . . . securities Lehman Brothers financed from high to low-quality collateral. From July 1, 2008 to September 1, 2008, 70% of Lehman’s tri-party book was financing Treasury, Agency Debentures and Agency MBS collateral. In the week prior to filing for bankruptcy, these collateral types made up 63% of Lehman’s book and only 11% for the week of September 15. Coincidentally, the share of non Fed-eligible collateral increased dramatically, rising to 87% from about a quarter of Lehman’s tri-party collateral.”). This may have resulted from Lehman responding to lender flight by selling high-quality securities into markets sufficiently deep to avoid fire-sale prices and keeping the lower-quality securities that could not be so sold.

147. See *id.* at 59 (“With Lehman Brothers facing a run by investors, we expect this firm to face higher haircuts in the tri-party repo market. Haircuts, after all, protect investors from losses in the case of a dealer default. Surprisingly, alongside the dramatic decrease in collateral posted, Lehman Brothers did not face higher haircuts until just before it declared bankruptcy. . . . [T]he median haircut Lehman Brothers faced in the two weeks before declaring bankruptcy was essentially flat until Thursday, September 11, two business days before declaring bankruptcy.”); see also COPELAND, REPO RUN EVIDENCE, *supra* note 43, at 18 (“Even the small increases in the margin spread in the last days before Lehman’s bankruptcy are mostly explained by a change in Lehman’s tri-party repo book toward lower-quality collateral.”).

148. See COPELAND, TRI-PARTY MARKET, *supra* note 41, at 59–60 (data provided by a large lender showed that, from September 1 to 12, 2008, the “average interest rate . . . slightly increase[d] from 2.313 to 2.5 on September 12, based on cash loaned against Corporate and Money Market collateral. The rate increase

The lenders thereby treated the repos like unsecured debt—to be discontinued as soon as possible when some combination of news suggested that the borrower might default—instead of secured debt, which would (after tightening terms) provide adequate protection for the lender through the ability to sell collateral.¹⁴⁹ Put another way, and borrowing with modification a phrase coined by Professor Gorton at Yale, the lenders who suddenly pulled away in Lehman’s last days were information insensitive until shock.¹⁵⁰ That is, the lenders continued to lend—without adjusting terms in response to new information—through the decline in Lehman’s fortunes during the first and second quarters.¹⁵¹ However, the combination of bad news in mid-September 2008 (Lehman’s third-quarter loss, adverse credit rating actions, and the end of negotiations with Korean investors)¹⁵² shocked them into complete withdrawal of their loans to Lehman. In effect, even though they were sophisticated participants in the U.S. financial system,¹⁵³ the lenders acted like retail depositors during a bank run.¹⁵⁴

Lenders may have reacted this way in part because many of them did not have a plan in place to sell any significant amount of collateral in the event that a dealer defaulted on its repurchase obligations.¹⁵⁵ Abandoning repos with Lehman—rather

[was] small [and] only cost Lehman Brothers about \$13,000.”).

149. An industry study commented after the fact:

In the context of the tri-party repo market, the ‘lesson learned’ that stands out the most is the over-reliance on short-term secured funding and its presumed stability. Discussions in the Task Force emphasized repeatedly that many [lenders] focus primarily if not almost exclusively on counterparty concerns and that they will withdraw secured funding on the same or very similar timeframes as they would withdraw unsecured funding.

2010 PAYMENTS RISK COMM., *supra* note 54, at 19; *see also* COPELAND, TRI-PARTY MARKET, *supra* note 41, at 22–23 (“Taken to the extreme, the risk management strategy of these [lenders] treats tri-party repo transactions as unsecured loans.”).

150. Professor Gorton concentrates on the bilateral repo market and refers to the collateral there changing over time from “informationally insensitive” to “informationally sensitive,” with the result that—in the bilateral market—haircuts *did* significantly increase, which effectively constituted a “run on repo” that sapped dealer liquidity. *See* GARY GORTON, SLAPPED IN THE FACE BY THE INVISIBLE HAND: BANKING AND THE PANIC OF 2007, at 23 (2010) (defining information-insensitive debt); *id.* at 32, 51 (arguing that a bank panic occurs when bank debt becomes information sensitive); *id.* at 45 (stating that repo lending was designed to rest on information-insensitive collateral); *id.* at 47–52 (concluding that a run on repo occurred when uncertainty about collateral developed and haircuts went from virtually nothing to significant percentages, with the effects of those haircuts mimicking bank withdrawals); *see also* COPELAND, REPO RUN EVIDENCE, *supra* note 43, at 1–3 (contrasting bilateral market studied by Gorton with the triparty market).

151. *See supra* notes 21–23 and accompanying text for a discussion of Lehman’s earnings reports in the first and second quarters of its 2008 fiscal year and *supra* note 147 and accompanying text for a discussion of the lenders’ unadjusted terms.

152. *See supra* notes 24, 26–27 and accompanying text for a discussion of Lehman’s third-quarter 2008 losses, the downgrade of Lehman’s credit rating, and the failure of Korean investments at this time.

153. Money market funds loaned “between a quarter and a third” of the total dollar credit extended through the triparty repo market, and “securities lenders [loaned about] another quarter.” COPELAND, REPO RUN EVIDENCE, *supra* note 43, at 7.

154. *See id.* at 25 (“[T]he tri-party repo market exhibited precipitous reductions in the tri-party repo funding of specific institutions, something more similar to traditional bank runs. . . . [Lenders] did not appear to adjust, in a gradual way, either the margin or the quantity of cash supplied to the market.”).

155. An industry study group later found that “[i]n many cases, [lenders] were unprepared to cope with the consequences of a Dealer default, in particular the potential need to manage and liquidate collateral securing a defaulted repo position.” 2010 PAYMENTS RISK COMM., *supra* note 54, at 4.

than, for example, increasing haircuts in order to ensure that a sale of collateral would cover the amount loaned—made sense for those lenders, as they had no strategy for selling the collateral anyway. Moreover, money market funds supplied a very considerable percentage of the money lent in triparty repos.¹⁵⁶ The money funds may have feared that, if word got out that they were loaning even overnight to a dealer in trouble, they themselves might suffer a run.¹⁵⁷ The funds may have employed a heuristic gut check: when the money funds viscerally concluded that their investors might run if those investors knew the funds were loaning to Lehman, the funds became simply unwilling to lend to Lehman at all.

Whatever the reason for lender flight, the lenders' refusal to lend ate into Lehman's liquidity. Each refusal to renew a repo on a security created an immediate cash problem, as Lehman had to pay off the portion of the intraday debt to JPM representing JPM's advance to pay off the overnight lender who last provided the sundown-to-sunup financing for the security.

To raise the cash to pay the intraday loan, Lehman could choose one of four strategies. First, Lehman could sell the security for which it could no longer find repo financing (call it Asset A). If that sale reaped the full amount of the intraday loan associated with Asset A (as would be the case with a high-quality, extremely liquid security), then Lehman could pay off that portion of the loan and, after doing so, would have the same cash available for operations going forward. Lehman would, however, be smaller. It would have lost whatever business advantages holding Asset A provided (e.g., as inventory for sales or as a proprietary investment that might increase in value over time and eventually be sold for a profit). Moreover, if the emergency sale reaped an amount *less* than the associated intraday loan (as might be true if Asset A was a lower-quality security sold into a thin and falling market), then Lehman, in order to pay off the associated intraday loan, would have to reach into its own cash reserves to pay the difference. Dollar for dollar, using its own cash to make up that difference would reduce Lehman's liquidity.

Second, Lehman could pay off the intraday loan associated with Asset A by repointing a previously unencumbered security (call it Asset B). This strategy, however, might have been practically unavailable when lenders were pulling back without regard to collateral but simply because of Lehman's perceived default risk. Moreover, to the extent that Lehman could implement this strategy only by encumbering a higher-quality Asset B in order to obtain debt financing for lower-quality Asset A that triparty lenders would no longer accept, that lower-quality asset became dead weight for liquidity purposes. And, of course, the higher-quality asset would now be encumbered and therefore no longer available to raise additional cash in the future.

156. See *supra* note 153 for a discussion of the percentage money market funds and securities lenders loaned through the triparty market.

157. See COPELAND, TRI-PARTY MARKET, *supra* note 41, at 38 (“[M]oney market mutual funds . . . have to worry that they may face withdrawal pressures from their own investors. . . . Upon learning that a money fund in which they have invested is financing a dealer perceived to be having creditworthiness issues or was financing a dealer now in default, these investors may preemptively withdraw their funds, regardless of the risk that liquidating the collateral actually represents. This ‘headline’ risk, the risk that a money fund may find itself in the headline of a news story, is another reason why money funds may prefer not to finance a dealer, even against high quality collateral.”).

Third, Lehman could sell Asset B and use the proceeds to pay off the intraday loan associated with Asset A. But this alternative would leave Lehman with Asset A, which it could no longer repo finance. Even if JPM would provide an intraday loan against that collateral, Lehman could not pay off that loan at sundown because it could not find an overnight loan to finance that payment. And, as with the second strategy, Lehman would be left with an asset that was dead weight for liquidity purposes, at the cost of using up the liquidity potential of a higher-quality security.

Fourth, Lehman could simply reach into its cash reserves and use part of that cash to pay all of the intraday loan associated with Asset A. But this alternative, quite obviously, would dollar for dollar reduce Lehman's cash for operations in the future.

None of these alternatives appealed to a financial firm facing an ongoing liquidity crisis in which more and more triparty lenders refused to lend. Each of these alternatives sapped liquidity, except the single case in which Lehman could *immediately* sell a security that had been repoed, but could not now be repoed, for an amount at least equal to the amount of the related intraday loan. It is virtually impossible to conclude that Lehman was able to implement this alternative to address the entire \$55 billion drop in repo financing between September 8 and September 12, 2008.¹⁵⁸ Instead, as the bankruptcy examiner concluded, Lehman was "unable to fund itself and continue to operate" without repo funding.¹⁵⁹

Just as lender flight reduced Lehman's ability to finance the securities it owned, so too did the flight most likely savage the firm's matched book business.¹⁶⁰ At the end of May 2008, somewhere between one-third and one-half of Lehman's triparty repos were the triparty legs of matched transactions and customer funding.¹⁶¹ And the pure leverage matched transactions accounted for about one-half of Lehman's total leverage.¹⁶² Although no separate figures for the matched book during Lehman's last days are available, there is no reason to believe that lenders who loaned in the triparty portion of a match were any less information insensitive until shock than lenders who loaned to finance Lehman's inventory or proprietary investments. Nor is there any reason to believe that information-insensitive-until-shock lenders were any more willing to finance matching transactions than other deals.¹⁶³ Instead, the very large

158. See *supra* note 136 and accompanying text for a discussion of the details of the severe decline in Lehman's triparty repo financing from September 8, 2008, to September 12.

159. Examiner Report, *supra* note 1, at 3.

160. See COPELAND, REPO RUN EVIDENCE, *supra* note 43, at 19 (stating that the "wind-down" of matched books "likely played a part in the decline of tri-party funding in the last few days before the bankruptcy").

161. See Lehman 2Q 10-Q, *supra* note 23, at 84 (reporting that total triparty repos were \$188 billion); Lehman Second Quarter Conference Call, *supra* note 23, at 14 (Ian Lowitt, CFO) (stating that one-third to one-half of \$188 billion in repos consisted of matched deals and customer funding).

162. See FCIC Hearing, *supra* note 107, at 154-55 (statement of Richard S. Fuld, Jr.).

163. See Examiner Report, *supra* note 1, at 1161 n.4298 (quoting a September 11, 2008, JPM email that states "much of [the] decline" in Lehman's triparty repo financing "up to last week has been self imposed."); COPELAND, REPO RUN EVIDENCE, *supra* note 43, at 19 (speculating that Lehman itself might have initiated a reduction in its matched book as part of an effort to reduce leverage).

But the circularity of the matched transactions obscures causation. For example, a hedge fund using a bilateral repo with Lehman to feed financing to it from a matching triparty transaction might be loath to continue that arrangement if the hedge fund thought there was a real risk Lehman might go under. And the

percentage of matched deals in Lehman's triparty borrowing and the very large decline in triparty borrowing strongly suggest that the collapse of the triparty lending affected Lehman's matched book business in a very significant way.

Before leaving lender flight, note one last oddity. The government had reacted to Bear's crisis not only by engineering Bear's merger into JPM but also by creating the Prime Dealer Credit Facility (the PDCF).¹⁶⁴ The PDCF provided overnight financing that replicated triparty repos,¹⁶⁵ and PDCF financing ran through the clearing banks, using the triparty infrastructure.¹⁶⁶ Dealers could obtain PDCF financing only by posting high-quality securities as collateral.¹⁶⁷ The PDCF was therefore intended to address directly a crisis in which triparty lenders suddenly withdrew overnight lending against very high-quality securities. For reasons set out below, Lehman did not resort to this public lender of last resort even once as the firm's liquidity disappeared.¹⁶⁸ And so, forgoing this government backstop, Lehman experienced the full shock of private lender flight, which left it clutching its chest and thrashing on the floor in its last week before bankruptcy.

In sum, lenders who were information insensitive until shock suddenly refused to lend to Lehman during the week of September 8 through 12, creating in each case an

hedge fund might fear a Lehman default because it got wind of lender flight from Lehman on other deals. Similarly, Lehman might not solicit the hedge fund for a matched deal if—as a result of lender flight—Lehman was uncertain that it could match the hedge fund→Lehman bilateral repo with a Lehman→lender triparty repo. In both cases, the animating cause of the reduced matched book business works back to the lender flight.

As for the JPM email, it refers to the decline up to, at the latest, September 5, and the passage quoted above says nothing about the decline in the week of September 8–12, when repos dropped by a frightening thirty-seven percent. See *supra* notes 135–36 and accompanying text.

164. Press Release, Bd. of Governors of the Fed. Reserve Sys., Financial Markets—Promotion of Orderly Market Functioning Through an Extension of Credit to The Bear Stearns Companies Inc., Establishment of a Credit Facility for Primary Securities Dealers, and Other Actions (Mar. 16, 2008) (on file with author).

165. See Examiner Report, *supra* note 1, at 1389 (“Under the PDCF, the [Fed] would make collateralized loans to broker-dealers . . . and in effect, act as a repo counterparty.”); FCIC REPORT, *supra* note 10, at 294 (describing the PDCF “as an alternative to the overnight tri-party repo lenders”); *Primary Dealer Credit Facility: Program Terms and Conditions*, FED. RES. BANK N.Y., http://www.newyorkfed.org/markets/pdcf_terms_080316.html (last visited May 21, 2014) [hereinafter *Initial PDCF Terms*] (offering overnight lending).

166. See Tobias Adrian et al., *The Federal Reserve's Primary Dealer Credit Facility*, 15 CURRENT ISSUES IN ECON. & FIN. 1, 5 (2009) (“The PDCF program is based on the triparty repo legal and operational infrastructure”); *Initial PDCF Terms*, *supra* note 165 (“Dealers will communicate their demand for funding to their clearing banks. The clearing bank will verify that a sufficient amount of eligible collateral has been pledged by each primary dealer participating in the PDCF and notify the New York Fed accordingly. Once the New York Fed receives notice that a sufficient amount of margin-adjusted eligible collateral has been assigned to the New York Fed's account, the New York Fed will transfer the amount of the loan to the clearing bank for credit to the primary dealer.”).

167. See FED. RESERVE BANK OF N.Y., DOMESTIC OPEN MARKET OPERATIONS DURING 2008, at 10 (2009), available at <http://www.newyorkfed.org/markets/omo/omo2008.pdf> (describing OMO collateral as “U.S. Treasury securities,” “direct federal Agency obligations,” and “Agency MBS”); *Initial PDCF Terms*, *supra* note 165 (“Collateral eligible for pledge under the PDCF includes all collateral eligible for pledge in open market operations [‘OMO’], plus investment grade corporate securities, municipal securities, mortgage-backed securities and asset-backed securities.”).

168. Examiner Report, *supra* note 1, at 1399.

immediate liquidity problem that Lehman could only solve by taking steps that reduced its liquidity going forward. Other factors contributed to the liquidity decline.¹⁶⁹ But the triparty problems—collateral demands from JPM, lender desertion, and the related matched book drop—played a key role. Squeezed by the two other sides of the triparty triangle, Lehman’s liquidity “evaporated” in its last week of existence.¹⁷⁰

c. Dynamics of Triparty Repos That Accelerated Lehman’s Liquidity Decline

In part in response to Lehman’s collapse, the Fed and industry participants studied the triparty repo market and concluded that—as structured in 2008—that market could generate a vicious, self-magnifying dynamic. Thus, as some lenders began to flee a dealer, others became less likely to lend for fear that an insufficient number of lenders would remain so that the dealer would live long enough to make good on even short-term loans.¹⁷¹ As a clearing bank considered whether to exercise its discretion to unwind after lender flight began, its inclination to do so might decline as it came to fear that the dealer would be unable to find sufficient overnight financing to repay the intraday loan that the unwind created.¹⁷² And as the lenders became concerned that the clearing bank might not unwind, they became less likely to lend.¹⁷³ The different participants in the triparty repo structure could thereby have encouraged each other—once a run began—to continue the run until the dealer died.¹⁷⁴ Research has not revealed the extent to which these dynamics affected Lehman’s decline, but the speed of that decline strongly suggests that such self-accelerating dynamics played an aggravating role.

169. Besides JPM, other banks (not clearing repos but clearing other types transactions)—such as Citibank, HSBC, Bank of New York Mellon, and Standard Bank—demanded collateral from Lehman. Examiner Report, *supra* note 1, at 1223–42, 1279–81, 1284–85, 1303–08, 1376–78, 1382–85.

170. *FCIC Hearing*, *supra* note 107, at 155–56 (statement of Lehman CEO Richard Fuld) (“We had a strong liquidity pool, which unfortunately evaporated in three days after the run on the bank ensued.”); *id.* at 160 (“We went into that last week with over \$40 billion of liquidity. We lost close to 30 of it in three days. . . . We needed the liquidity.”).

171. Because a lender is better off not investing if it believes that other lenders will not invest, “it is an equilibrium for all [lenders] not to [lend].” COPELAND, TRI-PARTY MARKET, *supra* note 41, at 42; *see also* COPELAND, POLICY ISSUES, *supra* note 76, at 19 (“Each [lender], once concerned that others may run, has a clear incentive to run.”).

172. *See* Antoine Martin et al., 27 REV. FIN STUDIES 957, 985 (2014) (modeling, under the heading “Fragility: Coordination problem between the clearing bank and investors,” the dynamic that could cause either the clearing bank to refuse to unwind in light of fears that lenders would refuse to renew repos to a dealer, or lenders to refuse to renew repos in light of fears that the clearing bank would refuse to unwind).

173. *See* COPELAND, TRI-PARTY MARKET, *supra* note 41, at 42–43 (“Assume that [lenders] become concerned that the clearing banks may refuse to unwind the repos of a dealer. The clearing bank may take this action because it does not want to be exposed to the dealer’s failure if it occurs during the day. The [lenders] realize that the dealer would almost certainly have to default if the clearing bank does not unwind its repos. Hence, the [lenders] will be reluctant to provide repo financing to the dealer.”).

174. *See id.* at 43 (“This dynamic is self-fulfilling in the sense that the reluctance of the clearing bank to unwind the repos of a given dealer creates the condition for [lenders] not to want to provide repo funding to that dealer, which justifies the clearing bank’s concerns. Similarly, the reluctance of [lenders] to extend financing to a dealer creates the condition for the clearing bank to prefer not to unwind the dealer’s repos, which justifies the [lenders’] concerns.”).

C. *Endgame*

Just because the actions of JPM and lenders moved Lehman toward a cardiac arrest did not mean that the firm was doomed. When a large financial institution faced failure, it might merge into a healthier one, and the government might help.¹⁷⁵ The government midwived multiple mergers for exactly this purpose during the credit crisis.¹⁷⁶ In September 2008, Lehman's turn arrived.

1. How the Endgame Matters to Shareholders

Endgame maneuvers are critical to the shareholders of a failing financial firm. JPM's acquisition of Bear provides an excellent example.¹⁷⁷ So does Lehman's bankruptcy.

As discussed above, the Bear endgame succeeded, with the Bear-JPM merger yielding ten dollars per share for Bear stockholders.¹⁷⁸ The Lehman endgame failed, producing only bankruptcy and about twenty cents per share for Lehman stockholders who acted quickly, and less than a dime for those who tarried.¹⁷⁹ This Article therefore turns now to the details of Lehman's fight for survival and, in particular, the failure of the firm and the government to find a buyer for Lehman in the last days of Lehman's life.

2. Lehman's Endgame Failure

Lehman went down fighting. Liquidity is cash, and Lehman brought cash in, through more than \$17 billion of securities offerings in 2008.¹⁸⁰ It at least planned to reduce cash going out by cutting its dividend at the very end.¹⁸¹ The firm also reduced

175. Viral V. Acharya & Tanju Yorulmazer, *Cash in-the-Market Pricing and Optimal Resolution of Bank Failures*, in LIQUIDITY AND CRISES 512, 533 (Franklin Allen et al., eds. 2011).

176. See KOLB, *supra* note 7, at 184 (“[E]mergency actions led to the merger of Countrywide Financial and Merrill Lynch into Bank of America, Bear Stearns and Washington Mutual into JPMorgan Chase, and Wachovia into Wells Fargo. All of these mergers were accomplished with the active intervention and assistance of the federal government, and all of them were financially assisted by the federal government, with the exception of Wells Fargo's acquisition of Wachovia, which was supported by tax concessions but no actual transfer of immediate cash.”); *id.* at 185 tbl.10.1 (reporting the assets of specific banks before and after the financial crisis).

177. See *supra* notes 10–20 and accompanying text for a discussion of Bear's survival through a government-assisted merger.

178. See *supra* note 18 and accompanying text.

179. See *supra* note 3 and accompanying text.

180. Examiner Report, *supra* note 1, at 639–40 (reporting \$4 billion convertible preferred stock in April, \$1 billion senior notes in April, \$2 billion subordinated notes in May, \$2.5 billion senior notes in May, and \$6 billion common and preferred stock in June); Lehman Bros. Holdings Inc., Current Report (Form 8-K), Ex. 3.1 (Certificate of Designations, Powers, Preferences, and Rights) (Feb. 12, 2008) (documenting an offering of \$1.9 billion of preferred stock in February).

181. Preliminary Lehman Bros. Holdings Inc. Earnings Conference Call 3–4 (Richard Fuld, CEO) (Sept. 10, 2008) (transcript on file with author) [hereinafter *Lehman Third Quarter Conference Call*]; Lehman Press Release Sept. 10, 2008, *supra* note 24, at 5. The Seeking Alpha transcript for the September call puts the date at September 11, but the call occurred on September 10. Heidi N. Moore, *Live-Blogging the Lehman Conference Call*, WALL ST. J. (Sept. 10, 2008, 8:10 AM), <http://blogs.wsj.com/deals/2008/09/10/live-blogging-the-lehman-conference-call/>.

leverage during 2008,¹⁸² which technically meant reducing the ratio of assets to equity and, in plainer words, meant that the firm was funding fewer of its assets with borrowed money and more with money that shareholders put in—generally considered a way of reducing risk.¹⁸³

Lehman took other steps to bolster confidence among those on whom it depended for liquidity support. In January 2008, it distanced itself from the residential mortgage business, around which the credit crisis seemed to revolve, by suspending activities at a subsidiary specializing in those mortgages.¹⁸⁴ Throughout the year, Lehman reduced its residential mortgage-related holdings, particularly those resting on subprime mortgages.¹⁸⁵ In June, Lehman changed both its chief financial officer and its president/chief operating officer to show its commitment to reverse its declining fortunes.¹⁸⁶

Lehman also repeatedly discussed private deals that would inject capital into the firm and rid it of problematic assets. Some of these transactions would have radically transformed the company by giving new investors a controlling interest or spinning off assets or business operations. While none of these efforts bore fruit, they included discussions with Warren Buffet, a consortium of Korean financial institutions including the state-owned Korean Development Bank (KDB), KDB by itself, MetLife, the

182. Lehman reported both a leverage ratio and a “net leverage” ratio. *See* Lehman 2007 10-K, *supra* note 4, at 29–30 (displaying Lehman’s financial data and showing how Lehman calculated its net assets and leverage ratios). Table 1 below shows the figures:

Table 1

	11/30/07 Lehman 2007 10-K at 29	2/29/08 Lehman Q1 2008 10-Q at 72	5/31/08 Lehman Q2 2008 10-Q at 88	8/31/08 Press release included in Lehman 8-K filed 9/10/08 at 19
Leverage	30.7x	31.7x	24.3x	21.1x
Net Leverage	16.1x	15.4x	12.1x	10.6x

Lehman’s reported leverage ratios may have misled due to Repo 105 and Repo 108 transactions. *See* Examiner Report, *supra* note 1, at 727–1053 (devoting an entire volume to Repo 105 and Repo 108). But even after backing out those deals, Lehman’s net leverage was in fact declining. *See id.* at 748 (showing net leverage without Repo 105 and 108 at end of Q4 2007 (17.8), Q1 2008 (17.3), and Q2 2008 (13.9)).

183. *See* KLEIN ET AL., *supra* note 80, at 8–11 (showing that increasing leverage increases risk).

184. Lehman Bros. Holdings Inc., Current Report (Form 8-K) (Jan. 17, 2008).

185. Here are the figures that Lehman reported for total holdings of subprime U.S. residential mortgages and securities backed by subprime mortgages:

Table 2

	11/30/07	2/29/08	5/31/08	8/31/08
	2007 10-K at 105	2008 Q1 10-Q at 20	2008 Q2 10-Q at 25	(Press release) Attachment III (Ex. 99.2) Lehman Form 8-K (9/10/08)
Holdings	\$5.276 billion	\$4.017 billion	\$2.755 billion	\$1.6 billion

186. *See* Examiner Report, *supra* note 1, at 615 (stating that Lehman’s CEO “told the Board that he intended the management change to be a ‘dramatic’ demonstration to Wall Street that Lehman was taking action to make changes”).

Investment Corporation of Dubai, and Bank of America (BofA).¹⁸⁷

All of these steps fell generally within the rubric of Lehman's "survival strategy."¹⁸⁸ But Lehman's true endgame—desperate efforts, assisted by the government, to sell the company—began on Tuesday, September 9, 2008, when Secretary Paulson called BofA's CEO to urge expressly that BofA buy Lehman in whole.¹⁸⁹ After BofA conducted due diligence for such a purchase, it concluded that Lehman was overvaluing its commercial real estate assets and that some \$60–\$67 billion of Lehman assets were undesirable at any price.¹⁹⁰ BofA was accordingly unwilling to proceed unless the U.S. government provided financial assistance for the deal,¹⁹¹ which the government said it would not do.¹⁹²

The government's determination not to put its own money into a mid-September Lehman rescue likely derived from very particular facts. The political backlash from the government participation in JPM's acquisition of Bear in March was fresh in policymakers' minds.¹⁹³ Even more temporally proximate, the government placed the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac) into conservatorship on September 7,¹⁹⁴ a move that prompted additional criticism.¹⁹⁵ And during the weekend coda to the government efforts to save Lehman, Secretary Paulson heard ominous tidings of bad news at American International Group (AIG),¹⁹⁶ which would lead shortly to an \$85 billion bailout.¹⁹⁷ The particular week in which Lehman's endgame played out—September 9 through September 15—was therefore a terrible one during which to seek government money to help save a failing financial institution.

Instead of putting in government money to facilitate a merger to save Lehman's life, Secretary Paulson envisioned a private sector solution and convened a meeting of

187. *Id.* at 651–52, 665–81, 687–96.

188. That is how the Lehman Examiner categorized these efforts. *Id.* at 609–726.

189. PAULSON, *supra* note 14, at 175–77.

190. Examiner Report, *supra* note 1, at 699.

191. *Id.* at 699, 701.

192. PAULSON, *supra* note 14, at 184–85, 189.

193. As one Wall Street lawyer told the Financial Crisis Commission later, "It was said on more than one occasion that it would be very politically difficult to rescue Lehman. There had been a lot of blowback after Bear Stearns." FCIC REPORT, *supra* note 10, at 334; *see also id.* at 330 (stating that on September 9, "Treasury Chief of Staff Jim Wilkinson emailed Michelle Davis, the assistant secretary for public affairs at Treasury, to express his distaste for government assistance: 'We need to talk. . . . I just can't stomach us bailing out Lehman. . . . Will be horrible in the press don't u think.'"); PAULSON, *supra* note 14, at 117 ("[T]he [Bear] deal was hugely controversial. . . . Senator Richard Shelby. . . said the action set a 'bad precedent.'").

194. Press Release, Fed. Hous. Fin. Agency, Statement of FHFA Director James B. Lockhart 5 (Sept. 7, 2008), available at http://www.treasury.gov/press-center/press-releases/Documents/fhfa_statement_090708hp1128.pdf.

195. PAULSON, *supra* note 14, at 181 ("All of us were well aware that after Fannie and Freddie, the country, Congress, and both parties were fed up with bailouts. . . . And just before our conference call [between Paulson, Geithner, and Treasury staffers, to discuss Lehman] had begun I'd spoken with [Senator] Chris Dodd, who told me, 'Fuld [Lehman's CEO] is a friend. Try to help, but don't bail Lehman out.'").

196. *Id.* at 200. Christopher Flowers told Paulson on Saturday, September 13, that AIG would run out of money in ten days. *Id.*; *see also id.* at 205 ("We had gone into the weekend to save Lehman Brothers, and now AIG was facing a liquidity crisis that had put it on the verge of bankruptcy. . . .").

197. Am. Int'l Grp., Current Report (Form 8-K) (Sept. 26, 2008).

Wall Street CEOs to put together a plan.¹⁹⁸ By the time that group began meeting in the early evening of Friday, September 12,¹⁹⁹ Barclays, a large British financial institution, had emerged as a second possible Lehman purchaser—an alternative to BofA.²⁰⁰ Barclays' interest, however, was in a Lehman without certain commercial real estate assets and private equity investments.²⁰¹

After BofA lost interest on Saturday, September 13,²⁰² the Wall Street titans (who continued to meet through the weekend)²⁰³ focused on financing problematic assets that Barclays did not want.²⁰⁴ The collected CEOs concluded that Lehman—even after a recent write-down—valued those assets at far more than their worth.²⁰⁵ If such assets were to be bought from Lehman before Barclays bought Lehman, the new owner (financed by the Wall Street firms the CEOs represented) would have to take any subsequent loss.²⁰⁶ The Wall Street firms agreed to finance that loss and, by Sunday, September 14, had prepared a term sheet by which they would commit more than \$30 billion to a purchase of Lehman property that Barclays would not take.²⁰⁷

Barclays appeared ready to proceed as well, subject to the approval of its regulator, the Financial Services Authority (FSA) in London.²⁰⁸ But the transaction required that Barclays guarantee Lehman's obligations between the time the deal was struck and the time it closed.²⁰⁹ That guarantee, in turn, required an affirmative vote by Barclays' shareholders, which obviously could not be obtained over the September 13–14 weekend because the necessary procedures to receive an affirmative vote by Barclays' shareholders would have taken thirty to sixty days.²¹⁰ The FSA had the power to waive the requirement for the Barclays' shareholder vote,²¹¹ but it refused to do so, despite personal appeals from the President of the New York Fed, the Chairman

198. FCIC REPORT, *supra* note 10, at 334.

199. PAULSON, *supra* note 14, at 191.

200. Examiner Report, *supra* note 1, at 703.

201. *Id.* at 706–07.

202. PAULSON, *supra* note 14, at 201.

203. *See id.* at 206 (reporting the CEOs' position on Saturday evening); *id.* at 213 (providing Paulson's report to the CEOs on early Sunday afternoon).

204. COHAN, *supra* note 10, at 515.

205. *Id.* at 517.

206. *Id.*

207. *See* PAULSON, *supra* note 14, at 206, 210 (describing the terms of the proposed deal and stating that “[i]f Barclays had committed to the deal, we would have had industry financing in place”).

208. Examiner Report, *supra* note 1, at 707–08.

209. *See* FCIC REPORT, *supra* note 10, at 335 (“[T]he New York Fed required Barclays to guarantee Lehman's obligations from the sale until the transaction closed . . .”).

210. *See id.* (explaining that a vote could take thirty to sixty days). This agreement was considered a class 1 transaction because it included an unlimited and exceptional guarantee. *See* FINANCIAL CONDUCT AUTHORITY, LISTING RULE § 10.2.4(1)(c) (as of Sept. 14, 2008), *available at* <http://fsahandbook.info/FSA/html/handbook/>. To accomplish a class 1 transaction, the listed company had to send an explanatory circular to its shareholders and obtain their prior approval in a general meeting. *See id.* § 10.5.1(2).

211. *See* Examiner Report, *supra* note 1, at 708 (reporting the FSA “acknowledged that theoretically it could waive the shareholder approval requirement”); FINANCIAL CONDUCT AUTHORITY, LISTING RULE § 1.2.1(1) (“The FCA may dispense with or modify the listing rules in such cases and by reference to such circumstances as it considers appropriate . . .”).

of the Securities and Exchange Commission (SEC), and the Secretary of the Treasury.²¹² The Barclays' deal was Lehman's last hope, and when it died, the U.S. government suggested that Lehman file for bankruptcy, which Lehman did.²¹³ So, oddly enough, it was a foreign regulator that turned Lehman's liquidity heart attack into a no-code death.

II. WHY NOBODY KNEW WHAT WAS COMING

With the Lehman story set out, this Article now turns to the firm's multiple disclosures. From the beginning of 2008 until it filed for bankruptcy on September 15, Lehman filed the following documents, among others, with the SEC: a Form 10-K for its 2007 fiscal year, a Form 10-Q for its first 2008 quarter, a Form 10-Q for its second quarter, and a proxy statement for its annual meeting.²¹⁴ Lehman also issued press releases with financial results for the first, second, and third quarters of its 2008 fiscal year²¹⁵ and hosted conference calls in which its top executives answered questions from securities analysts about the company's performance in those three quarters and its plans for the future.²¹⁶ The analysis turns now to whether—when it made sense for stockholders to consider the question and when they were still able to sell their Lehman stock and recoup some significant portion of their purchase price—these disclosures permitted shareholders to predict, *at the time the disclosures were made*, a substantial chance of liquidity death before the year was out.

To address these questions, Part A selects two time periods in which to analyze Lehman's disclosures: (1) the month of January 2008 and (2) March 10 to June 20, 2008. Parts B and C proceed to test whether—taken *as a whole* and looking at their *effect* rather than their content—Lehman's disclosures during these two periods alerted shareholders to looming liquidity failure. The last two Parts then turn to disclosure *content* and ask whether Lehman's disclosures—in each of the two periods—warned shareholders of the risks posed by triparty repos (Part D) and a possible endgame (Part E).

A. The Two Periods in Which To Test Lehman's Disclosures

In the discussion below, this Article examines disclosures in two key time periods. The first is January 2008. January 2008 makes sense as the first test period

212. See Examiner Report, *supra* note 1, at 708–09 (noting that Geithner and SEC Chairman Cox each called the FSA chair); FCIC REPORT, *supra* note 10, at 336 (showing that Paulson called the U.K. chancellor of the exchequer).

213. Examiner Report, *supra* note 1, at 723–26.

214. Lehman 2Q 10-Q, *supra* note 23; Lehman 1Q 10-Q, *supra* note 21; Lehman Bros. Holdings Inc., Definitive Proxy Statement (Schedule 14-A) (Mar. 5, 2008); Lehman 2007 10-K, *supra* note 4.

215. See Lehman Press Release Mar. 18, 2008, *supra* note 21; Lehman Press Release June 9, 2008, *supra* note 23 (expected figures); Lehman Press Release June 16, 2008, *supra* note 23 (final figures); Lehman Press Release Sept. 10, 2008, *supra* note 24.

216. Lehman Third Quarter Conference Call, *supra* note 181; Lehman Second Quarter Conference Call, *supra* note 23; Lehman Bros. Holdings Inc., Conference Call: Preliminary Second Quarter Earnings Figures (June 10, 2008) (transcript on file with author) [hereinafter June 10 Preliminary Q2 Figures Call]; Lehman First Quarter Conference Call, *supra* note 21.

because Lehman was coming off a good fiscal 2007.²¹⁷ The mortgage crisis, however, was well underway.²¹⁸ It would therefore have made sense for a shareholder to ask—when Lehman was still doing well but after the crisis had begun—whether there was a real chance that the problems reverberating through the financial world threatened Lehman with a catastrophic liquidity event. Moreover, since Lehman’s stock price during January 2008 varied between \$53.25 per share and \$64.05 per share and closed at \$64.05 per share, a shareholder would still have recovered over half the stock’s purchase price by selling in January 2008, even if the shareholder had bought at the \$85.80 per share price on February 2, 2007, which was the highest price for which Lehman stock sold in 2007 and 2008.²¹⁹

The second test period begins on March 10, 2008, the first day of the week in which Bear nearly died.²²⁰ If ever there was a time to consider whether Lehman risked liquidity failure, that time arrived when a sister institution suffered such a fate. The full evaluation of Lehman’s vulnerability in light of Bear’s experience arguably continued through Lehman’s announcement of its final second-quarter financial results on June 16, Lehman’s second-quarter conference call with analysts on June 16,²²¹ and a few days thereafter during which market participants could mull over this news. A warning to Lehman stockholders even as late as June 20 would have been timely since, even on

217. See *supra* note 8 and accompanying text for a discussion of Lehman’s success in the 2007 fiscal year.

218. In June 2007, two hedge funds sponsored by Bear Stearns nearly imploded. Both had invested in complex securities backed by subprime mortgages. Bear committed to loan as much as \$3.2 billion to save one of them. Kate Kelly & Serena Ng, *Lifeline: Bear Stearns Bails Out Fund with Big Loan; Injection of \$3.2 Billion Caps Days of Drama; Subprime Sector Fears*, WALL ST. J., June 23, 2007, at A1; Kate Kelly et al., *Two Big Funds at Bear Stearns Face Shutdown; As Rescue Plan Falters Amid Subprime Woes, Merrill Asserts Claims*, WALL ST. J., June 20, 2007, at A1. By August, those funds had attempted to file for bankruptcy, and Bear Stearns’ president/co-chief operating officer had resigned. Bear Stearns Co., Current Report (Form 8-K) (filed Aug. 9, 2007); Landon Thomas, Jr., *A Top Official at Bear Stearns Ousted over Funds Implosion*, N.Y. TIMES, Aug. 6, 2007, at C1; *Judge Rejects Bankruptcy for 2 Hedge Funds*, N.Y. TIMES, Aug. 31, 2007, at C4. In December, Bear announced that it lost money in the last quarter of its 2007 fiscal year, in part due to \$1.9 billion in write-downs of mortgage-related assets. Bear Stearns Co., Current Report (Form 8-K), Ex. 99.2 (Press Release) (Dec. 21, 2007). Bear’s CEO retired in early January 2008, reportedly in part as a result of the company’s poor financial performance during the mortgage crisis. Kate Kelly, *Cayne To Step Down as Bear Stearns CEO*, WALL ST. J., Jan. 8, 2008, at A1.

Other companies had also suffered reverses. Countrywide, the largest mortgage lender in the United States, reported its first loss in twenty-five years in October 2007 while writing down \$690 million on home equity lines and subprime loans. Gretchen Morgenson, *Countrywide Is Upbeat Despite Loss*, N.Y. TIMES, Oct. 27, 2007, at C1, C9. Morgan Stanley reported its first quarterly loss in seventy-two years in December 2007, occasioned in part by a \$9.4 billion write-down of mortgage-related assets. Landon Thomas, Jr., *Wall St. Firm Reports Loss, Its First Ever*, N.Y. TIMES, Dec. 20, 2007, at C1.

219. S&P CAPITAL IQ DATABASE, *supra* note 3. Those who contend that Lehman’s stock price was inflated through accounting fraud would see no advantage in sales prompted by such a warning. They would argue that sellers would simply have passed an inevitable loss on to buyers. The SEC investigated Lehman extensively. It has never filed an enforcement action against the Lehman principals. See Peter J. Henning, *Dim Prospects for Financial Crisis Prosecutions*, N.Y. TIMES (May 29, 2012, 3:13 PM), <http://dealbook.nytimes.com/2012/05/29/dim-prospects-for-financial-crisis-prosecutions/>.

220. See *supra* notes 10–15 and accompanying text.

221. See *supra* note 23 and accompanying text.

that date, Lehman's stock price closed at \$24.20.²²² A shareholder selling then would therefore still have recovered more than twenty-five percent of the initial cost if the investor had bought at Lehman's peak 2007–2008 price.²²³

B. How To Test Whether the Disclosures, Overall, Warned of a Possible Liquidity Death

With the two test periods defined, the first question is whether Lehman's disclosures—considered overall and without regard to details—suggested a significant probability that owners of Lehman's common stock might be wiped out by a liquidity-caused bankruptcy. Importantly, the question is not whether the disclosures portended hard times in which Lehman's stock price would decline, but whether the disclosures suggested a substantial risk of a liquidity heart attack. Did they warn of death, not just illness?

The market price of Lehman stock cannot guide this investigation. It does not reveal whether investors were warned of a significant probability of the company's demise. Expected value theory teaches that the rational investor will consider the sum of expected probabilities multiplied by possible returns, plus the profit that the investor requires.²²⁴ Thus, even if a shareholder (or purchaser) at a given time saw a significant chance that Lehman might collapse, the investor might still have continued to hold the stock (or buy it) if the investor also saw a significant probability that Lehman would overcome its problems, with the price of its stock surging as a result.

For example, an owner of Lehman stock on June 20, 2008, who planned to sell in September (or a buyer purchasing the stock on June 20 who planned to sell in September) might have been satisfied to hold (or buy) Lehman stock at the \$24.20 per share for which the stock sold on that date if the investor concluded that there was a 50% chance that Lehman would die from want of cash by September 20, but also a 50% chance that Lehman would resolve its business difficulties by that time, with its stock price reaching \$58. That investor would have computed the expected value of the stock in September as

$$(.5 \times \$0) + (.5 \times \$58) = \$29.$$

With the expected value at \$29, and the price at \$24.20, this first investor might well have held Lehman stock (or bought it), even if the investor required a 50% annual return for doing so, taking into account the extreme volatility of possible outcomes.²²⁵

222. S&P CAPITAL IQ DATABASE, *supra* note 3.

223. A twenty-five percent recovery, of course, means a seventy-five percent loss, which is quite large. But the question here is not whether warnings could have prevented any loss, or even a large loss. The question is whether warnings could have enabled an investor who did not want to take the risk of a liquidity disaster a chance to save some significant portion of its investment. Somewhat arbitrarily, this Article sets that portion at twenty-five percent for an investor who bought at Lehman's top price.

224. KLEIN ET AL., *supra* note 80, at 242–43.

225. See BARUCH FISCHHOFF & JOHN KADVANY, RISK: A VERY SHORT INTRODUCTION 69 (2011) (explaining that “large losses hurt so much that they have disproportionate (negative) utility”); KLEIN ET AL., *supra* note 80, at 246–50 (explaining premium for volatility risk). Since the three months from June 20 to September 20 is one-fourth of a year, a 50% annual return translates to 12.5% over the three months. Twelve and a half percent of \$24.20 is \$3.025. That amount, added to the \$24.20, equals \$27.225, which is less than the \$29.00 expected value.

A second investor might have concluded, on June 20, that there was a 50% chance that Lehman would still be in business September 20 with its stock trading at \$10 per share, a 50% chance that Lehman would rebound by that time, with its stock up to \$48, and a 0% chance that Lehman would go bust for lack of cash and credit. This second investor would also have concluded that the stock had an expected value of \$29, computed as

$$(.5 \times \$10) + (.5 \times \$48) + (0 \times \$0) = \$29.$$

Assuming that it also required a 50% annual return,²²⁶ this second investor, like the first, might well have decided on June 20 to continue to hold Lehman stock at the then-current price of \$24.20 (or buy it at that price) because the second investor, like the first, computed the expected value to exceed the price plus required profit.

It is possible that the market settled on the \$24.20 per share price on June 20 even though, like the first investor, buyers and holders saw a significant probability that Lehman would suffer a cash-deprived cardiac arrest—offset by a similar probability of a large gain. But it is possible that the market settled on that price because, like the second investor, buyers and holders foresaw a probability of some decline in the company's fortunes—offset by a probability of a large but not jackpot gain—and did not see *any* real chance that the firm would run out of cash. Most likely, investors were mixed—some like the first investor, some like the second, and others with myriad differing computations involving possible price declines, possible price increases, and probabilities associated with each. But the stock price does not reveal what proportion of investors fell into each such category and therefore does not reveal what proportion of equity investors saw a significant probability that Lehman would suffer a fatal liquidity collapse.

With the stock price unhelpful, this Article looks elsewhere to discover whether the information Lehman provided warned its shareholders that their investment might be completely destroyed by catastrophic illiquidity.²²⁷ Specifically, this Article turns to three sources: stock analysts, credit rating agencies, and the buyers and sellers of credit default swaps (CDSs). Stock analysts and credit rating agencies provided written evaluations of Lehman's prospects.²²⁸ What they wrote directly shows whether the

226. Since the volatility is lower in this second example, the second investor would likely have been satisfied with a lower return.

227. Eventually, stock price information warned of a collapse. Using a very different methodology than employed in this Article and focusing on bid-ask spreads, two researchers in a recent draft “identify evidence of market speculation about an imminent failure of Lehman Brothers *only in the last week of trading*.” Thomas Gehrig & Marlene Haas, *Lehman Brothers: Did Markets Know?* 39 (June 2014), available at http://www.ecgi.org/wp/wp_id.php?id=681 (emphasis added). But the question this Article examines is whether the market recognized a significant risk of a collapse in time for investors to exit with a substantial portion of their investment.

228. See, e.g., Mike Mayo & Matt Fischer, *Lehman Brothers Holding: 2Q08 EPS in Line with Pre-Release; Exposures Clearer*, DEUTSCHE BANK GLOBAL MKTS. RES. (Deutsche Bank Sec., Inc., New York, N.Y.), June 16, 2008, at 1, 3 [hereinafter Mayo & Fischer, *2Q08 EPS*] (providing valuation and assessment of risks); Douglas Sipkin et al., *Lehman Brothers Holdings Inc.: Tough Year Ahead—Sowing Seeds for Share Gains*, WACHOVIA EQUITY RES. (Wachovia Capital Mkts., LLC, New York, N.Y.), Jan. 15, 2008, at 1 [hereinafter Sipkin et al., *LEH: Tough Year Ahead*] (opining that “the stock will trade in a range of \$71–72 per share based on a multiple of 1.8x estimated Q1 2008 book value” and that “[r]isks to this valuation range include a material decline in primary and secondary debt markets and decreased penetration in European

analysts or rating agencies foresaw a serious chance of Lehman's liquidity death. Those who bought and sold CDSs—protection against Lehman defaulting on its own debt—would win or lose based *solely* on whether Lehman ran out of cash. Therefore—albeit indirectly and only in a crude way—the prices the CDS buyers and sellers paid or demanded reflected their expectation that Lehman's cash and credit would evaporate.

If analysis discloses that the information from Lehman's securities filings suggested to *these other market participants* that Lehman ran a significant risk of liquidity failure, it is fair to infer that the investors in Lehman's common stock saw the risk in the same light.²²⁹ This test is critical because, if shareholders were adequately and timely warned of liquidity failure, it may not matter what language Lehman used. If the warning succeeded, it may not be particularly important to break down the content of Lehman's disclosures to find key parts and then analyze those parts closely.

C. *The Failure of the Disclosures, Overall, To Provide a Warning*

Turn, then, to the two test periods. In each period, this Part examines what the stock analysts and credit rating agencies said about Lehman. In each period, it also examines CDS prices.

1. January 2008

Stock analysts. Stock analysts collect information about the companies they cover, issue reports that project those companies' financial performance, forecast the companies' stock price performance against market benchmarks, and recommend that investors buy, sell, or hold that stock.²³⁰ Analysts whose work was readily available and who covered Lehman throughout 2008 included those at Credit Suisse Equity Research (Credit Suisse), Deutsche Bank Global Markets Research (Deutsche), Oppenheimer & Co. Inc. (Oppenheimer), and Wachovia Capital Markets LLC (Wachovia).

Credit Suisse analysts projected in January 2008 that Lehman would "Outperform" the market, meaning that the return on Lehman's stock would exceed the average in its industry over the next twelve months.²³¹ Just after this first period ended,

markets").

229. Each of the three indicators has flaws. Equity analysts are often overoptimistic. See Khushbu Agrawal, *Conceptual Framework of Behavioral Biases in Finance*, 9 IUP J. BEHAVIORAL FIN. 7, 10 (2012) (citing studies of analyst overoptimism). But see Armen Hovakimian & Ekkachai Saenyasiri, *Conflicts of Interest and Analyst Behavior: Evidence from Recent Changes in Regulation*, 66 FIN. ANALYSTS J. 96, 101 tbl.2 (2010) (showing virtually zero median bias in estimated annual earnings of covered companies in a large sample during 2003–06). Credit rating agencies received a public flogging in the wake of the credit crisis for their poor performance in rating mortgage-backed securities and derivatives based upon such securities. FCIC REPORT, *supra* note 10, at xxv, 118–22, 146–50, 165, 206–12, 221–24, 242–43. CDS prices may be poor predictors of default caused by realization of systemic risk.

But the point is not whether any of these indicators were right. Indeed, events proved they were not. The point is that these indicators provide insight into the risk predictions of Lehman shareholders, which were also wrong.

230. See Regulation Analyst Certification, Securities Act Release No. 33-8,119, Exchange Act Release No. 46,301, 67 Fed. Reg. 51,510 (Aug. 8, 2002).

231. See Susan Roth Katzke & Ross Seiden, *Lehman Brothers: Credit Suisse Financial Services Forum*

these analysts commented that Lehman was “one of the few” financial firms that had “maneuvered through this difficult operating environment” “prudently” and “thereby differentiated itself in terms of risk management.”²³² Deutsche analysts advised investors to “Buy” Lehman stock and said that Lehman’s “culture showed that risk management is effective.”²³³ Oppenheimer analysts rated Lehman an “Outperform” stock that would beat the S&P 500 index over the following twelve to eighteen months but did include a boilerplate caution that “[a]n extended interruption in liquidity [would] have a materially adverse impact on earnings.”²³⁴ Wachovia analysts forecasted that Lehman would “Outperform” by yielding overmarket returns during the next twelve months and said that Lehman was “focused on . . . liquidity.”²³⁵

Thus, most of these stock analysts predicted that Lehman stock would do better than other stocks over the year 2008. Two sets of analysts complimented Lehman’s risk management. While one set of analysts cautioned in a general way that there was some risk that a liquidity interruption could hurt earnings, neither that report nor any of the others told investors that Lehman ran a serious risk of descending into a liquidity death spiral ending in bankruptcy.

Credit rating agencies. Credit rating agencies expressly evaluate whether a company will have the cash to pay its bills. There were three principal rating agencies in 2008: Standard & Poor’s (S&P), Moody’s, and Fitch.²³⁶ In January 2008, S&P rated Lehman’s long-term debt A+,²³⁷ with the “A” meaning that S&P considered Lehman’s “capacity to meet [its] financial commitment[s]” on its long-term debt “strong”²³⁸ and the plus sign meaning that Lehman’s debt-paying capacity was better than that of most companies within the “A” category.²³⁹ Moody’s rated Lehman’s long-term debt A1,²⁴⁰ with the “A” signifying “low credit risk” and the “1” putting Lehman’s debt in “the higher end” of the A-rated group.²⁴¹ Fitch rated Lehman’s long-term debt AA-,²⁴² which (using Fitch’s published ratings distribution a year before) put Lehman in the top

Highlights, CREDIT SUISSE EQUITY RES. (Credit Suisse USA, New York, N.Y.), Feb. 7, 2008, at 1, 3 (explaining an “outperform” rating and showing that Credit Suisse gave Lehman an “outperform” from October 8, 2007, through the date of report).

232. *Id.* at 1.

233. Mike Mayo & Matthew Fischer, *Lehman Brothers Holding: Meeting with CFO*, DEUTSCHE BANK GLOBAL MKTS. RES. (Deutsche Bank Sec., Inc., New York, N.Y.), Jan. 10, 2008, at 1–2 [hereinafter Mayo & Fischer, *Meeting with CFO*].

234. Meredith Whitney & Kaimon Chung, *Lehman Brothers Holdings Inc.: Take-Aways from Meeting with LEH’s New CFO Erin Callan*, OPPENHEIMER CO. UPDATE (Oppenheimer & Co., Inc., New York, N.Y.), Jan. 28, 2008, at 1, 4, 8.

235. Sipkin et al., *LEH: Tough Year Ahead*, *supra* note 228, at 1, 4.

236. KOLB, *supra* note 7, at 32.

237. Lehman 2007 10-K, *supra* note 4, at 61.

238. STANDARD & POOR’S, CORPORATE RATINGS CRITERIA 11 (2008) [hereinafter S&P RATINGS CRITERIA]. A table providing default rate histories over the period 1981–2006 showed that the debt rated “A” defaulted at only a 0.1% rate in the first year following the rating. *Id.* at 14.

239. *Id.* at 12.

240. Lehman 2007 10-K, *supra* note 4, at 61.

241. MOODY’S INVESTOR SERV., MOODY’S RATING SYMBOLS AND DEFINITIONS 8 (2008).

242. Lehman 2007 10-K, *supra* note 4, at 61.

eighty percent of all companies rated.²⁴³ None of these ratings suggested any significant probability of a liquidity heart attack and subsequent bankruptcy.

CDS prices. The holders of Lehman debt, like the holders of debt issued by other companies, could buy CDS protection, which would repay their loss if Lehman defaulted on its debt. The prices charged for that protection provide the third check on the expectation that Lehman might completely collapse. The price of CDS protection does not convert directly into an implied probability of default.²⁴⁴ Benchmark CDS prices are therefore necessary. As a standard for a CDS price indicating an extreme danger of imminent default, this Article uses \$724,200—the price to protect against Bear’s default on \$10 million of its senior debt, if the protection was purchased on March 14, 2008, which was effectively Bear’s last day as an independent company.²⁴⁵ On the other end of the spectrum, Exxon Mobil enjoyed a triple-A credit rating throughout 2008²⁴⁶ and operated at far remove from the turmoil swirling through the financial firms.²⁴⁷ CDS protection against an Exxon Mobil default averaged \$35,040 throughout 2008,²⁴⁸ and this Article uses that figure as the benchmark price for CDS protection against default by a company displaying extreme credit safety.

243. Credit ratings “express creditworthiness in terms of relative measures of default likelihood.” FITCH RATINGS, *INSIDE THE RATINGS: WHAT CREDIT RATINGS MEAN 2* (2007) [hereinafter FITCH, *INSIDE THE RATINGS*]; see also *id.* at 13 (showing a graph of the distribution of corporate finance issuer ratings as of June 30, 2007).

244. CDS prices depend not only on the probability of default but also on anticipated recovery after a default and liquidity and regulatory considerations. NOMURA FIXED INCOME RESEARCH, *CREDIT DEFAULT SWAP (CDS) PRIMER 4* (2004). The factors other than probability of default can complicate extraction of that probability from the price. Moreover, the price of a CDS may emerge from such thin trading that it does not represent a market judgment. Carrick Mollenkamp & Serena Ng, *A Fear Gauge Comes Up Short—Analysis Shows Credit-Default swaps, a Popular Indicator of Market Health, Are Thinly Traded*, WALL ST. J., Sept. 29, 2011, at C1.

245. All CDS prices are taken from Credit Market Analysis data downloaded from S&P’s Capital IQ and on file with the author and *Temple Law Review* [hereinafter CMA CDS DATABASE]. Each CDS price used in this Article is the annual cost, in each of five years, for protection during those years against loss from the issuer’s default on \$10,000,000 par value of the issuer’s senior debt. See Michael Simkovic & Benjamin S. Kaminetzky, *Leveraged Buyout Bankruptcies, the Problem of Hindsight Bias, and the Credit Default Swap Solution*, 2011 COLUM. BUS. L. REV. 118, 202–203 (2011) (describing the five-year CDS contract and the Credit Market Analysis database).

The price for such protection on the last day of Bear’s independent existence (Friday, March 14, 2008) should reflect the price for extreme distress because, by that date, Bear’s condition had already prompted “an unusual number of customers [to] withdr[a]w funds . . . and a significant number of counterparties and lenders [to be] unwilling to make secured funding available to Bear Stearns on customary terms.” Bear Proxy Statement, *supra* note 10, at 27. Moreover, all three credit rating agencies had downgraded Bear debt, while also stating that they were considering further downgrades. *Id.* at 28; see also PAULSON, *supra* note 14, at 91 (reporting Paulson’s belief that the Bear CDS price during the firm’s last week reflected the “intense pressure” under which Bear labored).

246. See Exxon Mobil, Annual Report (Form 10-K), at 49 (Feb. 27, 2009) [hereinafter Exxon 2008 10-K]; Exxon Mobil, Annual Report (Form 10-K), at 40 (Feb. 20, 2008).

247. See Exxon 2008 10-K, *supra* note 246, at 1 (describing Exxon Mobil’s business as “energy, involving exploration for, and production of, crude oil and natural gas, manufacture of petroleum products and transportation and sale of crude oil, natural gas and petroleum products” rather than banking or finance).

248. CMA CDS DATABASE, *supra* note 245.

The price for a five-year CDS on \$10 million of Lehman debt during January 2008 varied between \$119,000 and \$185,800, ending at \$145,500—at all times less than twenty-six percent of the extreme distress benchmark,²⁴⁹ but at the same time about four times the benchmark for extreme safety. This suggests that, while those market participants who were putting their money behind their default predictions certainly saw *some probability* of a Lehman meltdown over a five-year horizon, they did not see a *high probability* of a short-term liquidity collapse.

2. March 10 to June 20, 2008

Stock analysts. During the second test period, the Credit Suisse stock analysts continued to opine that Lehman stock would “Outperform” its industry’s average—until Lehman announced its second-quarter results (showing a loss and a write-down), whereupon these analysts downgraded Lehman to “Neutral,” meaning that they expected its stock to provide a total return within ten percent of the industry average over the next twelve months.²⁵⁰ The Deutsche analysts said, immediately after Bear’s crisis, that “Lehman is Not Bear.”²⁵¹ They continued to rate Lehman a stock to “Buy” through the end of this second period,²⁵² and in June opined that “[l]iquidity is not a major issue,”²⁵³ lauding the increase in Lehman’s “liquidity pool” from \$34 billion to \$45 billion during the second quarter.²⁵⁴ Oppenheimer analysts declared, following Bear’s collapse, that Lehman’s first-quarter numbers “dispelled all doubts of a solvency crisis at the company.”²⁵⁵ But they reduced their Lehman stock rating from “Outperform” to “Perform” and maintained that rating into June, also noting favorably in June the increase in Lehman’s “liquidity pool” and further observing in June that Lehman had “tested” the new PDCF liquidity backup but “did not have an outstanding balance [with that backstop] as-of the end 2Q08.”²⁵⁶ The “Perform” rating meant that the Oppenheimer analysts believed Lehman stock would “perform in line with the S&P

249. *Id.* CDS price comparisons suffer from the implicit assumption that the percentage recovered by debt holders after default will be the same at each company. Due to the inaccuracy of that assumption, and for other reasons, this Article uses CDS prices for only a very crude comparison of creditworthiness of different companies.

250. See Susan Roth Katzke & Ross Seiden, *Lehman Brothers: Recalibrating Expectations*, CREDIT SUISSE EQUITY RES. (Credit Suisse USA, New York, N.Y.), June 10, 2008, at 1 (new rating), 7 (providing a history of Lehman ratings and explaining “neutral”).

251. Mike Mayo & Matthew Fischer, *Lehman Brothers Holding: It Is Not Bear*, DEUTSCHE BANK GLOBAL MKTS. RES. (Deutsche Bank Sec., Inc., New York, N.Y.), Mar. 17, 2008, at 1.

252. Mayo & Fischer, *2Q08 EPS*, *supra* note 228, at 1.

253. Mike Mayo & Matthew Fischer, *Lehman Brothers Holding: Lowering Estimates*, DEUTSCHE BANK GLOBAL MKTS. RES. (Deutsche Bank Sec., Inc., New York, N.Y.), June 5, 2008, at 1.

254. Mike Mayo & Matthew Fischer, *Lehman Brothers Holding: 2Q08 Loss, First Take*, DEUTSCHE BANK GLOBAL MKTS. RES. (Deutsche Bank Sec., Inc., New York, N.Y.), June 9, 2008, at 1, 2.

255. Meredith Whitney & Kaimon Chung, *Lehman Brothers Holdings Inc.: LEH Dispels Negative Speculation with 1Q08 Earnings*, OPPENHEIMER Q. UPDATE (Oppenheimer & Co., Inc., New York, N.Y.), Mar. 18, 2008, at 1.

256. Meredith Whitney et al., *Lehman Brothers Holdings Inc.: LEH 2Q08 Net Results Match Pre-Announcement*, OPPENHEIMER EQUITY RES. Q. UPDATE (Oppenheimer & Co., Inc., New York, N.Y.), June 17, 2008, at 22 [hereinafter Whitney et al., *LEH 2Q08 Net Results*] (showing a chart of rating history, with a change to “Perform” on March 24); *id.* at 1, 4 (quotation and observation that liquidity pool increased).

500 within the next 12–18 months.”²⁵⁷ Wachovia analysts rated Lehman “Outperform” until the company released second-quarter results, when they downgraded Lehman to “Market Perform,” meaning that investors owning Lehman stock should hold it because the total return from that stock over the next twelve months “will be in line with the market.”²⁵⁸ On June 16, these analysts said that Lehman’s “improved . . . liquidity position should go a long way to calming market fears.”²⁵⁹

Read together, the stock analyst reports recognized that Lehman was experiencing trouble by June 20, 2008, with most of the analysts reducing their ratings for Lehman stock. But even these analysts predicted that Lehman stock would perform in line with the market. None of the reports suggested any serious probability that Lehman would follow Bear into a liquidity emergency. To the contrary, the reports suggested that Lehman’s liquidity was improving.

Credit rating agencies. Turning to the credit rating agencies, S&P kept Lehman’s credit rating at A+ until June 2008, when it lowered the rating to A, with a negative outlook.²⁶⁰ While S&P commented that the rating might decline further if Lehman suffered “substantial losses” or if “the firm’s ability to sustain potential liquidity stresses should weaken,”²⁶¹ the A rating reflected S&P’s judgment that Lehman’s “capacity to meet its financial commitment[s]” on its long-term debt remained “strong,” and the negative outlook did not necessarily mean that the rating would fall further.²⁶² Moody’s reaffirmed and maintained its A1 rating on Lehman (low credit risk) throughout the second time period but announced a negative outlook on that rating after Lehman published its second-quarter financial numbers.²⁶³ Moody’s added during Bear’s crisis that “Lehman has consistently been among the top financial institutions at

257. *Id.* at 23.

258. See Douglas Sipkin et al., *Lehman Brothers Holdings, Inc.: LEH Hosts Earnings Call—Long-Term Story Still Intact*, WACHOVIA EQUITY RES. (Wachovia Capital Mkts., LLC, New York, N.Y.), June 16, 2008, at 1, 5 [hereinafter Sipkin et al., *LEH Hosts Earnings Call*] (showing rating still at “market perform”); Douglas Sipkin et al., *Lehman Brothers Holdings, Inc.: LEH Pre-Announces, Too Many Inconsistencies—Downgrading Rating*, WACHOVIA EQUITY RES. (Wachovia Capital Mkts., LLC, New York, N.Y.), June 10, 2008, at 1, 6 (downgrading Lehman to “market perform” and explaining that rating); Douglas Sipkin et al., *Lehman Brothers Holdings, Inc.: Lehman Defies Between Skeptics...Again*, WACHOVIA EQUITY RES. (Wachovia Capital Mkts., LLC, New York, N.Y.), Mar. 19, 2008, at 1 (showing “outperform” rating after Bear).

259. Sipkin et al., *LEH Hosts Earnings Call*, *supra* note 258, at 1.

260. Diane Hinton et al., *Lehman Brothers Holdings Inc. Rating Lowered to “A” from “A+”; Outlook Negative*, STANDARD & POOR’S RATINGSDIRECT (Standard & Poor’s, New York, N.Y.), June 2, 2008, at 2.

261. *Id.* at 3.

262. S&P RATINGS CRITERIA, *supra* note 238, at 11, 15 (explaining that a negative outlook does not necessarily precede a rating change but does mean that the rating “may be lowered”). S&P commented that Lehman’s outlook “could be revised to stable if [its] operating performance rebounds to more normal levels.” Hinton et al., *supra* note 260, at 3.

263. Blaine A. Frantz & Robert Young, *Moody’s Affirms Lehman’s A1 Rating; Outlook Now Stable*, MOODY’S INVESTORS SERVICE (Moody’s Investors Serv., Inc., New York, N.Y.), Mar. 17, 2008, at 1 [hereinafter Frantz & Young, *Moody’s Affirms Lehman’s A1 Rating*]; Blaine A. Frantz & Robert Young, *Moody’s Changes Lehman’s Rating Outlook to Negative*, MOODY’S INVESTORS SERVICE (Moody’s Investors Serv., Inc., New York, N.Y.), June 9, 2008, at 1 [hereinafter Frantz & Young, *Moody’s Changes Lehman’s Rating*]; Blaine A. Frantz & Robert Young, *Moody’s Places Lehman’s A1 Rating on Review for Downgrade: Prime-1 Affirmed*, MOODY’S INVESTORS SERVICE (Moody’s Investors Serv., Inc., New York, N.Y.), June 13, 2008, at 1 [hereinafter Frantz & Young, *Moody’s Places Lehman’s A1 Rating on Review*].

managing risk, including market, credit and liquidity risks,²⁶⁴ and Moody's stated repeatedly during this second period—including at the end—that Lehman's standalone liquidity position "remain[ed] robust," commenting as well that the PDCF backstop helped dispel liquidity doubts.²⁶⁵ After reaffirming its AA- rating on Lehman's long-term debt in April, but at the same time revising the ratings outlook to negative,²⁶⁶ Fitch reduced that rating after Lehman announced second-quarter results in June—dropping Lehman from AA- to A+ (and keeping a negative outlook), which still left Lehman (by Fitch's published distribution a year before) in the top fifty percent of companies Fitch rated.²⁶⁷ Even as it took these steps, Fitch commented in April that it believed "Lehman has managed its liquidity particularly well in the last eight months" and that Lehman's "[l]iquidity remains strong."²⁶⁸ Fitch added in June that "Lehman's liquidity position solidly covers its short-term needs and was recently bolstered by the introduction of the [PDCF]."²⁶⁹

Like the stock analysts, the credit rating agencies therefore reacted to Lehman's declining financial results with downgrades in the second period. But the agencies still rated Lehman as a low-risk debtor. One agency called Lehman's liquidity "robust" and another called Lehman's liquidity "solid[.]"²⁷⁰ Two concluded that the new PDCF reduced liquidity concerns. Nothing in the revised ratings or the accompanying explanations suggested a substantial probability that Lehman's access to cash would dry up and that the company would go to the graveyard as a result.

CDS prices. Market participants risking their money by buying or selling CDS protection against a Lehman default again took a more cautious view. The cost of CDS protection on Lehman debt rose to \$459,600 on March 14, 2008, just as Bear was apparently going down for the count.²⁷¹ But by the end of the following week, the price dropped back to \$262,500.²⁷² After then rising to a high of \$295,000 on March 28, the CDS price fell again and ended on June 20 at \$254,500.²⁷³

264. Frantz & Young, *Moody's Affirms Lehman's A1 Rating*, *supra* note 263, at 1.

265. *See id.* (noting that "Lehman's liquidity management and position remain robust"); Frantz & Young, *Moody's Changes Lehman's Rating*, *supra* note 263, at 1 (stating that the "supportive actions of the Federal Reserve, including the temporary introduction of the Primary Dealer Credit Facility ('PDCF') . . . have played a critical role in helping to stabilize funding markets in the wake of the Bear Stearns collapse."); Frantz & Young, *Moody's Places Lehman's A1 Rating on Review*, *supra* note 263, at 1 (referring to the PDCF and Lehman's \$45 billion liquidity pool and repeating that "Lehman's liquidity management and stand-alone liquidity position remain robust").

266. Press Release, Fitch Ratings, Fitch Revises Outlook on Lehman Brothers to Negative: Affirms 'AA-/F1+' IDRs (Apr. 1, 2008) (on file with author) [hereinafter Fitch April Press Release].

267. Press Release, Fitch Ratings, Fitch Downgrades Lehman Brothers' L-T & S-T IDRs to "A+/F1"; Outlook Negative (June 9, 2008) (on file with author) [hereinafter Fitch June Press Release]; FITCH, INSIDE THE RATINGS, *supra* note 243, at 13 (graph showing distribution of corporate finance issuer ratings as of June 30, 2007).

268. Fitch April Press Release, *supra* note 266, at 1.

269. Fitch June Press Release, *supra* note 267.

270. Frantz & Young, *Moody's Affirms Lehman's A1 Rating*, *supra* note 263, at 1; Fitch June Press Release, *supra* note 267.

271. CMA CDS DATABASE, *supra* note 245.

272. *Id.*

273. *Id.*

Thus, during the second test period, CDS buyers and sellers again saw some probability of a Lehman default, with the CDS price well above the \$35,040 extreme credit safety benchmark. Indeed, CDS protection against a Lehman default cost more than seven times the benchmark price for a company displaying extreme credit safety. But the prices for a five-year CDS on Lehman's debt during and at the end of the second period were still far below the \$724,200 extreme distress benchmark (ending at only thirty-five percent of that extreme distress figure), so the pricing did not suggest an extremely high risk of a liquidity demise at any time during the next five years. Moreover the CDS prices came *down* between Bear's demise and the end of the second period, indicating that—as Lehman's death came closer—those pricing protection against it saw that death as *less* probable.

In sum, the stock analysts and credit rating professionals, who provided their evaluations in writing, did not see—in either test period—any serious probability that Lehman would fall victim to a liquidity heart attack. The buyers and sellers of CDS protection against a Lehman default did see a risk, but they saw that risk declining as the second period drew to a close, and they never saw the risk as extreme. Assuming that the holders of Lehman common stock analyzed the information Lehman disclosed in roughly the same manner as did these other participants in the financial world, those shareholders, too, included some who interpreted the disclosed information to portend some risk of Lehman running out of cash, some who did not, and even among those who did see a real risk, many who concluded that the risk declined after Bear's distress. Tested as a whole, then, Lehman's disclosures failed to provide widespread warning that the firm ran a very significant risk of liquidity death in the short run.²⁷⁴ The market did not, from the Lehman's disclosures, predict a heart attack.

D. The Failure of the Disclosures To Warn of Triparty Repo Risks

Having determined that Lehman's disclosures did not—considering their effect rather than their content—warn of liquidity death, this Part turns to content. Specifically, it asks whether the disclosures relating to triparty repo transactions revealed the risks that the repos posed.

1. January 2008

In January 2008, Lehman filed its 10-K for the fiscal year 2007.²⁷⁵ The word “triparty” did not appear anywhere in that filing.²⁷⁶ While the 10-K included a number for “Securities sold under agreement to repurchase” (\$181.732 billion at the end of fiscal 2007),²⁷⁷ that number did not match the number that Lehman provided months

274. This does not mean that the disclosures violated the securities laws. It means only that the disclosures did not produce a consensus in the investment community that Lehman faced extreme liquidity risk.

275. Lehman 2007 10-K, *supra* note 4, at 1.

276. Nor were *triparty* repos mentioned in the conference call on the last quarter of 2007, which preceded the first time period. Lehman Bros., Inc., Conference Call: Fourth Quarter Earnings (Dec. 13, 2007) (transcript on file with author).

277. Lehman 2007 10-K, *supra* note 4, at 87.

later for the 2007 year-end triparty repos (\$230 billion).²⁷⁸ So investors could not even see the amount of triparty repo financing.

Since the 10-K did not even refer to triparty repos, it did not describe their structure. In particular, Lehman did not describe the morning unwind and the extension by JPM of billions of dollars in credit to substitute during the day for lender financing overnight. The 10-K gave no hint that JPM unwound and extended intraday credit at its sole discretion, or that JPM could—by threatening not to unwind—effectively demand haircuts and a collateral cushion that would reduce the cash at Lehman’s disposal.²⁷⁹

Similarly, the 10-K did not describe the triparty repo lenders. It did not suggest that those lenders, in the face of some combination of bad news about Lehman, might simply refuse to loan to Lehman at all instead of adjusting terms to account for the increased default risk that the bad news implied. Lehman thus gave no hint that any significant number of its lenders might be information insensitive until shock.

The 10-K did state that Lehman’s Capital Markets operations included an “equity and fixed income matched book,”²⁸⁰ and described that business as one in which Lehman sought to make “profits from the difference between interest earned and interest paid.”²⁸¹ The 10-K further stated that the matched book “typically” involved high-quality collateral—“government or government agency securities.”²⁸² But the filing said nothing about the possibility that a lender pullback might leave Lehman without lending from the triparty market to finance the matched loans in the bilateral market, even when the matched transactions rested on government securities.

All of this does not mean that Lehman ignored liquidity risk. To the contrary, Lehman’s 10-K defined “liquidity” as “ready access to funds”²⁸³ and “liquidity risk” as “the potential that we are unable to: [m]eet our payment obligations when due; [b]orrow funds in the market on an on-going basis and at an acceptable price to fund actual or proposed commitments; or [l]iquidate assets in a timely manner at a reasonable price.”²⁸⁴ The filing expressly listed “Liquidity Risk” among the company’s “Risk Factors.”²⁸⁵ As partial protection against that risk, Lehman said that it maintained a “liquidity pool” that was sized to “cover[] expected cash outflows for twelve months in a stressed liquidity environment.”²⁸⁶ That pool consisted of assets that the company

278. Lehman 2Q 10-Q, *supra* note 23, at 84.

279. JPM’s securities filings did not fill this gap, as they, too, did not mention triparty repos or describe the morning unwind or the related intraday loan. JPMorgan Chase & Co., Quarterly Report (Form 10-Q) (Aug. 11, 2008); JPMorgan Chase & Co., Quarterly Report (Form 10-Q) (May 12, 2008); JPMorgan Chase & Co., Annual Report (Form 10-K) (Feb. 29, 2008).

280. Lehman 2007 10-K, *supra* note 4, at 4, 6.

281. *Id.* at 6.

282. *Id.*

283. *Id.* at 17.

284. *Id.* at 75.

285. *Id.* at 17; *see also id.* at 37 (“While our liquidity strategy seeks to ensure that we maintain sufficient liquidity to meet all of our funding obligations in all markets, our liquidity could be impaired by an inability to access secured and/or unsecured debt markets, an inability to access funds from our subsidiaries, an inability to sell assets or unforeseen outflows of cash or collateral.”).

286. *Id.* at 56.

could quickly convert to cash.²⁸⁷ Lehman reported the pool to total \$35 billion at the end of fiscal 2007.²⁸⁸

Carefully read, however, the 10-K suggested that the liquidity pool was never intended to substitute for repo financing—whether triparty or otherwise. True, Lehman said that the pool would cover not only the “repayment of . . . unsecured debt” but also “[t]he anticipated impact of adverse changes on secured funding—either in the form of a greater difference between the market and pledge value of assets (also known as ‘haircuts’) or in the form of reduced borrowing availability.”²⁸⁹ But Lehman also said that it managed liquidity risk by “[r]elying on secured funding only to the extent that we believe it would be available in *all market environments*.”²⁹⁰ More explicitly, the company stated that “[e]ven within the one-year time frame contemplated by our liquidity pool, *we depend on continuous access to secured financing in the repurchase . . . market[]*, which could be impaired by factors *that are not specific to Lehman Brothers*, such as a severe disruption of the financial markets.”²⁹¹ If anything, then, Lehman—instead of warning that its clearing bank and lenders might drain the firm’s liquidity—at least implied in January 2008 that repo financing was solid and would not significantly decline due to Lehman-specific problems.

2. March 10 to June 20, 2008

In the second test period, Lehman announced the financial results for the first quarter of its 2008 fiscal year, hosted a conference call to discuss those numbers, and filed the Form 10-Q for that first quarter.²⁹² Later in this period, Lehman made an early announcement of estimated second-quarter financial results, then announced the financial results for its second quarter and hosted two conference calls to discuss that quarter.²⁹³ The second period ends before Lehman filed the related 10-Q.²⁹⁴

The triparty repo disclosures during this second test period were still quite thin. The press release announcing the first-quarter results did not include the word “repurchase” at all.²⁹⁵ Like the 10-K in the first time period, the Lehman 10-Q for the first quarter included a figure for “Securities sold under agreements to repurchase” but did not break out *triparty* repos.²⁹⁶ The conference call for the first-quarter results provided a figure for triparty repos (\$115 billion) that was apparently “exclusive of the

287. *Id.*

288. *Id.*

289. *Id.*; *see also id.* at 37 (recognizing that “our liquidity could be impaired by an inability to access *secured and/or unsecured debt markets*”) (emphasis added).

290. *Id.* at 75 (emphasis added).

291. *Id.* at 17 (emphasis added).

292. Lehman 1Q 10-Q, *supra* note 21; Lehman Press Release Mar. 18, 2008, *supra* note 21; Lehman First Quarter Conference Call, *supra* note 21.

293. Lehman Press Release June 9, 2009, *supra* note 23; Lehman Press Release June 16, 2008, *supra* note 23; June 10 Preliminary Q2 Figures Call, *supra* note 216; Lehman Second Quarter Conference Call, *supra* note 23.

294. Lehman 2Q 10-Q, *supra* note 23.

295. Lehman Press Release Mar. 18, 2008, *supra* note 21.

296. Lehman 1Q 10-Q, *supra* note 21, at 6.

match book,”²⁹⁷ different from the 10-Q’s number for “Securities sold under agreements to repurchase” (\$197.128 billion),²⁹⁸ and different again from the triparty number for the first quarter that Lehman published after the second period ended (\$230 billion).²⁹⁹ So the total amount of triparty repo financing at the end of Lehman’s first 2008 quarter was virtually impossible to see.

The press releases announcing the results for the second quarter did not mention repurchase agreements.³⁰⁰ In the second conference call about that quarter, the company said that it had approximately \$188 billion in “[t]otal repo . . . , of which matchbook and customer funding is between one third and a half with remainder firm inventory” and then provided a figure of \$105 billion for triparty repo.³⁰¹ It was only after the second period that the company said that the full \$188 billion had been *triparty*.³⁰² Putting aside any rationale for these different numbers,³⁰³ the total triparty repo number thus remained unclear even at the *end* of the second period.

As was true during the first period, none of Lehman’s disclosures during the second period included any description of JPM’s role as a clearing bank. In particular, Lehman did not describe the morning unwind and intraday loan, the discretionary nature of that loan, and the power that the unwind and discretionary loan provided to JPM. And nothing addressed the possibility that JPM would use that power to require intraday haircuts or a collateral cushion.

As was true in the first period, Lehman did not disclose in the second period that lenders might be information insensitive until shock. But the second-period disclosures did recognize that lenders might flee. Thus, while Lehman again referred to its “liquidity pool” and again stated that that pool was “sized to cover” a twelve-month liquidity squeeze,³⁰⁴ Lehman omitted the qualifier statement that the company assumed continuing access to repo financing during such a one-year cash drought.

Instead, Lehman now suggested that its liquidity pool could cover any lender flight. During the conference call discussing final second-quarter results, Lehman explicitly broke down triparty repos and stated that—excluding high-quality securities (many of which the PDCF would finance) and repos between Lehman subsidiaries—only \$32 billion of triparty repos remained.³⁰⁵ Most of this financing consisted of term

297. See Lehman First Quarter Conference Call, *supra* note 21, at 10 (Erin Callan, CFO, stating: “Total repo exclusive of the match book was \$215 billion of which a substantial majority of this collateral is eligible to be pledged under the new Fed facility. We have \$115 billion of tie [sic] party secured financing which is really just the total repo amount less treasuries and agencies which go through the FICC system anonymously.”). This transcript contains a typographical error, substituting “tie” for “tri.” See the transcript of this call prepared by CCBN, Inc. and FDCH e-Media, Inc. at 12 (on file with author).

298. Lehman 1Q 10-Q, *supra* note 21, at 6.

299. Lehman 2Q 10-Q, *supra* note 23, at 84.

300. Lehman Press Release June 9, 2008, *supra* note 23; Lehman Press Release June 16, 2008, *supra* note 23.

301. Lehman Second Quarter Conference Call, *supra* note 23, at 14 (Ian Lowitt, CFO).

302. Lehman 2Q 10-Q, *supra* note 23, at 84.

303. The company may have provided the somewhat confusing numbers quite innocently—simply taking out the matched book to advise investors that \$105 billion of triparty repo financed those securities that Lehman itself owned as inventory or proprietary investments.

304. Lehman 1Q 10-Q, *supra* note 21, at 65.

305. CFO Ian Lowitt said:

repos, with an average length of over forty days, and, more importantly, Lehman said that “[a]ny loss of repo capacity may be absorbed” by the liquidity pool.³⁰⁶ Lehman stated that that pool—which could be turned quickly into cash if necessary—had risen to \$45 billion.³⁰⁷

The figures that Lehman provided in the conference call on final second-quarter results alerted shareholders to the circumstance that one-third to one-half of the triparty deals were matched transactions.³⁰⁸ Since Lehman had disclosed back in January that the matched book deals typically involved high-quality government or government agency securities,³⁰⁹ the assurance that its liquidity pool would only be needed to provide non-repo funding for securities of lesser quality suggested that the matched book was insulated from liquidity problems.

In sum, Lehman disclosed in the second period nothing of the risk that its clearing bank might insist on crippling additions to its collateral cushion, and, while Lehman at least recognized the risk of a lender pullback, it implied that—with the help of the new government liquidity backstop and its liquidity pool—the firm could successfully manage that risk.

E. The Failure of the Disclosures To Warn of Endgame Risks

As set out in Part I.C.2, Lehman’s endgame failed because Lehman did not—in the last few desperate days of its life—merge into a healthier company. While the U.S.

With respect to our secured funding position, total repo is approximately \$188 billion, of which match book and customer funding is between one-third and a half, with the remainder firm inventory. Of this amount, approximately \$83 billion is treasuries and agencies. The remaining \$105 million [sic] is tri-party repo, of which approximately \$40 billion consists of central bank eligible collateral.

Of the remaining \$65 billion of repo, \$25 billion is in investment grade, fixed income securities and major index equities, for which there exists a very active, reliable, and liquid repo market, and a further \$8 billion of assets are funded within our own banks. The remaining \$32 billion of collateral is funded largely with term facilities. The average [tenor] of our non-central bank eligible tri-party repo is now over 40 days. Any loss of repo capacity may be absorbed within our pools of liquidity available to the broker dealers, which represent more than 150% of the remaining repo. Additionally, we have over-funded the tri-party repo book by approximately \$27 billion. That is, we have repo’d out collateral in excess of firm and client positions, filling this by substituting treasuries and agencies in the U.S. and borrowing in collateral in Europe. This gives us the ability to absorb changes in repo capacity in times of stress by reducing total collateral borrowed in or reallocating the higher quality, easy-to-fund collateral outside these facilities as necessary.

Lehman Second Quarter Conference Call, *supra* note 23, at 14.

The Treasuries, agency debt, central-bank eligible instruments, and investment-grade fixed-income securities all appeared to qualify for PDCF lending. *Initial PDCF Terms*, *supra* note 165. Lowitt’s reference to liquidity *pools* available to the broker dealer subsidiaries probably takes into account not only the holding company’s then \$45 billion pool, Lehman Second Quarter Conference Call, *supra* note 23, at 14 (Ian Lowitt, CFO), but also the separate liquidity pools maintained by those subsidiaries. Lehman 2007 10-K, *supra* note 4, at 57 n.1 to tbl.

306. Lehman Second Quarter Conference Call, *supra* note 23, at 14 (Ian Lowitt, CFO).

307. *Id.* at 13–14 (Ian Lowitt, CFO).

308. See *supra* note 305 and accompanying text.

309. See *supra* note 282 and accompanying text for a discussion of how the Lehman 10-K indicated that the matched book deals involved high-quality collateral, such as government agency securities.

government looked for a merger partner and found BofA, the government would not for Lehman (as it had for Bear) put money into the deal to make a BofA deal work. And the last-ditch Barclays' option fell apart because a British regulator, the FSA, would not waive the requirement for a shareholder vote to approve a guarantee necessary for the Lehman-Barclays deal. This Part turns now to whether Lehman disclosed these risks.

1. January 2008

In the 10-K it filed in the first test period, Lehman failed to provide *any* endgame discussion.³¹⁰ It made *no* public reference to the risks it would face if forced to seek an emergency merger to avoid collapse. It therefore provided *no* discussion of the chances for (and obstacles to) overcoming those risks, consummating a merger, and thereby salvaging at least something for the shareholders.

Lehman did not even identify the government actors that might play an endgame role. The 10-K listed regulators that supervised Lehman—including the SEC, the NYSE, the Financial Industry Regulatory Authority, the Commodity Futures Trading Commission, and the Federal Deposit Insurance Corporation.³¹¹ Lehman also identified foreign regulators, including the FSA, which regulated overseas subsidiaries.³¹² None of that discussion, however, addressed the role that any of these agencies might play in arranging an emergency merger to avoid liquidity death. And the 10-K did not mention the U.S. Department of the Treasury at all, or the Federal Reserve Bank of New York in any significant way³¹³—even though both took center stage in last-minute efforts to save the firm.³¹⁴

2. March 10 to June 20

During the second test period, Lehman filed a 10-Q on April 9 that again referred to regulators but added nothing to the disclosures in January.³¹⁵ Like the January 10-K, the April 10-Q did not mention Treasury even once and included only passing comments on the FSA and the U.S. Federal Reserve.³¹⁶ Neither of these documents, nor the press releases announcing the first- and second-quarter financial results, nor related conference calls, included even a word addressing a survival endgame.

310. Lehman did say that it had “developed and regularly update[d] a Funding Action Plan [FAP], which represents a detailed action plan to manage a stress liquidity event.” Lehman 2007 10-K, *supra* note 4, at 60. But the FAP was not an endgame strategy for a liquidity crisis during which Lehman might have to sell itself rather than fall into bankruptcy. The FAP was instead intended to forestall such an endgame altogether, which it did not do. In any event, the FAP does not appear to have played *any* significant role as Lehman died. The Examiner’s Report, which devoted over 100 pages to “Lehman’s Survival Strategies and Efforts,” did not mention the FAP even once. Examiner Report, *supra* note 1, at 609–726.

311. Lehman 2007 10-K, *supra* note 4, at 10–11.

312. *Id.* at 11, 13–14, 134.

313. The 10-K mentions the Federal Reserve only twice. *See id.* at 20 (referring to “the interest rate and monetary policies of the Federal Reserve Board”); *id.* at 35 (discussing Federal Reserve interest rate changes).

314. *See supra* notes 189–213 and accompanying text.

315. Lehman 1Q 10-Q, *supra* note 21, at 36–37. The 10-Q also again referred to the FAP. *Id.* at 69.

316. *See id.* at 46 (stating that the U.S. Federal Reserve had reduced interest rates and created the PDCF); *id.* at 36 (stating that the FSA regulated Lehman’s European broker-dealer).

III. WHAT TO MAKE OF IT

The failure of Lehman's disclosures to alert the market to the risk of a liquidity heart attack leads inevitably to the question of whether Lehman realistically *could* have provided timely warning of extreme liquidity risk. This Section addresses that question. Part A examines whether, realistically, Lehman could have warned of the extreme risks that triparty repos posed to the firm's liquidity. Part B considers whether, realistically, Lehman could have warned of the extreme risks posed by playing out an endgame. After both Parts A and B conclude that effective and timely disclosure was not possible, Part C draws the analysis together and identifies the factors that put timely risk warnings effectively out of reach.

A. Frustration of Triparty Repo Risk Disclosure

Lehman's disclosures failed to tell shareholders the magnitude of Lehman's triparty repo business, failed to describe triparty repo transactions, failed to warn that JPM could use its power from the unwind to extract haircuts and a collateral cushion, and failed to caution that lenders might be insensitive to bad news about Lehman until that news reached some unpredictable critical mass, whereupon the lenders might desert Lehman instead of continuing to lend but tightening terms.³¹⁷ Consider whether Lehman could have provided timely warning that such risks were present and might mature.

1. January 2008

It is hard to see how Lehman—in January 2008—could have revealed the facts that created the key repo risks. Certainly, Lehman could have given a triparty repo number for the end of its fiscal 2007 year, could have revealed the extent to which triparty repos provided the liquidity for the matched book, and could have described the unwind, which effectively put all triparty repos (even those with multiday terms) at risk every twenty-four hours. Those disclosures would have alerted Lehman shareholders to the fact that a very significant part of Lehman's business depended on *extremely* short-term financing. With those disclosures, shareholders might have deduced the possibility that something could quickly go wrong in a big way on the liquidity front. But such general textual warnings would hardly have given shareholders facts by which they could have deduced not just the possibility, but a *significant probability*, that triparty repos would lead to a liquidity disaster.

In January, Lehman simply did not have—and therefore could not have disclosed—the specific facts from which shareholders could have deduced such a probability. It was not until February that JPM advised Lehman that JPM would require *any* daytime haircuts and not until June that JPM demanded *any* collateral cushion.³¹⁸ Similarly, the repo market had been operating efficiently for years by January 2008,³¹⁹

317. See *supra* Part II.D for a discussion of Lehman's disclosures about triparty repos.

318. See *supra* notes 103–17 and accompanying text for a discussion of JPM's decision to impose haircuts and demand a collateral cushion and JPM's communication of these requirements to Lehman.

319. See Acharya & Öncü, *supra* note 33, at 320 (describing how repos had become an attractive financing option since regulatory changes in the 1980s).

and the financing world did not yet know that some lenders might suddenly react to bad news about a dealer by ceasing to lend to that dealer altogether—even against very high-quality collateral—effectively acting as if they were making unsecured rather than secured loans.³²⁰

Importantly, no securities law or regulation required Lehman to conduct an investigation to discover these facts. True, U.S. securities protocols sometimes demand (and demanded in 2008) that a public company disclose—in its own filings—information about other companies. For example, a public company must disclose (and was required in 2008 to disclose) the dependence of any segment of its business “upon a single customer, or a few customers, the loss of any one or more of which would have a material adverse effect on the segment,” and provide the name of any customer the sales to which comprise ten percent or more of the company’s consolidated revenues.³²¹ And a company must today describe (and in 2008 was required to describe) “[c]ompetitive conditions,” including (if the company “knows or has reason to know” them) the name(s) of any “one or a small number of competitors” who are “dominant” in the company’s industry.³²² But these are all objective facts that the filing company knows about other companies, or can easily determine.

Going further, securities regulations require (and required in 2008) a public company to disclose the danger that a counterparty will take future action adverse to the company when the filing company has facts that clearly show that danger. Thus, Item 303 of Regulation S-K mandates (and mandated in 2008) that a company disclose “any known trends or uncertainties that have had or that the [company] reasonably expects will have a material favorable or unfavorable impact on net sales or revenues or income from continuing operations.”³²³ To comply with Item 303, a company for example must warn its stockholders if it (i) “*know[s]* that a material government contract is about to expire[,] . . . [and (ii) is] uncertain as to whether the contract will be renewed [because the company (a)] . . . *know[s]* that a competitor has found a way to provide the same service or product at a price less than that charged by the [company or (b)] . . . *ha[s]* been advised by the government that the contract [might] not be

320. When lenders suddenly pulled back from Bear in March, that swift retrenchment came as a shock. See *Hearing on “The Shadow Banking System” Before the Fin. Crisis Inquiry Comm’n* 78–79 (May 5, 2010) (COMMISSIONER HOLTZ-EAKIN: “Another question I’ve just been confused by. Why in the moment, even if you had Treasuries as your collateral, were people unwilling to do repo with you? And why didn’t the haircuts just adjust to continue to give you access?” WITNESS MOLINARO: “That’s a question that we were asking ourselves in that period of time. We were surprised by the way that this was happening.”), available at http://fcic-static.law.stanford.edu/cdn_media/fcic-testimony/2010-0505-Transcript.pdf; *The Shadow Banking System: Hearing Before the Fin. Crisis Inquiry Comm’n* 3 (May 5, 2010) (statement of Paul Friedman, former chief operating officer of fixed income Bear Stearns) (“During the week of March 10, 2008, Bear Stearns suffered from a run on the bank that resulted . . . from an unwarranted loss of confidence in the firm by certain of its customers, lenders and counterparties . . . [which resulted in, among other things,] repo market lenders declin[ing] to roll over or renew repo loans, even when the loans were supported by high-quality collateral such as agency securities”), available at http://fcic-static.law.stanford.edu/cdn_media/fcic-testimony/2010-0505-Friedman.pdf. See also *supra* note 149 for a discussion of the overreliance on short-term secured funding and its presumed stability in the triparty repo market.

321. 17 C.F.R. § 229.101(c)(1)(vii) (2014); 17 C.F.R. § 229.101(c)(1)(vii) (2008).

322. 17 C.F.R. § 229.101(c)(1)(x) (2014); 17 C.F.R. § 229.101(c)(1)(x) (2008).

323. 17 C.F.R. § 229.303(a)(3)(ii) (2014); 17 C.F.R. § 229.303(a)(3)(ii) (2008).

renewed.”³²⁴ But these obligations are by their terms limited to dangers reasonably foreseeable from *known* facts and do not include an obligation to investigate to find facts.³²⁵

None of these regulations obligated Lehman to try to discover JPM’s future intentions regarding haircuts or collateral cushions or the as-yet-unrevealed nature of lenders who would prove to be information insensitive until shock. Moreover, the philosophy behind the limited requirements to disclose information about other companies has made courts leery of interpreting disclosure rules in ways that punish a first company for failing to report the plans of a second.³²⁶ This reluctance reflects a recognition that the first company may be unable to accurately discover the intentions of the second.³²⁷ Put simply, one company cannot read the mind of another.

That same concern suggests that it would have been a bad idea to have required Lehman to speculate as to JPM’s future haircut and collateral cushion demands or lenders’ future inclinations—in the face of bad news about Lehman—to decline loans altogether rather than to adjust terms to compensate for higher risk. JPM might have declined, for business reasons, to suggest to an important customer that new and possibly huge liquidity hits were on the way until JPM determined that the steps that would hurt Lehman were necessary for JPM’s own protection. Similarly, lenders who were regularly renewing overnight repos with Lehman on terms that benefited the lenders might have been wary of telling Lehman that they might suddenly and unpredictably bail out if publicity about Lehman turned sour. In the face of these incentives by counterparties to conceal their plans and intentions that could strangle Lehman’s liquidity, it would have been unfair, and most likely fruitless, to have imposed on Lehman a requirement that it deduce, and then disclose, what JPM and overnight lenders would do.

324. 17 C.F.R. § 229.303; Management’s Discussion and Analysis of Financial Condition and Results of Operations; Certain Investment Company Disclosures, Securities Act Release No. 33-6,835, Exchange Act Release No. 34-26,831, Investment Company Act Release No. 16,961, 54 Fed. Reg. 22,427 (May 24, 1989) (emphasis added).

325. See *J & R Mktg. v. Gen. Motors Corp.*, 549 F.3d 384, 391–92 (6th Cir. 2008) (affirming dismissal where the plaintiff alleged that a company should have disclosed in its offering documents that its parent had overstated cash flows and otherwise misrepresented its financial condition and results, as well as rejecting interpretation of 17 C.F.R. § 229.303(a)(1) to reach matters that are “knowable” and so impose a “duty to first investigate and then disclose” and holding that “the duty of disclosure arising from Item 303 require[s] knowledge”).

326. See *In re Adams Golf, Inc. Sec. Litig.*, 381 F.3d 267, 278 (3d Cir. 2004) (affirming dismissal of case insofar as plaintiffs alleged that the defendant’s offering documents should have disclosed oversupply at retailers of competitors’ golf clubs and stating that “the securities laws obligated Adams Golf to disclose material information concerning its own business and not necessarily the details relating to its competitors”).

327. See *In re Stac Elecs. Sec. Litig.*, 89 F.3d 1399, 1407 (9th Cir. 1996) (affirming dismissal of a case based on the defendant’s failure to include in its offering documents that Microsoft was about to introduce a product that would preempt the market and stating that “[w]e agree with Stac that another company’s plans cannot be known to a certainty. Even assuming, as we must, that Microsoft had informed Stac that it planned to introduce data compression, Stac could not have known whether or not Microsoft would truly do so.”).

2. March 10 to June 20, 2008

During the second test period, as during the first, Lehman could have disclosed the amount of its triparty repo financing in straightforward terms, could have described the discretionary morning unwind and intraday loan, could have revealed the power that the unwind gave to JPM to impose haircuts or require a collateral cushion, and could have told its shareholders that such haircuts and such a cushion would erode Lehman's liquidity. Lehman's failure to do any of that seems strange because—during this second period—Lehman *knew* that JPM would be exercising its power in just this way. JPM told Lehman in February (before the second test period began) that it would require haircuts equal to those imposed by the overnight lenders,³²⁸ and JPM advised Lehman in early June (before the second period ended) that it would require a collateral cushion.³²⁹

It would be possible to read the securities laws and regulations to have required Lehman to disclose at least the haircuts and collateral cushion that JPM demanded before and during the second period and the liquidity risks they posed. For example, Item 303(a)(1) requires (and required in 2008) that a company identify “any known demands . . . that will result in or that are reasonably likely to result in the [company's] liquidity increasing or decreasing in any material way.”³³⁰ And Item 503(c) requires (and required in 2008) that a public company discuss “the most significant factors that make the [company] . . . risky.”³³¹ Lehman's 10-Q filed on April 9 very arguably should have included the JPM haircut demand in order to comply with Items 303(a)(1) and 503(c).³³² And that disclosure, in order to be complete, very arguably should have stated that the haircuts would, dollar for dollar, reduce Lehman's NFE and thereby reduce Lehman's liquidity.

Moreover, the securities laws generally require (and required in 2008) that, when a company makes a statement on a subject, it must include all material facts necessary in order to avoid misleading investors by material omission.³³³ Thus, all the statements in the second period relating to liquidity and the adequacy of Lehman's liquidity pool arguably should have included the information that Lehman had—at the time of the statements—about JPM's haircut and collateral cushion requirements. Since JPM had advised Lehman of the coming daytime haircuts in February, this rule arguably required Lehman to disclose those haircuts in the April 9 10-Q's liquidity discussion.

328. See *supra* notes 106–10 and accompanying text.

329. See *supra* notes 114–17 and accompanying text.

330. 17 C.F.R. § 229.303(a)(1) (2014); 17 C.F.R. § 229.303(a)(1) (2008).

331. 17 C.F.R. § 229.503(c) (2014); 17 C.F.R. § 229.503(c) (2008).

332. Item 303(b) required that Form 10-Q include any “material changes” in financial condition from the end of Lehman's 2007 fiscal year (Nov. 30, 2007) through the end of the first quarter of 2008 (Feb. 28, 2007). 17 C.F.R. § 229.303(b)(1) (2008); JOHN C. COFFEE, JR. ET AL., FEDERAL SECURITIES LAWS: SELECTED STATUTES, RULES AND FORMS 1552 (2008). Similarly, Form 10-Q required the 10-Q to “[s]et forth any material changes from risk factors . . . in the . . . 10-K.” COFFEE ET AL., *supra*, at 1553. And Form 10-K required Item 503(c) risk factors. *Id.* at 1562. The Lehman 10-K did not refer to clearing bank collateral demands in its risk factors. Lehman 2007 10-K, *supra* note 4, at 14–22. Lehman's 10-Q for the first quarter stated that there were “no material changes” in the risk factors the 10-K had included. Lehman 1Q 10-Q, *supra* note 21, at 89.

333. 17 C.F.R. § 240.10b-5(b), 12b-20 (2014); 17 C.F.R. § 240.10b-5(b), 12b-20 (2008).

The rule that statements must not mislead by material omissions also arguably required Lehman—in its discussion of the liquidity pool during the June 16 conference call—to state that JPM was requiring daytime haircuts *and* had advised on June 2 that it required billions as a collateral cushion *and* that these requirements had and would reduce Lehman's NFE and therefore its liquidity.³³⁴ Further, Lehman's emphasis in the June 16 conference call on the multiday term for many of its repos very arguably misled without adding that JPM unwound—at its discretion—even *those multiday repos* on the morning of every business day so that the structure of triparty repos made every one of them vulnerable to breakdown each morning.³³⁵

That said, the JPM demands that killed Lehman came *after* the second period ended on June 20—particularly the \$5 billion collateral demand on September 9 and the further \$5 billion demand on September 11.³³⁶ JPM notified Lehman that it needed to make those collateral postings only after JPM concluded that the collateral Lehman posted beginning on June 19³³⁷ was unsatisfactory.³³⁸ And JPM did not form its view that the collateral was unsatisfactory until late August or early September.³³⁹ Lehman could not reasonably have been required to foresee this by the end of the second period (June 20), particularly since its collateral changed through substitutions after June 19.³⁴⁰ As set out in Part III.A.1, securities laws and regulations do not require one company to guess at the future actions of another company. And requiring disclosure of such guesses would have yielded information of very questionable value anyway because of JPM's incentive to preserve its relationship with Lehman by keeping silent on future collateral demands until JPM decided to make them.

In addition, JPM's September 9 through 11 focus on Lehman collateral was almost certainly motivated in significant part by JPM's knowledge that triparty lenders were beginning to pull away from Lehman.³⁴¹ As Lehman's clearing bank for triparty repos, JPM could see that happening.³⁴² And JPM could appreciate the resulting increased risk that, if JPM unwound on September 12 and Lehman could not find lenders for the September 12 through 15 weekend, Lehman might default on the September 12 intraday loan or, if JPM unwound on Monday, September 15, that lenders might not lend for the following night, causing Lehman to default on the

334. See *supra* notes 108–14 and accompanying text for a discussion of the conversations between JPM and Lehman regarding haircuts and collateral before the June 16 conference call and the effect of intraday haircuts on Lehman's NFE, and see Part II.D.2, demonstrating that Lehman did not disclose either the JPM haircuts or the demanded collateral cushion during March 10 to June 20, 2008.

335. See *supra* notes 305–06 and accompanying text for Lehman's emphasis during the conference call on a forty-day average tenor of repos collateralized by securities not eligible for Central Bank financing, *supra* note 71 and accompanying text demonstrating that even term repos unwound every morning, and *supra* Part II.D.2 demonstrating that Lehman did not disclose the morning unwind during March 10 to June 20, 2008.

336. See *supra* notes 124–30 and accompanying text.

337. See *supra* notes 115–20 and accompanying text.

338. See *supra* notes 121–22 and accompanying text.

339. See *supra* notes 121–22 and accompanying text.

340. See *supra* note 119 and accompanying text for a discussion of Lehman's asset substitutions related to collateral payments.

341. See *supra* Part I.B.2.b for a discussion of lender flight from Lehman.

342. Zubrow, *supra* note 109, at 7.

September 15 intraday loan.³⁴³ Lehman could not have predicted—by June 20—these September dynamics and their effect on JPM demands.

Much the same is true of disclosure about lenders possibly pulling back. Surely, after Bear's crisis, Lehman knew—from press reports and public statements by other market participants—that overnight repo lenders could suddenly refuse to lend and could do so even when the repos were based on high-quality securities of unquestioned value and liquidity.³⁴⁴ Again, securities laws arguably required Lehman to say that those who bought or held Lehman stock ran the risk of a similar lender run against Lehman.

But Lehman shareholders, and investors thinking of buying or holding Lehman stock during the second period, could see that risk—*without any Lehman disclosure*—from the same press reports and public statements that informed Lehman. In the technical language of securities law, those already known generalities would not, if simply repeated by Lehman, have been “material” because there was no “substantial likelihood” that a “reasonable investor” would have viewed those generalities as “significantly alter[ing] the ‘total mix’ of information.”³⁴⁵ Hence, Lehman arguably would not have been required to disclose them.³⁴⁶

It is hard to see what Lehman could have *added* by its own disclosure, unless it could have forecasted the *probability* that a lender pullback would cripple *Lehman's* liquidity.³⁴⁷ To make such a forecast, Lehman would have had to predict the probability

343. See *FCIC Hearing*, *supra* note 107, at 188 (discussing JPM's concern over the September 13 through 14 weekend that—even after Lehman posted the last \$5 billion—JPM would risk disaster if it unwound on September 15 because lenders might not agree to repo for the next night).

344. After the second test period began, stories in the financial press and observations by industry participants recognized that Bear had foundered in part because of its inability to obtain repo financing and further recognized that such financing could become unavailable even when a dealer offered high-quality securities as collateral, suggesting that Lehman might encounter just such repo problems. See Susanne Craig, *Lehman Finds Itself in Center of a Storm*, WALL ST. J., Mar. 18, 2008, at A1 (“Bear Stearns had difficulty getting access to a key market that it and firms like Lehman rely on to finance themselves day-to-day. This \$4.7 trillion market, known as the securities repurchase, or ‘repo,’ market, enables financial institutions to obtain short-term, often overnight, cash loans by selling securities—either theirs or clients’—and agreeing to repurchase them a day or so later when the loan matures. Lehman executives began pulling together data on the firm's funding alternatives, including untapped bank lines, in case it faced difficulties in the repo market.”); Frantz & Young, *Moody's Affirms Lehman's A1 Rating*, *supra* note 263, at 1 (“The global credit crisis has broadly affected asset values and the willingness of market participants to provide financing—in some cases even on the highest quality collateral.”); Serena Ng & Randall Smith, *Another Source of Quick Cash Dries Up: Firms Rethink Reliance on “Repo” Financing as Conditions Tighten*, WALL ST. J., Mar. 17, 2008, at C1 (“It was the market failure to roll repo—securitized lending agreements—that appears to have been Bear's problem,” Jeffrey Rosenberg, Bank of America's head of credit strategy research, said in a report analyzing Bear's problem.”).

And Lehman knew that these risks were severe. Secretary Paulson contacted Lehman's CEO in June to warn him that his firm might not survive another loss in quarter three. Examiner Report, *supra* note 1, at 609–10.

345. *Basic Inc. v. Levinson*, 485 U.S. 224, 231–32 (1988) (quoting *TSC Indus., Inc. v. Northway, Inc.*, 426 U.S. 438, 448–49 (1976)).

346. See 1 THOMAS LEE HAZEN, *THE LAW OF SECURITIES REGULATION* § 3.4[2] at 320 (6th ed. 2009) (“The basic dividing line between what has to be disclosed and what information may be withheld is determined by the concept of materiality . . .”).

347. The fact that Lehman shareholders knew or could know from public information that there was a

of some combination of events that would suddenly alarm lenders who—instead of adjusting terms—would refuse to loan at all. Any such prediction would also have had to take into account the dynamic between lenders, as each of them tried to decide whether a sufficient number of other lenders would continue to loan to Lehman in order to keep the firm alive.³⁴⁸ The prediction would also have had to anticipate the further dynamic created by possible lender concern that the clearing bank would not unwind, and the interaction between these two dynamics.³⁴⁹ In light of these complexities, Lehman could neither have made a reliable forecast of lender flight nor given its shareholders facts so that they could make a reliable forecast. The securities law axiom that one company need not guess at the future actions of other companies applies here in fullest force.

There is, however, one complicating factor. The PDCF that the Fed created after the Bear events potentially mitigated the effect of lender flight, and Lehman's disclosures implicitly suggested that the PDCF would mitigate any lender flight *from Lehman*.³⁵⁰ If private sector lenders left, Lehman could simply borrow through the PDCF—and thereby stop the run or at least cabin its effect.

But all of this depended on Lehman's willingness to use the PDCF. Initially, Lehman seemed to embrace the new backstop. The Lehman CFO stated during the March 18 conference call that Lehman had “not yet used the facility” but that “the rate and margin levels are very attractive.”³⁵¹ At least one analyst took this to mean that “[Lehman] plans to access the Fed facility in the future.”³⁵² Another analyst commented that liquidity risk was “off the table” for Lehman “at least in one sense” because the PDCF “significantly reduces run-on-the-bank risk.”³⁵³

Lehman did indeed use the PDCF during and immediately in the aftermath of the Bear crisis—borrowing through the PDCF on March 18, 19, 20, 24, 25, and 26.³⁵⁴ But Lehman financed through the PDCF only once more—on April 16—before it filed for

risk that triparty lenders would pull back did not necessarily let Lehman off the hook because, for example, Item 303 can require a company to disclose the “impact” of a publicly known trend on that company because that impact is “certainly not public knowledge.” *Litwin v. Blackstone Grp., L.P.*, 634 F.3d 706, 716, 718–19 (2d Cir. 2011). But the impact of lender flight depended on Lehman's use of the PDCF. See *supra* notes 164–68 and *infra* notes 351–61 and accompanying text.

348. See *supra* note 171 and accompanying text for a discussion of the self-magnifying dynamic of the triparty repo market that caused some lenders to discontinue lending because other lenders had.

349. See *supra* notes 172–174 and accompanying text for a discussion of the lenders' fear that the clearing bank would not unwind and the clearing bank's fear that the lenders would not fund.

350. See *supra* notes 167 (identifying securities qualifying for PDCF funding) and 305 (providing Lehman's breakdown of securities funding repos by categories of securities, many of which met the PDCF qualifications).

351. Lehman First Quarter Conference Call, *supra* note 21, at 10, 16 (Erin Callan, CFO, adding that the PDCF was “just incredibly attractive”).

352. Mike Mayo et al., *Lehman Brothers Holding: 1Q08 Earnings*, DEUTSCHE BANK GLOBAL MKTS. RES. (Deutsche Bank Sec., Inc., New York, N.Y.), Mar. 18, 2008.

353. Van Hesser & Daphne Fang, *Lehman Brothers: One Day at a Time*, HSBC CREDIT RES. (HSBC Sec. (USA), Inc., New York, N.Y.), June 11, 2008, at 3. But the report nevertheless rated Lehman's debt “underweight,” meaning that the analyst expected that debt to “underperform [that] of other issuers in the sector over the next six months.” *Id.* at 1, 7.

354. Examiner Report, *supra* note 1, at 1398–99.

bankruptcy on September 15.³⁵⁵ Most importantly, the firm did not turn to this emergency backup at all during the week before that filing.³⁵⁶ Lehman apparently did not do so because, by early June, Lehman concluded that a “stigma” attached to PDCF funding.³⁵⁷

This, of course, raises immediately the question of whether Lehman should have explicitly disclosed its aversion to the PDCF. Two reasons suggest not, even though that aversion was almost certainly material. First, while Lehman never formally announced that its view of the Fed facility had changed from “attractive” to “stigmatizing,” the securities laws very arguably did not require Lehman to reveal any such change of heart.³⁵⁸ And public comments during the second period at least hinted at this Lehman change, perhaps sufficiently to make the point to Lehman shareholders and those who advised them. For example, on June 3, the Lehman Treasurer Paolo Tonucci went out of his way to squelch a rumor that Lehman was borrowing through the PDCF.³⁵⁹ Lehman also made a point to state, in its June 16 conference call on second-quarter financial results, that it had no outstanding balance with the backstop at the end of that quarter.³⁶⁰ At least one analyst report drew attention to that fact.³⁶¹

Second, to have mandated Lehman to do more would have constituted poor policy. If indeed publicity about the firm’s use of the PDCF would have itself initiated or aggravated a decline in market confidence that could have been fatal to Lehman’s life, then requiring Lehman to publicly acknowledge this stigma would have aggravated the very effect Lehman feared if, as a last resort, the firm had turned to the backstop. Forcing the disclosure would have reduced the survival value of the tool the

355. *Id.* at 1399. Lehman considered doing so on Sunday, September 14, 2008, but could not do so then for technical reasons. *Id.* at 722.

356. *Id.* at 1399.

357. *See id.* at 1397 & n.5364 (“In an internal [June 4, 2008] e-mail, Lehman personnel appeared to view the PDCF as a net negative, writing that Lehman could not use it due to its ‘stigma,’ owing to the fact that ‘should the Fed disclose the [PDCF] borrowers, it would likely further damage confidence in the institutions that tapped the facilities.’”).

358. The securities laws impose a requirement that a company update plans or predictions only in very limited circumstances. *See United States v. Schiff*, 602 F.3d 152, 170 (3d Cir. 2010) (explaining that “the duty [to update] has only been plausible in cases where the initial statement concerns ‘*fundamental*[] change[s]’ in the nature of the company—such as a merger, liquidation, or takeover attempt—and when subsequent events produce an ‘*extreme*’ or ‘*radical change*’ in the continuing validity of that initial statement” (alteration in original) (citing *In re Burlington Coat Factory Sec. Litig.*, 114 F.3d 1410, 1433–34 (3d Cir. 1997))).

359. *See Lehman Bros. Denies Rumors, Says It Has Plenty of Cash*, USA TODAY (June 3, 2008, 3:51 PM), http://www.usatoday.com/money/industries/banking/2008-06-03-lehman-denial_N.htm (“Lehman Bros. (LEH) on Tuesday denied that it was forced to tap the Federal Reserve[] . . . to stave off cash problems. . . . Shares of the company tumbled around 15% Tuesday afternoon after market rumors surfaced that it was forced to borrow from the Federal Reserve[] . . . to maintain operations. . . . ‘We did not access the primary broker-dealer facility,’ said . . . Lehman’s treasurer. ‘The last time we accessed the facility was on April 16 for testing purposes.’”).

360. Lehman Second Quarter Conference Call, *supra* note 23, at 14 (Ian Lowitt, CFO, stating that Lehman “tested the Fed’s new primary dealer credit facility on occasion with no outstanding balance at quarter end” and that the “last time [the company] accessed the facility was April 16 on an overnight basis”); *see also* June 10 Preliminary Q2 Figures Call, *supra* note 216, at 9–10 (Erin Callan, CFO, making a similar statement).

361. *See* Whitney et al., *LEH 2Q08 Net Results*, *supra* note 256, at 4 (repeating the zero-balance statement as one of the “Key Takeaways” from the call).

government had created to insure survival.

In sum, Lehman's disclosure during the second period was disappointing—not only in failing to provide a simple number for total triparty repos but also in failing to reveal that JPM was demanding first daytime haircuts and then a collateral cushion. Disclosing those demands would have alerted stockholders that this threat to Lehman's liquidity was not only theoretically possible but actually occurring. However, the most useful information—the probability of future large collateral demands (including \$10 billion in Lehman's last week of life)—was not reasonably known to Lehman and so could not have been disclosed. Similarly, Lehman could not have predicted the combinations of information that would cause some lenders to suddenly and completely refuse to lend, the probability of such a combination occurring, or the dynamics introduced by (1) each lender guessing whether other lenders would lend, (2) each lender guessing whether JPM would unwind, and (3) JPM guessing whether a sufficient number of lenders would lend. While Lehman knew by the end of the second period that it was reluctant to use the PDCF liquidity backstop, requiring Lehman to reveal its concern that emergency resort to PDCF financing would likely worsen a crisis of confidence would have been counterproductive. Revealing this concern would have increased the probability of that very effect if the firm had changed its view and, in order to avoid a liquidity heart attack, turned to the Fed facility. Lehman had little useful information to add to public information and, what little it had, would have been harmful rather than helpful to provide.

B. Frustration of Endgame Risk Disclosure

Lehman died not just because it suffered a cardiac arrest, but because neither it nor the government could resuscitate the firm through a merger. The U.S. government refused to contribute taxpayer money to facilitate such a merger.³⁶² And, although other Wall Street firms were willing to put up cash to grease the skids for the last-hope merger partner, the British securities regulator (the FSA) would not, in the end, waive a shareholder vote, as was absolutely necessary to make the deal with that partner go.³⁶³ Consider now whether Lehman could have disclosed—in either test period—the risks inherent in such an endgame.

1. January 2008

While Lehman's disclosures said absolutely nothing about endgame risks in the first period,³⁶⁴ it is hard to see how Lehman could have provided any *useful* information about such risks in January 2008. The company could have said that, if worse came to worst, it would seek a transforming transaction or a merger. It could have stated that there were only a limited number of large, multiservice financial institutions that would be likely merger candidates. It also could have said that any of a number of regulators might play a role in either assisting such a merger or approving

362. See PAULSON, *supra* note 14, at 192 (stating that Paulson told Wall Street leaders that “there could be no government money involved in any rescue”).

363. See Part I.C.2 for a discussion of why Lehman ultimately failed.

364. See Part II.E.1 for a discussion of Lehman's disclosures in this period.

the steps necessary for a merger or other deal. It could have concluded the discussion by reminding shareholders that—for all these reasons—there could be no assurance that Lehman would be able, if *in extremis*, to complete a lifesaving deal.

But investors would have known all of that to begin with. Government-facilitated mergers of failing financial firms into stronger ones had been a favored technique for years.³⁶⁵ No securities law rule required Lehman to restate this generality.³⁶⁶

The really helpful information—bearing on the particular risks that Lehman’s survival strategy would run at the time it had to be implemented—was unknowable in January 2008. Lehman could not have then predicted which potential merger partners it or the government might find, which government regulators would play a leading role in an endgame, or the political climate that would dictate the appetite the government would have to provide financial assistance for a Lazarus deal.

2. March 10 to June 20, 2008

During this second period, Bear shareholders reaped about \$10 per share from the Bear-JPM merger, and the government assisted in the transaction by financing \$29 billion of Bear assets that JPM did not want.³⁶⁷ Thus, the Bear experience could have prompted Lehman to give general warnings—that any Lehman endgame would be subject to the risks that only a few large financial firms would be realistic candidates for a last-minute merger, that any of those candidates might not want some of Lehman’s assets, that those assets might have to be sold to some specially created and subsidized entity, and that the entire deal might fail for want of government financial support or necessary regulatory approval. But widespread publicity about the Bear events revealed all those risks to the world, including to Lehman shareholders. The general warnings set out above would have added nothing *useful*. Only more specific disclosures would have helped shareholders estimate the probability that a Lehman endgame would fail with the Lehman shareholders wiped out as a result, and Lehman no more had such specifics in the second period than it did in the first.

While—after Bear—Lehman could have predicted that the Fed and Treasury would be the lead regulators in an endgame, Lehman could not have predicted those regulators’ attitude when the crunch came. On the one hand, the government’s very active role in helping Bear avoid bankruptcy suggested that the government might similarly assist Lehman. On the other hand, the considerable criticism of federal aid to the JPM-Bear merger suggested possibly diminished government enthusiasm for a

365. See James R. Barth & Martin A. Regalia, *The Evolving Role of Regulation in the Savings and Loan Industry*, in *THE FINANCIAL SERVICES REVOLUTION* 113, 136 (Catherine England & Thomas Huertas eds., 1988) (noting legislation in 1982 to give the Federal Home Loan Bank Board “the authority to arrange mergers of failing savings and loan associations with other associations, commercial banks” and other institutions); Gillian Garcia, *The FSLIC Is “Broke” in More Ways Than One*, in *THE FINANCIAL SERVICES REVOLUTION*, *supra*, at 235, 238–41 (stating that “[m]ergers have historically been . . . the preferred way of disposing of failed thrifts” and displaying a table showing the number of mergers from 1980–86 that were arranged by the Federal Home Loan Bank Board without financial assistance, and those that were arranged by the Federal Savings and Loan Insurance Corporation with financial assistance).

366. See *supra* notes 345–46 and accompanying text for a description of material information as information that adds to that already known.

367. See *supra* notes 10–20 and accompanying text for a discussion of the Bear-JPM merger.

replay if Lehman looked like it was sinking beneath the waves.³⁶⁸ Lehman could not have known—any better than its shareholders—whether the inclination to help would dominate fear of further negative publicity.

Moreover, that balance would be affected by events that had not yet unfolded in June—most particularly the Fannie Mae and Freddie Mac receiverships.³⁶⁹ Lehman could not have predicted those receiverships by the end of the second period, nor the impact they would have on government help if Lehman began to die. Similarly, Lehman could not have foreseen by June 20 that Barclays would emerge as a potential savior.³⁷⁰ And it was far beyond possible for Lehman to predict the role that the FSA would play, in the end, by refusing—even after pleas from top U.S. officials—to waive a British listing requirement for a shareholder vote on an essential guarantee.

Finally, requiring Lehman to predict the probability that the U.S. government would add dollars to a lifesaving Lehman deal would have been unfair because the government—with good reason—deliberately concealed any such inclination. Thus, even as Secretary Paulson arranged the meeting of Wall Street CEOs for the weekend beginning Friday evening September 12, in order to urge them to fund the purchase of Lehman assets that any Lehman buyer did not want, an internal Fed email advised that “[w]e should have in mind a maximum number [that] we are willing to finance before the meeting starts, but *not divulge our willingness to do so to the consortium.*”³⁷¹ That made sense from the government’s point of view. It could force the maximum contribution from the private sector by vehemently stating that the government would contribute nothing, even if that was not true.³⁷² But the government’s incentive to hide its intentions that this anecdote reveals would likely have frustrated any Lehman effort to publicly and reliably predict government action.

In sum, and as to both test periods, any description of a possible endgame and the risks that made successful completion of an endgame problematic would necessarily have been so general that the description would have added nothing of value for Lehman shareholders. Moreover, requiring Lehman to discuss an endgame might have itself shaken confidence in the firm and thereby made its demise more probable. The disclosure might have thereby imposed a cost without any significant benefit. While

368. See *supra* notes 193–97 and accompanying text for a discussion of the government intervention in the financial sector before the Lehman crisis and the political reaction to those events.

369. See *supra* notes 194–97 and accompanying text.

370. See *supra* notes 200–08 and accompanying text for a description of the circumstances surrounding Barclays’ emergence as a potential merger partner.

371. Attachment to E-mail from Patrick M. Parkinson, Deputy Dir. of Research and Statistics, Fed. Reserve, to Don Kohn, Vice Chairman, Fed. Reserve, Scott Alvarez, Gen. Counsel, Fed. Reserve Bank of New York, and Brian Madigan, Dir. of Monetary Affairs, Fed. Reserve (Sept. 11, 2008, 06:55 EST) (emphasis added), available at http://fcic-static.law.stanford.edu/cdn_media/fcic-testimony/2010-0901-Lehman-Brothers-Chronology.pdf.

372. Paulson told the Wall Street leaders that “there could be no government money involved in any rescue.” PAULSON, *supra* note 14, at 192. But both his later statements—and Geithner’s statements during Lehman weekend—suggest that the government might well have put up money had a buyer been found. See Examiner Report, *supra* note 1, at 617–18 (“On September 11, 2008, Geithner’s discussions with the [FSA] left open the possibility that there would be Government assistance.”); PAULSON, *supra* note 14, at 208 (distinguishing Lehman from Bear because, “unlike with Bear Stearns, the Fed’s hands were tied because we had no buyer”).

that cost could have been reduced had all financial institutions been required to discuss endgames³⁷³—whether they were candidates for liquidity death or not—the resulting disclosures would likely have been so general as to be virtually useless.³⁷⁴ The unique circumstances, as well as the associated risks, that would dominate at the particular time that Lehman needed a rescue were impossible to foresee in either January or from March 10 through June 20.

C. *The Factors That Defeated Disclosure of Extreme Liquidity Risk*

Lehman's case raises grave questions concerning whether the federal securities law disclosure scheme can, realistically, warn of a cash cardiac arrest at a financial firm in time for equity investors to sell at a price that recovers a substantial portion of their investment. Seven characteristics of an extreme liquidity crisis combine to defeat timely warning.

First, like a heart attack, fatal illiquidity develops suddenly. Bear ran out of cash and credit within a week.³⁷⁵ So did Lehman.³⁷⁶ When the crisis strikes, it culminates with frightening speed.³⁷⁷

Second, dynamics between actors outside the failing financial firm play a key role. In Lehman's case, each overnight lender had to gauge whether sufficient other lenders would loan before committing its own money for another nocturnal repo.³⁷⁸ Each lender also had to gauge whether JPM would unwind the next morning.³⁷⁹ JPM, in turn, had to gauge—before unwinding—whether sufficient lenders would return so that Lehman could pay off the intraday loan, and what collateral cushion JPM needed to guard against the possibility that it might be wrong in predicting continued nighttime lending.³⁸⁰ The interplay between all of these actors was complex and fast moving, as

373. For example, bank holding companies with \$50 billion or more in assets must today prepare and file resolution plans. Definitions, 12 C.F.R. § 243.2 (2014); Resolution Plan Required, 12 C.F.R. § 243.3 (2014). The plans must include a “range of specific actions to be taken by the . . . company to facilitate a rapid and orderly resolution of the . . . company . . . in the event of material financial distress or failure of the . . . company.” *Id.* § 243.4(c)(1)(ii).

374. At least the publicly released portions of the resolution plans now required provide little information that is not otherwise public and that would materially assist investors in understanding the banks' endgames in the event of a liquidity disaster. *E.g.*, BANK OF AMERICA CORPORATION RESOLUTION PLAN, BANK OF AMERICA, N.A. RESOLUTION PLAN, FIA CARD SERVICES, N.A. RESOLUTION PLAN (2013), available at <http://www.federalreserve.gov/bankinforeg/resolution-plans/boa-1g-20131001.pdf>.

375. See *supra* notes 10–12 and accompanying text for a discussion of how fast Bear Stearns ran out of cash.

376. See *supra* note 170 and accompanying text for a discussion of how fast Lehman ran out of cash.

377. Serious financial writing recognizes how swiftly liquidity can collapse. See, e.g., Jean-Charles Rochet & Xavier Vives, *Coordination Failures and the Lender of Last Resort: Was Bagehot Right After All?*, in LIQUIDITY AND CRISES, *supra* note 175, at 293, 298 (using in a model an “explicitly short time horizon (say, two days) that corresponds to liquidity crises” in “the ‘modern’ form of bank run—that is, large investors refusing to renew their [loans] on the interbank market”).

378. See *supra* note 171 and accompanying text for a discussion of the dynamic between lenders.

379. See *supra* note 173 and accompanying text for a discussion of how the clearing bank–lender dynamic affected lenders.

380. See *supra* note 172 and accompanying text for a discussion of how the clearing bank–lender dynamic affected the clearing bank.

illustrated by JPM's two demands, each for \$5 billion in additional collateral, during Lehman's last week.³⁸¹

Third, the government's key role can be decisively influenced by the very particular political context at the time the crisis occurs. It was Lehman's extreme misfortune to enter its death spiral after the Bear rescue and sandwiched between the Fannie Mae and Freddie Mac conservatorships and the AIG bailout—an awful interval in which to seek government help.³⁸²

Fourth, the potential merger partners available for an endgame deal depend on the health and strategy of the firms of a size (and in a business sufficiently related) to quickly absorb the one clutching its chest in pain. At the end, one of Lehman's suitors might have been predicted—BofA.³⁸³ But the one coming closest to a deal—Barclays—came out of the blue,³⁸⁴ dragging with it FSA regulation of Barclays' relationship with its own shareholders.³⁸⁵

Fifth, the strange calculus of confidence can wildly distort results. Lehman had access to the PDCF, a backstop specifically set up after the Bear events in March to help firms like Lehman survive exactly the kind of catastrophe Lehman faced in September.³⁸⁶ Yet because Lehman feared that use of the backstop would sap what little confidence the firm still commanded, it did not resort to the fallback for even a single dollar as it went to its death.³⁸⁷ Suffering a heart attack, the firm turned its back on the electric paddles.

Sixth, while the players in Lehman's last drama were all sophisticated financial participants,³⁸⁸ some of them, unpredictably, acted much like retail bank customers during a run.³⁸⁹ Lenders proved information insensitive until shock. Instead of gradually increasing haircuts and interest rates to account for an increasing risk of a

381. See *supra* notes 124–33 and accompanying text for a discussion of JPM's collateral demands.

382. See *supra* notes 193–97 and accompanying text for a discussion of the political resistance generated by assistance to financial institutions.

383. Lehman had talks with BofA as early as July. See Examiner Report, *supra* note 1, at 694–95.

384. The Examiner's description of Lehman's "Survival" efforts does not mention contacts with Barclays, about a rescue deal, prior to the communications in the last week and weekend preceding the bankruptcy. *Id.* at 703–10.

385. See *supra* notes 208–13 and accompanying text for a discussion of how FSA regulations helped push Lehman into bankruptcy.

386. See *supra* notes 164–67 and accompanying text for a description of the PDCF.

387. See *supra* notes 354–57 and accompanying text for a discussion of the relationship between Lehman and PDCF.

388. See *supra* note 153 and accompanying text for a discussion of the type of institutions lending Lehman money.

389. In a classic run on a retail bank, depositors are disconcerted by bad news or rumors. Each depositor worries that others will take out their money and leave the bank without funds. Each therefore races the others to withdraw. Franklin Allen et al., *An Introduction to Liquidity and Crises*, in LIQUIDITY AND CRISES, *supra* note 175, at 3, 22. The modern bank run, however, features "large investors refusing to renew [loans]." Rochet & Vives, *supra* note 377, at 298. That is exactly what happened to Bear and Lehman. FCIC REPORT, *supra* note 10, at 291 ("Bear experienced runs by repo lenders . . ."); see also COPELAND, REPO RUN EVIDENCE, *supra* note 43, at 19, 26 (stating that Lehman experienced a "run" and that lender flight in the triparty repo market can resemble a traditional bank run).

Lehman default, they simply stopped lending altogether.³⁹⁰

Seventh, many of the actors had strong incentives to conceal their intentions from Lehman, with the lenders and JPM wanting to preserve a valuable business relationship until they decided it was clearly in their interest to take actions draining Lehman of its cash, and the government wanting to conceal any willingness to contribute money to an endgame merger in order to maximize the contribution the government could coax from others.³⁹¹

In light of these factors, it was impossible for Lehman to foresee any of the details that would kill it. Since it could not foresee those details, it could not warn of those details. And general warnings would have had little value.

While reforms have attempted to reduce the particular risks so prominent in Lehman's case,³⁹² the nature of large modern financial institutions and modern markets could easily bring many of the factors set out above into play again, which could frustrate timely and effective disclosure in future cases where financial firms face extreme liquidity risk. If not in risky repos, those firms will engage in other complicated transactions. Those transactions will involve multiple parties. Each of those parties will have its own set of goals, and each will act only after considering the possible actions of the others, so that the players involved in any particular type of

390. See *supra* notes 147–54 and accompanying text for a description of the abrupt lender flight from Lehman without adjusting terms.

391. See *supra* note 371 and accompanying text.

392. A New York Fed task force made a series of recommendations to reduce risks created by triparty repos. See 2012 PAYMENTS RISK COMM., *supra* note 75, at 14–21. Most importantly, those recommendations sought “the practical elimination of intraday credit” resulting from the morning unwind. *Id.* at 2–5. Implementation continues. The Federal Reserve reported in early 2014 that “the two clearing banks are providing over a trillion dollars less in intraday credit to market participants on a daily basis today than in February 2012” because “[b]oth clearing banks [JPM and Bank of New York Mellon] have . . . end[ed] the daily unwind of cash and collateral for non-maturing trades and redesign[ed] the process for settling maturing trades in a more liquidity-efficient manner,” and because “some dealers [have] extend[ed] the tenor and ladder[ed] the maturity of their repo books, particularly for less liquid securities, so that maturities are less concentrated on any given day than they were in the past, reducing their need for credit.” *Update on Tri-Party Repo Infrastructure Reform*, FED. RESERVE BANK OF N.Y., (FEB. 13, 2014), http://www.newyorkfed.org/newsevents/statements/2014/0213_2014.html. It is unclear whether the reforms can change the information insensitive until shock nature of a significant portion of the triparty lenders.

As to endgames, the 2010 financial-reform law provides an “orderly liquidation” process for systemically important financial firms that are in default or in danger of default and further provides that the liquidation must be implemented so that shareholders bear any loss. 12 U.S.C. §§ 5384(a)(1), 5386(2) (2012). But the liquidation process cannot begin unless the Treasury Secretary determines that “no viable private sector alternative is available to prevent the default,” which implies that a merger of the ailing firm into a healthy firm is still the preferred alternative toward which the government will work. *Id.* § 5383(b)(3). While the new law seems designed to stop government bailouts of huge financial firms, *id.* at §§ 5392(b), 5394(a), the law could always be changed. The probability that Congress might do so during a crisis arguably increased with the news that the government loan to Maiden Lane LLC in the JPM-Bear deal was repaid with interest in June 2012, that the subordinated note to JPM was repaid with interest in November 2012, and that the government “will receive 100 percent of future cash flows generated from the remaining ML LLC assets.” *Maiden Lane Transactions*, FED. RESERVE BANK OF N.Y., <http://www.newyorkfed.org/markets/maidenlane.html> (last visited May 21, 2014). See *supra* note 19 and accompanying text for a discussion of the government's role in financing the Bear-JPM merger. Hence, all the endgame complexities and risks remain—as does the unlikelihood of accurately assessing and disclosing those risks in a sufficiently particular way to be helpful.

transaction may generate a small-system dynamic. That dynamic may play out quickly, with frightening, immediate, and disastrous results on firm liquidity. In an industry in which reputation is key, options designed to break a dynamic may go unused for fear that using a circuit breaker will do more harm than good. Government intervention to save the day will continue to depend on the politics of the moment, influenced heavily by the events close in time to a firm's crisis. Virtually all of the important players may want to hold their cards close to their chests. Securities disclosures may be completely unable to capture the extent of these risks in a timely way.

CONCLUSION

The lessons specific to Lehman and financial firms more generally have serious, and even more far-reaching, implications for securities disclosure overall. United States securities law rests, fundamentally, on the idea that public companies will publish facts that reveal risks so that investors can choose to run those risks or not.³⁹³ This notion has fueled a steady increase in disclosure requirements, with Regulations S-K and S-X—the principal set of disclosure rules for public companies³⁹⁴—growing by fifty-three percent between 2000 and 2012.³⁹⁵ Legislative and regulatory reactions to swift and unexpected corporate failures have fueled that growth.³⁹⁶

The Lehman case suggests, however, that sometimes publicly traded companies cannot realistically disclose risks in a helpful and timely way, and that the risks that they cannot so disclose may be the ones most important to their shareholders. What could be more important, after all, than the risk that a company might suddenly fall into ruin for want of cash to conduct daily operations? Disturbing as it is, the large lesson is that the securities law panacea—risk disclosure, and ever more risk disclosure—will not always work. Sometimes, we cannot predict a heart attack.

393. See LOUIS LOSS ET AL., *FUNDAMENTALS OF SECURITIES REGULATION* 42–49 (6th ed. 2011) (contrasting the view that securities law should prevent investors from “making bad bargains,” with the view that the law should simply require truthful disclosure that investors would then use to make decisions; with the disclosure philosophy prevailing).

394. Regulation S-K sets out the narrative disclosures that public companies must make and Regulation S-X prescribes the rules for required financial statements. I HAZEN, *supra* note 346, § 3.4[5][A] at 342.

395. In 2000, Regulation S-K occupied pages 340 to 448 of the relevant volume of the Code of Federal Regulations, and Regulation S-X spanned pages 215 to 292. 17 C.F.R. §§ 210.1-01–210.12-29 (2000); 17 C.F.R. §§ 229.10–229.1016 (2000). Together they totaled 187 pages. In 2012, Regulation S-K covered pages 340 to 523, and Regulation S-X pages 236 to 337. 17 C.F.R. §§ 210.10–210.12-29 (2012); 17 C.F.R. §§ 229.10–229.1208 (2012). Together they totaled 286 pages.

396. For example, Enron's troubles related in part to special purpose entities that kept debt and losses off Enron's reported balance sheet and income statement in order to “present [Enron] more attractively” to “Wall Street analysts and [credit] rating agencies.” See WILLIAM C. POWERS, JR., ET AL., *REPORT OF INVESTIGATION BY THE SPECIAL INVESTIGATIVE COMMITTEE OF THE BOARD OF DIRECTORS OF ENRON CORP.* 37 (2002). Precisely to address the use of off-sheet financing to disguise financial results, the Sarbanes-Oxley Act of 2002, and a resulting addition to Reg S-K, requires disclosure of such arrangements. See Sarbanes-Oxley Act of 2002, Pub. L. No. 107-204 § 401(a), 116 Stat. 745 (codified at 15 U.S.C. § 78m(j) (2012)); *Disclosure in Management's Discussion and Analysis About Off-Balance Sheet Arrangements and Aggregate Contractual Obligations*, Securities Act Release No. 33-8,182, Exchange Act Release No. 34-47,264, 68 Fed. Reg. 5982 (Feb. 5, 2003) (adding subpart (a)(4) to Reg. S-K Item 303, 17 C.F.R. 229.303(a)(4)).