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Comments welcome

The Wages of Failure:

Executive Compensation at Bear Stearns and Lehman 2000-2008

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Abstract

The standard narrative of the meltdown of Bear Stearns and Lehman Brothers assumes that the wealth of the top executives of these firms was largely wiped out along with their firms. In the ongoing debate about regulatory responses to the financial crisis, commentators have used this assumed fact as a basis for dismissing both the role of compensation structures in inducing risk-taking and the potential value of reforming such structures. This paper provides a case study of compensation at Bear Stearns and Lehman during 2000-2008 and concludes that this assumed fact is incorrect.

We find that the top-five executive teams of these firms cashed out large amounts of performance-based compensation during the 2000-2008 period. During this period, they were able to cash out large amounts of bonus compensation that was not clawed back when the firms collapsed, as well as to pocket large amounts from selling shares. Overall, we estimate that the top executive teams of Bear Stearns and Lehman Brothers derived cash flows of about $1.4 billion and $1 billion respectively from cash bonuses and equity sales during 2000-2008. These cash flows substantially exceeded the value of the executives' initial holdings in the beginning of the period, and the executives' net payoffs for the period were thus decidedly positive. The divergence between how the top executives and their shareholders fared implies that it is not possible to rule out, as standard narratives suggest, that the executives' pay arrangements provided them with excessive risk-taking incentives. We discuss the implications of our analysis for understanding the possible role that pay arrangements have played in the run-up to the financial crisis and how they should be reformed going forward.

Key words: Lehman Brothers, Bear Stearns, the financial crisis, banks, executive compensation, risk-taking, compensation structures, bonus compensation, stock options, restricted shares, moral hazard.

JEL Classification: G28, K23

I. INTRODUCTION

In the aftermath of the financial crisis of 2008–2009, there are widespread beliefs that executive pay arrangements could have encouraged excessive risk-taking and that fixing those arrangements will be important in preventing similar excesses in the future. These beliefs have led firms and public officials to seek compensation reforms that would eliminate excessive incentives to take risks. For those companies receiving government aid, the Troubled Asset Relief Program (TARP) bill, subsequent U.S. legislation,[1] and regulations implementing such legislation[2] require the elimination of compensation structures that provide excessive risk-taking incentives. Furthermore, legislators and regulators have moved toward regulating compensation structures in all financial firms to eliminate such incentives. The U.S. House of Representatives voted in favor of a bill (now to be taken up by the Senate) authorizing such regulations,[3] and the Federal Reserve Board requested comments on a proposed guidance contemplating scrutiny of pay arrangements by banking supervisors.[4] The importance of such reforms was stressed by the G-20 leaders, who made a commitment in their September 2009 meeting "to act together to . . . implement strong international compensation standards aimed at ending practices that lead to excessive risk-taking . . . ."[5]

At the same time, many commentators have taken opposing views: They have dismissed the possibility that incentives generated by pay arrangements played a significant role in the risk-taking decisions financial firms made in the years preceding the financial crisis; and they have dismissed as well the potential payoffs from reforming

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[1] *See* American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, § 7001, 123 Stat. 115, 516–20 (2009) (codified as amended at 12 U.S.C. § 5221).

[2] *See, e.g.*, Press Release, U.S. Dep't of the Treasury, Treasury Announces New Restrictions on Executive Compensation (Feb. 4, 2009), *available at* http://www.ustreas.gov/press/releases/tg15.htm.

[3] *See* Corporate and Financial Institution Compensation Fairness Act of 2009, H.R. 3269, 111th Cong. (as passed by House, July 31, 2009).

[4] Board of Governors of the Federal Reserve System, Proposed Guidance on Sound Incentive Compensation Practices, Docket No. OP-1374.

[5] *See* BASEL COMM. ON BANKING SUPERVISION, ENHANCEMENTS TO THE BASEL II FRAMEWORK 25–27 (2009); LEADERS' STATEMENT: THE PITTSBURGH SUMMIT 2 (2008), *available at* http://www.pittsburghsummit.gov/mediacenter/129639.htm.

such pay arrangements. These commentators stress that financial firms' executives suffered significant losses when the stock prices of their firms fell sharply.[6] In these commentators' view, these losses imply that, to the extent executives took excessive risks, such risk-taking resulted fully from mistakes – excessive optimism, failure to perceive risks, or even hubris – rather than from incentives. The losses suffered by financial executives during the crisis, so the argument goes, indicate that "incentives cannot be blamed for the credit crisis or for the performance of banks…," and that executives "managed their banks in a manner they authentically believed would benefit their shareholders."[7]

Commentators dismissing the role of incentives and the potential value of fixing them have made substantial use of the examples of Bear Stearns and Lehman Brothers.[8] Bear Stearns sold itself in a fire-sale to JP Morgan in March 2008, and half a year later Lehman Brothers ("Lehman") filed for bankruptcy, triggering a worldwide panic. According to the standard narrative of these financial disasters, the wealth of the two companies' top executives was largely wiped out with their firms. This narrative has led observers to infer that risk-taking decisions made by the firms' top executives and ultimately leading to the firms' demise must have been due to failure to perceive risks.

This paper presents an analysis of executive compensation at Bear Stearns and Lehman during the period 2000-2008. Using data from SEC filings, we find that the standard narrative's assumed fact is incorrect. During the examined period, the companies' top executives were able to pocket large amounts of performance-based compensation. Overall, we estimate that the top executive teams of Bear Stearns and Lehman Brothers derived cash flows of about \$1.4 billion and \$1 billion respectively from cash bonuses and equity sales during 2000-2008. These cash flows substantially exceeded the value of the executives' initial holdings in the beginning of the period. As a

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[6] See Rudiger Fahlenbrach and Rene Stulz, Bank CEO Incentives and the Credit Crisis, Charles A. Dice Center Working Paper 2009-13, July 2009; Testimony of Kevin Murphy, United States House of representatives, Hearing on Compensation Structure and Systemic Risk, June 11, 2009, at 4-6.

[7] Joseph Grundfest, "What's Needed is Uncommon Wisdom," New York Times online, October 6, 2009.

[8] See e.g., sources cited in infra notes 20 & 22.

result, the bottom-line payoffs of these executives during 2000-2008 were not negative but decidedly positive. Our analysis has implications for the continuing debates on whether financial executives had incentives to take excessive risks and whether pay arrangements need to be restructured.

Section II introduces the teams of top executives on which our analysis focuses. During 2000-2008, the composition of the top-five-executives team remained largely stable at both Bear Stearns and Lehman. The shareholder payoffs these teams produced were indisputably poor; shareholders who held their shares throughout the period lost most of their initial investment.

Section III discusses the large paper losses on shares held that the top teams suffered when their firms melted down – the losses on which the standard narrative focuses. We observe, however, that these losses do not tell the full picture of the executives' payoffs. To get a better picture of how the executives fared as a result of their 2000-2008 management of their firms, and the incentives they had during this period, it is necessary to calculate what they cashed out during these years, as well as what they had to begin with.

Section IV examines the cash bonus compensation the top executives took out during 2000-2008. Although the financial deterioration in 2007 led Bear Stearns to stop paying bonuses and Lehman to reduce them, the executives had already pocketed in prior years large amounts of cash bonus compensation. In the aggregate, during 2000-2008, the top-five teams of Bear Stearns and Lehman accumulated cash bonus payments exceeding $300 million and $150 million respectively (all dollar figures in this paper are in January 2009 dollars). Although the financial results on which bonus payments were based were sharply reversed at the end of the 2000-2008 period, the firms' pay arrangements allowed the executives to keep all paid bonus compensation; no amounts were clawed back.

Section V examines what the executives obtained from cashing out shares and options during 2000-2008. During this period, in contrast to some accounts of the standard narrative,[9] the executives regularly took large amounts of money off the table by unloading shares and options. Overall, based on information contained in executives' filings of their trades, we estimate that during 2000-2008 the top-five executive teams at Bear Stearns and Lehman cashed out total amounts of about $1.1 billion and $860 million respectively. Indeed, we find that during the years preceding the firms' collapse, each of the teams sold more shares than they held when the music stopped in 2008.

Section VI focuses on the bottom line. Altogether, the firms' performance-based compensation structures provided the teams of top executives at Bear Stearns and Lehman with cash flows of about $1.4 billion and $1 billion, respectively, during 2000-2008. We observe that these amounts substantially exceed the value of the top executives' positions at the beginning of 2000, which we estimate to be in the order of $800 million and $600 million respectively. To be sure, the executives would have made much more had the firms not blown up. By contrast to shareholders who held their shares throughout 2000-2008, however, the executives' bottom-line payoffs during the same period were significantly positive.

Section VII discusses the implications that our analysis has for the ongoing debate on the potential role that pay incentives played in risk-taking decisions. Our analysis does not support the view that the executives' losses from the firms' collapse imply that they could not have had incentives to take excessive risks. The fact that the executives chose not to sell all of their holdings indicates that they did not anticipate the firms' 2008 collapse. But the executives' taking large amounts of performance-based compensation off the table based on short-term results did provide them with undesirable incentives – incentives to seek improvements in short-term results even at the cost of an excessive elevation of the risk of large losses at some (uncertain) point in the future. To be sure, even though the executives had incentives to take excessive risks, their decisions might have been driven by a failure to recognize risks and thus might have not been affected by those incentives. But given the structure of executives' payoffs, the possibility that risk-

[9] Floyd Norris, It May be Outrageous, but Wall Street Pay Didn't Cause this Crisis," New York Times, July 31, 2009.

taking decisions were influenced by incentives should not be dismissed but rather taken seriously.

Section VIII also discusses the implications of our analysis for the reform of compensation structures. Even if the excessive risk-taking incentives that executives of Bear Stearns and Lehman had (and the similar incentives that executives of other financial firms had) were not a major driver of risk-taking in the years preceding the financial crisis, such incentives could become so in the future if retained. Our analysis highlights the potential value of reforms that tie executive payoffs to long-term results more effectively and eliminate or curtail executives' ability to benefit from short-term results that are subsequently sharply reversed.

II. THE EXECUTIVE TEAMS AND THEIR PERFORMANCE

For both Bear Stearns and Lehman, we focus on the five "named executive officers" in 2007, i.e., those executive officers for whom, in 2007, compensation needed to be disclosed in the annual proxy statement under U.S. securities law: the CEO, the CFO, and the three other most highly paid executive officers.[10] As it turns out, all of these executives held key managerial or board positions with their firms throughout all or most of the 2000-2008 period.

Some members of these teams as we define them were not technically "named executive officers" for each of the years 2000-2008, which means their compensation was not disclosed for the entire 2000-2008 period.[11] To be conservative, we generally

[10] *See* Schedule 14A, Item 8, and Regulation S-K, Item 402(a)(3).

[11] At Bear Stearns, the team includes: James Cayne, CEO from 1993 through January 2008 and chairman of the board from June 2001 through 2008; Alan Greenberg, chairman of the executive committee from 2001 through 2008 and previously chairman of the board; Samuel Molinaro, CFO from 1996 through 2008 and COO from August 2007 through 2008; Alan D. Schwartz, co-COO from June 2001 until August 2007, CEO from January 2008 until the merger with Bank of America, and a director since 1987 (except 1996-1999); and Warren Spector, co-COO from June 2001 until August 2007. For the membership of these persons in the group of "named executive officers," see The Bear Stearns Companies Inc., Proxy Statement 2007, 19; for the first four's positions within the companies, see *id.* and *id.*,, form 10-K/A (amendment no. 1) pt. 3, item 10, available at http://www.sec.gov/Archives/edgar/data/777001/000091412108000290/be12425681-

count compensation during years of missing information as zero, which biases our aggregate compensation numbers downwards.[12] We could have avoided these problems by looking at all the "named executive officers" in any given year, but incentives operate at the level of individuals, so looking at a group with changing membership might produce misleading conclusions. We therefore chose to look at the incentives of five individuals who served as top executives during all or most of the relevant period.

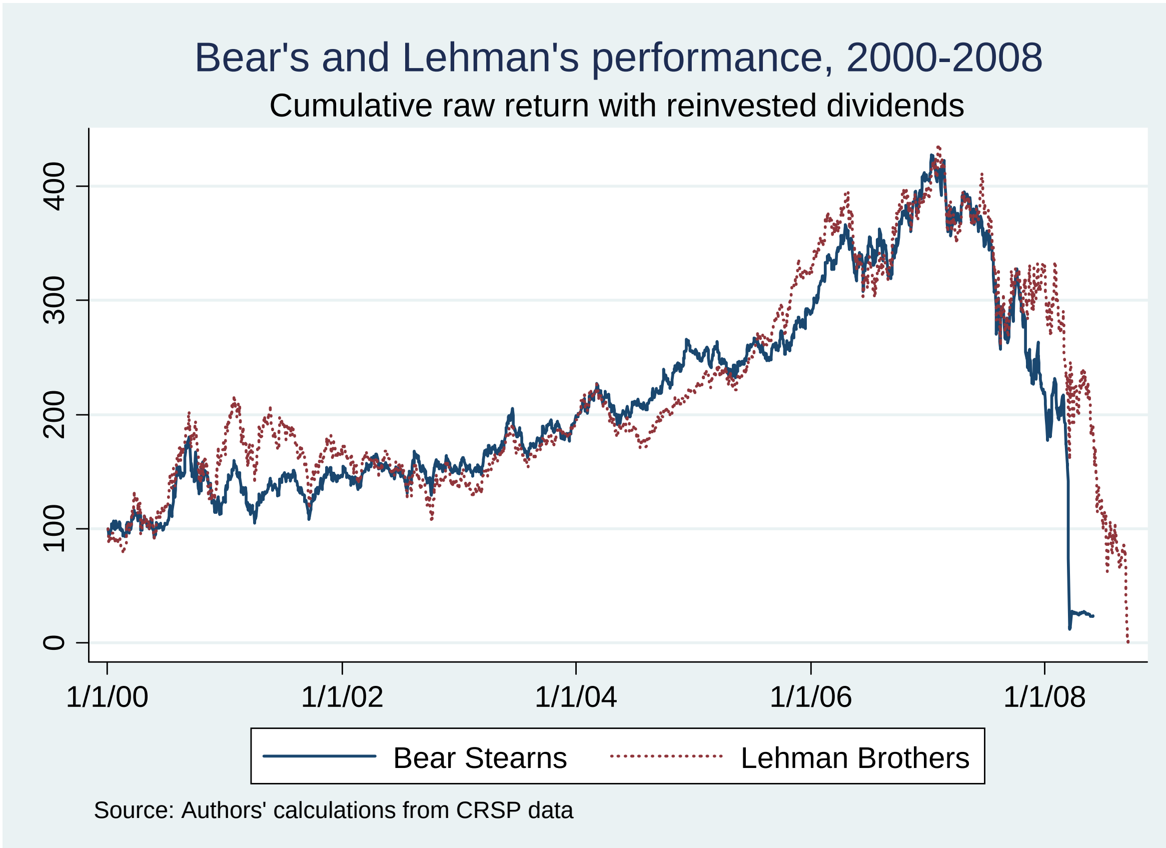
As Figure 1 shows, the two top executive teams initially produced stellar returns, quadrupling their firms' stock price from January 2000 to January 2007. As is well known, however, in the next 15 to 21 months both stocks collapsed. Bear Stearns was forced to sell itself to JPMorgan in March 2008 for a per share price equal to about a quarter of the January 2000 stock price. Lehman filed for bankruptcy in September 2008. Shareholders holding the companies' shares from 2000 to 2008 lost most of the value of their 2000 position.

10ka.txt, and for Spector's position, see *id.*, form 10-K for 2007, p. 32, available at http://www.sec.gov/Archives/edgar/data/777001/000091412107000335/be7368933-10k.txt, and *id.*, form 8-K, dated 11/15/2007.

At Lehman, the team includes Richard Fuld, CEO from 1993 through 2008 and chairman of the board from 1994 through 2008; David Goldfarb, CFO from 2000 through 2004 and CAO from 2004 through 2006; Joseph Gregory, (Co-)COO from 2002 through 2008 and CAO from 2000 through 2002; Christopher O'Meara, CFO from 2004 through 2007 and previously in various management positions at the firm (since 1994); Thomas Russo, CLO from 1993 through 2008. Fuld and Gregory were "named executive officers" throughout the 2000-2008 period, Russo from 2003 through 2008, Goldfarb from 2004 through 2007, and O'Meara in 2007 and 2008. For the membership of these persons in the group of "named executive officers," see Lehman Brothers Holding Inc., Proxy Statement 2007, 21; for the positions of these individuals within the firm, see *id.* and the 2006 and 2008 proxy statements.

[12] As we discuss in Section VI, for some executives we do not have information about their holdings in 2000, and we make conservative assumptions also in this case.

FIGURE I. 2000-2008 PERFORMANCE



III. Executives' Losses from the Fall of their Banks

The top executives of Bear Stearns and Lehman held substantial numbers of their companies' shares. Relative to what those shares were worth at the peak stock prices both firms reached in early 2007, the executives suffered very substantial paper losses when their companies collapsed.

For example, the chairman of the board and, until January 2008, CEO of Bear Stearns held 5.6 million shares in his bank at the time of its emergency sale to JPMorgan in March, 2008. At the then-current price of $10.84, he obtained $61 million for these shares.[13] By contrast, at the peak stock price of $171.51 on January 12, 2007, the same shares were worth $963 million.[14] This amounts to a paper loss of over $900 million.[15]

Similarly, the chairman of the board and CEO of Lehman held, directly or indirectly, 10.8 million shares as of January 31, 2008.[16] When Lehman filed for bankruptcy on September 15, 2008, those shares became worthless.[17] Compared to the peak stock price of $85.80 on February 2, 2007,[18] this amounted to a paper loss of $931 million.

As noted in the introduction, commentators have pointed to these paper losses as evidence that bank executives' pay incentives could not have played a role in the earlier risk-taking incentives that resulted in the firms' demise. Executives ending up with such losses must have failed to perceive the risks their firms faced, so the argument goes, and their risk-taking must have been driven entirely by excessive optimism or even hubris, not by perverse incentives. Indeed, an examination of the fate of Lehman's CEO was a primary basis for the conclusion reached by *New York Times* columnist Floyd Norris that

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[13] *See* Form 4 – Statement of Changes in Beneficial Ownership filed on 3/27/2008, available at http://www.sec.gov/Archives/edgar/data/777001/000077700108000033/xslF345X02/cay557.xml.
[14] Source: CRSP.
[15] Bear Stearns' former CEO may have incurred additional losses on restricted and phantom stock of Bear Stearns that he still held at the time of the sale, but, based on Bear Stearns' proxy statement 2007, such losses would presumably have been less than 20% of the losses he incurred on his holdings of common stock. *Cf.* The Bear Stearns Companies Inc., Proxy Statement 2007, 10 (reporting that the CEO's phantom and restricted stock holdings amounted to about 10% of his common stock holdings), 20 (reporting that the value of unexercised in-the-money options was about $60m).
[16] *See* Lehman Brothers Holding Inc., Proxy Statement 2008, 18. This number includes restricted and phantom stock, *see id.* At least 4.6m of these shares were vested as of January 31, 2008, *see id.* 34. According to his SEC filings available at http://www.sec.gov/cgi-bin/browse-edgar?CIK=0001227421&action=getcompany, none of these shares were sold prior to Lehman's bankruptcy filings.
[17] On the day of Lehman's bankruptcy filing, he sold 2.98m of those shares for prices of around 20c per share, or approximately $600,000 total. *See* Form 4 – Statement of Changes in Beneficial Ownership, filed 09/17/2008, available at http://www.sec.gov/Archives/edgar/data/806085/000080608508000155/xslF345X03/doc.xml. Three days later, he sold another 287,415 shares for 7c per share, or $ 21,125 total. *See* Form 4 – Statement of Changes in Beneficial Ownership, filed 09/22/2008, available at http://www.sec.gov/Archives/edgar/data/806085/000080608508000159/xslF345X03/doc.xml.
[18] Source: CRSP.

"Wall Street pay didn't cause this crisis."[19] Norris stressed that the paper losses of Lehman's CEO stood out among those of financial executives.[20] Similarly, in a *Wall Street Journal* editorial, Jeffrey Friedman relied on the Lehman CEO's large paper losses as a basis for his view that financial firms' compensation structure were not at fault for banks' risk-taking.[21]

There can be little doubt that the banks' executives had strong reasons to prefer that their companies survive. Furthermore, the executives' holding so many shares at the time of the collapse indicates that they had not foreseen in 2007 or early 2008 that such a collapse was around the corner. The important question, however, is whether the executives had an incentive to make decisions that created an excessive risk – though by no means certainty – of massive losses at some (uncertain) time down the road.

In particular, excessive incentives to take risks might have been generated by executives' ability to cash out compensation based on the firms' short-term results. To the extent that executives did cash out large amounts of such compensation, their decisions might have been distorted by an excessive focus on short-term results. This problem, first highlighted several years ago in a book and accompanying articles co-authored by one of us,[22] has received much attention in the wake of the crisis from both public officials and business leaders.[23]

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[19] Floyd Norris, "It May be Outrageous, but Wall Street Pay Didn't Cause this Crisis," New York Times, July 31, 2009.

[20] Norris, supra note 19 (relying on data from Fahlenbarch and Stulz, supra note _).

[21] Jeffrey Friedman, "Bank Pay and the Financial Crisis," Wall Street Journal, September 28, 2009.

[22] *See, e.g.*, LUCIAN BEBCHUK & JESSE FRIED, PAY WITHOUT PERFORMANCE (2004); Lucian Arye Bebchuk & Jesse M. Fried, *Executive Compensation as an Agency Problem*, 17 J. ECON. PERSP. 71 (2003); Lucian Arye Bebchuk & Jesse M. Fried, *Pay Without Performance: Overview of the Issues*, 17 J. APPLIED CORP. FIN. 8 (2005); Lucian Arye Bebchuk et al., *Managerial Power and Rent Extraction in the Design of Executive Compensation*, 69 U. CHI. L. REV. 751 (2002).

[23] *See, e.g.*, *See*, *e.g.*, Press Release, U.S. Dep't of the Treasury, Statement by Treasury Secretary Tim Geithner on Compensation (June 10, 2009), *available at* http://www.ustreas.gov/press/releases/tg163.htm (stating that "compensation should be structured to account for the time horizon of risks"); Lloyd Blankfein, *Do Not Destroy the Essential Catalyst of Risk*, FIN. TIMES, Feb. 2009, at 7 ("An individual's performance should be evaluated over time so as to avoid excessive risk-taking. To ensure this, all equity awards need to be subject to future delivery and/or deferred exercise. Senior executive officers should be required to retain most of

Properly examining this issue requires examining not only the losses Bear Stearns' and Lehman's top executives suffered as their firms collapsed, but also the compensation they derived in preceding years. Many of the decisions that ultimately led to the failure of the companies, such as the decisions to get heavily involved in the securitized assets markets, were made a substantial period of time before the final collapse. To assess the executives' incentives when they made decisions that determined the future risks facing their banks, one needs to look at their compensation over a longer period of time. [24]

Some commentators who suggest that incentives did not play a role have assumed that the top executives of Bear Stearns and Lehman did not draw much cash out of their firms in the years preceding the crisis. Norris, for example, wrote in his New York Times column:

> "[Lehman's CEO] was later raked over the coals in Congressional hearings about his huge compensation. That most of it was in stock and options that he never cashed in seemed to be something most legislators could not comprehend."[25]

As will be discussed below, however, the top executives of both companies did in fact draw large cash flows during the years preceding the firms' demise. Lehman's CEO alone obtained cash flows of about $470 million from equity sales during 2000-2007. More generally, as we shall see, the performance-based compensation drawn by the firms' top teams during 2000-2007 was sufficiently large that the total payoffs of these executives during 2000-2008, factoring in the value of their initial holdings in the firms, were decidedly positive.

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the equity they receive at least until they retire, while equity delivery schedules should continue to apply after the individual has left the firm."). For a detailed analysis of how pay arrangements should be designed to address the short-horizons problem, see Lucian A. Bebchuk & Jesse Fried, *Paying for Long-Term Performance*, Working Paper, Harvard Law School 2009 (on file with the authors).

[24] While most observers have focused on the executives' paper losses at the time of the firms' collapse, the fact that one has to look earlier has been noticed by some. Those observing that one has to look also at the amounts taken home by the executives of Bear Stearns and Lehman in the years preceding the firms' collapse include Congressman Waxman (in the House Oversight Committee Hearing in October 2008) and former Wall Street analyst Henry Blodget (writing in his Clusterstock blog on November 12, 2009).

[25] Norris, supra note _.

IV. Cash Bonuses during 2000-2008

Because our focus throughout is on performance-based compensation, we put aside the cash flows to the top executives from their salaries. During the period 2000-2008, the top executive teams of Bear Stearns and Lehman received aggregate cash salaries of $9 million and $17.5 million, respectively (all dollar figures are in 2009 dollars).[26] Because these salaries were independent of performance, we do not take them into account in our further analysis.

On top of their cash salaries, however, these top executives received sizeable amounts of performance-based cash bonuses in the years 2000-2008, as shown in Table 1. The Bear Stearns and Lehman CEOs alone took home about $87 million and $70 million respectively (in 2009 dollars). As explained in section II above, the numbers for executives 2 through 5 are biased downwards because some of them were not "named executive officers" for each year 2000-2008; hence their bonuses were not disclosed in the firms' proxy statements in every single year during this period.

[26] We obtain these and the following numbers directly from the banks' annual proxy statements and, in the case of Bear Stearns for 2007, its amended form 10-K/A, *supra* note 11. These numbers are identical to those reported in the ExecuComp database, with two exceptions. First, ExecuComp reports higher compensation for Bear Stearns executives in 2000 because it adds payments relating to a transition period in 1999 when Bear was changing fiscal years to payments reported for 2000. Second, ExecuComp does not report any bonus payments for Lehman executives in 2007, presumably because Lehman extraordinarily reported these "cash bonuses" as "Non-Equity Incentive Plan Compensation" in the "Summary Compensation Table." *Cf.* Lehman Brothers Holding Inc., Proxy Statement 2008, 26-28

TABLE 1: CASH BONUSES

	Bear Stearns		Lehman	
	CEO	Executives 2-5*	CEO	Executives 2-5*
2000	$14,303,249	$15,256,715	$10,728,811	$9,870,506
2001	$5,927,920	$17,952,389	$4,768,899	$5,186,178
2002	$11,744,609	$34,457,261	$10,269,601	$3,695,883
2003	$12,633,503	$37,562,958	$7,630,983	$11,647,290
2004	$11,268,364	$34,460,116	$11,456,939	$18,275,215
2005	$13,753,111	$42,674,147	$14,865,419	$26,109,081
2006	$17,878,812	$56,974,132	$6,545,852	$15,657,678
2007	$-	$-	$4,327,911	$11,965,401
2008	$-	$-	$-	$-
TOTAL	**$87,509,569**	**239,337,718**	**$70,594,415**	**$102,407,231**
Total Top-5	**$326,847,286**		**$173,001,646**	

Source: Annual proxy statements and, for Bear Stearns in 2007, the amended 10-K. All amounts are inflation-adjusted to January 2009 dollars using the CPI, and relate to fiscal years, not calendar years.

- Executives 2-5 are the other "named executive officers" in the 2007 proxy statement of the respective bank. We treat as zero lacking information for two Bear executives and two Lehman executives in 2000, for two Lehman executives in 2001, for one Lehman executive in 2002-04, and for one Lehman executive in 2007.
- For Lehman executives in 2007, the numbers given also include "Non-Equity Incentive Plan Compensation," *see supra* note 26.

Bear Stearns and Lehman chose to provide their top executives with large bonuses during the years 2000-2007 on the basis of the banks' high earnings and stock price increases during those years. Based on such short-terms results, the firms awarded especially large bonuses during the 2004-2006 period. For example, in its decision to award bonuses for fiscal year 2006, Bear Stearns' compensation committee considered in particular "record" earnings per share, net income, net revenues, large increases in book value per share, and the fact that "[t]he market price of the Common Stock increased by approximately 37%" during the fiscal year.[27] Similarly, Lehman's compensation committee cited "record" net revenues, pretax income, net income, and earnings per share, as well as "[a]n increase in the Firm's stock price of 17% during fiscal 2006, and 123% over the last five years" in its decision to award bonuses for fiscal year 2006.[28]

For the year 2007, the compensation committee of Bear Stearns "determined not to award any bonuses to the members of the Executive Committee related to fiscal 2007 in recognition of the significant decline in our overall financial results from the prior year."[29] Lehman did continue to award cash bonuses (though at lower levels than in 2006), again citing "record" earnings per share, net income, and net revenues, as well as "[s]uccessfully navigating the difficult credit and mortgage market environments and maintaining the Firm's strong risk controls."[30] What is most important for our purposes, however, is that neither bank's pay arrangements required its executives to repay cash bonuses for previous years when the banks collapsed in 2008. Accordingly, no part of the cash bonus compensation was clawed back even though the "record" financial results that served as a basis for the bonuses largely evaporated.

V. Cash from Unloading Shares and Options 2000-2008

During 2000-2008, the executives also took home large amounts of money from selling shares of their companies. Indeed, such sales were the most important source of cash outflows to the executives during this period.

In our analysis of the executives' benefits from equity-based compensation, we focus on the actual sales of shares of stock rather than the grant of such shares or options thereon. This is because any shares and options not yet sold became almost (Bear) or

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[27] The Bear Stearns Companies Inc., Proxy Statement 2007, 15.
[28] *See* Lehman Brothers Holdings Inc., Proxy Statement 2007, 19-20.
[29] *See* The Bear Stearns Companies Inc., form 10-K/A, *supra* note 11, at 9.
[30] *See* Lehman Brothers Holding Inc., Proxy Statement 2008, 25.

totally (Lehman) worthless when the companies collapsed. Hence the mere granting of shares and options during this period does not determine how executives fared financially over the 2000-2008 period. By contrast, any cash received for selling shares was unaffected by the subsequent crash of the banks. Of course, some of that cash income can be seen as merely executives' liquidation of wealth they already had in 2000, and we take this into account in Section VI.

We use for our analysis the Thomson Financial's Insiders database, which builds on SEC filings on forms 3, 4, and 5. Table 2 shows for each executive and year the amount received from trading in the companies' shares. The amounts shown are net amounts: We substract from the dollar amounts received any amounts invested in shares during that year – either in the exercise of stock options or the purchase of shares in the market. As we do throughout, we inflation-adjust all dollar amounts to 2009 dollars.

TABLE 2: NET INFLOWS FROM EQUITY SALES

	Bear Stearns		Lehman	
	CEO	Executives 2-5*	CEO	Executives 2-5*
2000	$9,087,527	$51,578,460	$57,136,184	$16,137,797
2001	$37,351,800	$119,906,819	$38,444,264	$43,949,470
2002	$30,062,992	$81,730,689	$31,088,599	$34,432,387
2003	$67,400,196	$250,500,032	$52,770,933	$39,981,325
2004	$32,252,654	$130,232,064	$20,329,963	$62,903,572
2005	$25,128,912	$106,092,404	$98,565,178	$71,694,762
2006	$11,704,049	$34,306,482	$108,651,865	$57,873,403
2007	$15,445,977	$32,667,188	$53,544,175	$62,332,550
2008	$60,653,974	$10,223,482	$10,164,621	$10,630
TOTAL	**$289,088,081**	**$817,237,620**	**$470,695,782**	**$389,315,896**
Total Top-5	**$1,106,325,701**		**$860,011,678**	

Source: Authors' calculations based on Thomson Financial Insiders database, counting both direct and indirect holdings. All amounts are inflation-adjusted to January 2009 dollars using the CPI.

* Executives 2-5 are the other "named executive officers" in the 2007 proxy statement of the respective bank. We treat as zero lacking information for two Lehman executives in 2000-2001, for one Lehman executive in 2002-2004, for one Lehman executive in 2007, and for three Lehman executives in 2007.

As Table 2 shows, during the years 2000-2008, the banks' top executives received substantial net cash proceeds from sales of their companies' shares, including from the exercise of options. Lehman's CEO took home about $471 million (in 2009 dollars),[31] and Bear Stearns' CEO took home $289 million. Looking at the top executive teams as a whole, their net cash proceeds from share sales exceed $1.1 billion in the case of the Bear Stearns team and $850 million in the case of the Lehman team. Indeed, the large sales of shares throughout the period 2000-2008 are a key reason why the banks' executives were able to make net gains in the period as a whole, even though the value of their holdings took a considerable hit when the banks crashed in 2008.

A noteworthy feature of the pattern displayed in Table 2 is the regularity with which the members of the top executive teams were unloading equity positions. At both Bear Stearns and Lehman, both the CEO and the 2-5 executive group obtained net cash flows from unloading shares and options in *each* of the years 2000-2008. This pattern, of course, meant that executives had incentives to place some weight on short-term stock market prices throughout the period.

It is also interesting to note that most executives were able to sell more shares during the period 2000-2007 than they held at the end in 2008. Table 3 shows shares sold over the period 2000-2007 (adjusted for stock splits) in comparison to the amount of shares held in 2008. Each of the two top executive teams had one executive who left before 2008 and for whom holdings were not reported in 2008, so we omit these individuals' sales and positions from the table; assuming they sold off their shares at least as quickly as did other executives before 2008, our numbers understate the extent to which the number of shares sold during 2000-2007 exceeded the shares held by the executives at the time of the firms' collapse.[32]

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[31] If sales of indirect holdings are excluded, the number is $469m.

[32] Finally, it is worth noting that many of the above sales relate to shares that the executives had previously received as compensation from their banks but that they were allowed to sell during the considered period. For example, Lehman's CEO could have obtained at most $103 million (in 2009 dollars) from selling the shares he already held at the IPO in 1994 or subsequently acquired through open-market purchases. He held 515,232 shares at the time of Lehman's IPO in 1994 and purchased an additional 645,440 shares in open-market transactions in the subsequent two years (both numbers are adjusted for subsequent stock splits). We calculated the maximum possible price of these shares using Lehman's peak stock price of $85.80 on February 2, 2007. On Lehman's CEO's stock holdings at the IPO, see Lehman Brothers Holding Inc., Form S-1 – Registration Statement under the Securities Act of 1933, filed on 4/5/1994, 72 (reporting Richard Fuld's holdings of Lehman stock on the IPO date). We calculated the number of open-market

TABLE 3: SHARES SOLD DURING 2000-2007 vs SHARES HELD IN 2008

	Bear Stearns			Lehman		
	CEO	Executives 2-5*	**Total Top -5**	CEO	Executives 2-5*	**Total Top -5**
Shares sold, 2000-2007	2,720,845	5,392,414	**8,113,259**	12,422,277	11,148,734	**23,571,011**
Shares held, 2008	5,658,591	1,124,363	**6,782,954**	10,851,590	7,903,508	**18,755,098**
Difference	-2,937,746	4,268,051	**1,330,305**	1,570,687	3,245,226	**4,815,913**

Source: Shares sold: authors' calculations based on Thomson Financial Insiders database, omitting transactions without a reported transaction price (such as gifts). Shares held: holdings before sale reported on respective individual's first SEC filing (form 4) in 2008 (Bear Stearns); 2008 proxy statement (Lehman). All numbers include indirect holdings and are adjusted for stock splits.

* Executives 2-5 are the other "named executive officers" in the 2007 proxy statement, except that data for Spector (Bear Stearns) and Goldfarb (Lehman) are excluded because they did not report holdings in 2008.

It should be noted that both Bear Stearns and Lehman limited how quickly executives were able to unload equity awards, allowing such unloading to take place only five years after the making of the award.[33] Lehman, however, also granted stock options

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purchases from Thomson Financial's Insiders data, adding shares from all reported transactions in Lehman stock for Richard Fuld with transaction code "P," all of which occurred in the period 1994-1996. It is possible that some of the earliest reported transactions relate to shares that are already counted in Fuld's initial holdings of the IPO date. To the extent this is the case, we are overstating the number of shares that Fuld acquired by ways other than executive compensation.

[33] *Cf., e.g.*, Lehman Brothers Holding Inc., Proxy Statement 2008, 29 (noting that restricted stock units awarded for fiscal 2007 "cannot be sold or transferred until they convert to Common Stock at the end of five years"); *id.*, Proxy Statement 2001, 14, note a (noting that restricted stock units awarded for fiscal 2000 "cannot be sold or transferred until they convert to Common Stock on November 30, 2005"); Bear Stearns Companies Inc., Proxy Statement 2007, 17 (stating that "[i]t is the Company's policy that executive officers are required to hold a minimum of 5,000 shares of

that could be exercised as soon as the stock price crossed certain thresholds, which it usually did within a year of the option grant.[34] In any event, the members of the top teams were all long-serving executives who became free each year to unload the equity incentives awarded them five years earlier, and the patterns displayed in the preceding table indicate that they made regular and substantial use of this freedom, unloading previously granted incentives as they were receiving new ones. The companies' top executives clearly had ample reason to pay close attention to, and place considerable weight on, their companies' short-term stock market prices.

VI. THE BOTTOM LINE

Table 4 puts together the total cash payouts, over and above baseline salaries, that the firms' top executives received during the period 2000-2008. We add to the cash flows from bonuses and from equity sales the value of the executives' remaining holdings after the crash. (We shall proceed to substract the value of their initial holdings in 2000 later on.)

The value of the remaining holdings is essentially zero for Lehman because common shareholders are unlikely to receive anything from the bankruptcy estate, as reflected in the near-zero stock price of Lehman when it was delisted.[35] As to Bear

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Common Stock or Common Stock Equivalents") and 16 (noting that equity-based components of bonus awards "are not freely transferable into shares of Common Stock … for five years from the original grant date"); *id.*, Proxy Statement 2001, 9 (explaining that executives' restricted stock awards received as part of their annual compensation will entitle the executives to receive freely transferable shares after five years).

[34] *See, e.g.*, Lehman Proxy Statement 2001, 12-13 (explaining that options granted in fiscal 2000 were exercisable in 4.5 years, but that "[v]esting was designed to accelerate as the market price of the Common Stock increased to levels well above the market price on the date of the grant. The price of the Common Stock increased significantly during Fiscal 2000, meeting these price targets, and such options became fully exercisable in accordance with their terms.") and 15 (explaining that "Five-year nonqualified stock options were granted on February 18, 2000 with terms providing for exercisability in four and one-half years and for accelerated exercisability in one-third increments if the closing price of the Common Stock on the NYSE reached $42.50, $47.50 and $52.50, respectively, for 15 out of 20 consecutive trading days. These price targets were met during Fiscal 2000.").

[35] When it was delisted on 09/17/2009, Lehman traded at 13c a share.

Stearns, we need to distinguish different types of holdings. Common stock held by executives was sold back to the company or converted into JPMorgan stock before or during the merger with JPMorgan; these transactions are in the Thomson Financial Insiders database and already counted in the numbers we presented in tables 2 and 3 above (using a monetary equivalent for JPMorgan stock, where applicable).[36] Options on Bear Stearns stock became essentially worthless because of the steep decline of Bear Stearns' stock price.[37] Vested phantom stock units, however, were to be exchanged for JPMorgan stock in two tranches around 11/30/2008 and 1/15/2009 under the terms of the merger and hence retained some value.[38] Using JPMorgan's stock price on the respective distribution date, we estimate this value to be $11.7 million for Bear Stearns' former CEO and $17.5 million for the other "named executive officers."[39]

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[36] For the sales information including the zero remaining holdings, *see* the respective Forms 4 – Statements of Change in Beneficial Ownership, for Cayne (*supra* note 13), Greenberg (filed 5/23/2008, available at http://www.sec.gov/Archives/edgar/data/777001/000077700108000037/xslF345X02/gre578.xml), Molinaro (filed 6/2/2008, available at http://www.sec.gov/Archives/edgar/data/777001/000077700108000055/xslF345X02/mol563.xml), and Schwartz (filed 6/2/2008, available at http://www.sec.gov/Archives/edgar/data/777001/000077700108000057/xslF345X02/sch564.xml). Warren Spector left the firm in the end of 2007, *see* form 8-K, *supra* note 11, and hence was not subject to SEC holdings reporting requirements anymore in 2008; to the extent that we are missing amounts he received for remaining shares (or for phantom stock discussed below), we will understate the amounts that Bear Stearns' executives received during 2000-2008.

[37] Bear Stearns options were converted into JPMorgan options at strike prices several times above the JPMorgan stock price then and. *See*, *e.g.*, Form 4 – Statements of Change in Beneficial Ownership, filed 6/2/2009, available at http://www.sec.gov/Archives/edgar/data/777001/000077700108000061/xslF345X02/cay566.xml (Cayne received JPMorgan options with exercise prices over $178).

[38] Bear Stearns' executives also had unvested units of phantom stock, but the monetary value of these was relatively low, totalling only $3m for Greenberg, Molinaro, and Schwartz. *See* The Bear Stearns Companies Inc., Definitive (Merger) Proxy Statement, 6.

[39] JPMorgan's closing stock price was $26.12 on 12/1/2008 and $24.34 on 1/15/2009. *See* http://investor.shareholder.com/jpmorganchase/stocklookup.cfm. For consistency with our previous calculations, we inflation-adjust the November/December numbers to January 2009 dollars using the CPI, although the effect of this is obviously minimal. For the number and distribution date of JPMorgan shares to be distributed to each of the former Bear Stearns executives in replacement of their Bear Stearns phantom stock, see Forms 4 – Statements of Change in Beneficial Ownership for Cayne (*supra* note 37), Molinaro (*supra* note 36), Schwartz (*supra* note 36), and Greenberg (filed on 6/2/2008 and available at

The value of the remaining shares is thus relatively modest (for Bear Stearns' executives) or non-existent (for Lehman's executives). As Table 4 indicates, however, the aggregate cash benefits from performance-based compensation obtained by the executives are quite sizable. This is due to the considerable values derived from cash bonuses and from sales of shares and options. All in all, we estimate that, during 2000-2008, the CEOs of Bear Stearns and Lehman received cash flows from bonuses and equity sales of about $388 million and $541 million respectively; and the top executive teams obtained aggregate cash flows of about $1,462 million and $1,033 million, respectively.

TABLE 4: TOTAL CASH FLOWS FROM BONUSES AND EQUITY SALES 2000-2008

	Bear Stearns		**Lehman**	
	CEO	Executives 2-5*	CEO	Executives 2-5*
Bonus	$87,509,569	$239,337,718	$70,594,415	$102,407,231
Sales of stock	$289,088,081	$817,237,620	$470,695,782	$389,315,896
Stock remaining	$11,656,420	$17,494,360	$0	$0
TOTAL	**$388,254,069**	**$1,074,069,697**	**$541,290,197**	**$491,723,127**
Total Top-5	**$1,462,323,766**		**$1,033,013,324**	

Sources: Bonus: table 1. Sales of stock: table 2. Post-crash holdings: authors' calculations from holdings reported on SEC filings (form 4) and stock prices reported on JPMorgan's website. All amounts shown are inflation-adjusted to January 2009 dollars.

* Executives 2-5 are the other "named executive officers" in the 2007 proxy statement of the respective bank. Missing information for individual executive officers in any given year is treated as zero (see tables 1 and 2 above).

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http://www.sec.gov/Archives/edgar/data/777001/000077700108000049/xslF345X02/gre559.xml).

Before concluding, it would be worth comparing the cash flows derived by the executives with the value of the executives' holdings in their banks at the beginning of the period 2000-2008. Such comparison would provide us with the executives' net payoffs for this period.

To estimate the value of these initial holdings, we obtain most information directly from the companies' 2000 proxy statements, which report holdings as of 9/8/1999 in the case of Bear Stearns and as of 1/25/2000 in the case of Lehman.[40] In Lehman's case, some of those securities might not yet have vested by 1/1/2000 and hence might wholly or partly be compensation for services rendered to the bank during 2000-2008.[41] This distinction is not clear-cut, however, and so we count all securities, whether vested or unvested, so that our estimates of initial investments will be biased upwards (and that our subsequent estimates of the executives' net gains during 2000-2008 will be biased downwards). We value all stock and phantom stock using the stock price as of 12/31/1999.[42]

As Table 5 below indicates, the banks' executives had substantial initial investments in their companies' stock. For example, we estimate the value of the holdings of stock and phantom stock that the CEOs of Bear Stearns and Lehman held at the beginning of the year 2000 at $360 million and $195 million respectively (in 2009 dollars). In addition, Lehman's CEO held options valued at $106m according to Lehman's proxy statement, which based this valuation on the excess of the 11/30/1999 stock price over the exercise price, if any.[43] We inflation-adjust all numbers to January 2009 dollars.

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[40] Bear Stearns changed its fiscal year between 1999 and 2000, so that the next proxy statement does not appear until 2001.

[41] In the case of Bear Stearns, all securities awards seem to have vested immediately; *cf.* The Bear Stearns Companies Inc., Proxy Statement 1999, 13 n.2 (reporting that all restricted stock awards vest immediately).

[42] Bear Stearns' stock price was $42.75 on 12/31/1999, Lehman's was $84.6875. The respective prices on the first trading day of 2000, January 3, were lower. On 9/8/1999, Bear Stearns' stock price was 18.75c higher. On 1/25/2000, Lehman's stock price was $14.125 lower. Source: CRSP.

[43] For options holdings of Lehman executives and Lehman's valuation method, see Lehman Brothers Holding Inc., Proxy Statement 2000, 18.

In the case of Lehman, assembling the initial holdings information is complicated by the fact that three of the “named executive officers” of 2007 on whom we focus in this paper were not yet part of that group in 2000, and hence their holdings were not yet disclosed in the proxy statement.[44] For these three individuals, we value their holdings instead at the point when they were first disclosed in Lehman’s proxy.[45] This procedure is likely to produce an overestimate of the value of their holdings in 2000 (and thus result in our underestimating the executives’ net gains during 2000-2008): this is because (i) the number of shares the executives had in 2000 was likely lower than the number of shares they had when they first appeared in the proxy statements as named executives, and (ii) the stock price of their company rose steeply during this period. In this sense, the numbers we give below are conservative in that they likely work against the possibility of finding significant net positive payoffs in the period 2000-2008.

Table 5 summarizes our estimates of the value of executives’ initial holdings.

[44] These three executives are Goldfarb, O’Meara, and Russo.
[45] For Goldfarb, O’Meara, and Russo, the relevant proxy statements are those of 2004, 2007, and 2003, respectively. We value the stock at the stock price on the day for which the numbers are given in the proxy statement, i.e., January 31 of the year in which the proxy statement was distributed.

TABLE 5: ESTIMATED VALUE OF INITIAL HOLDINGS

	Bear Stearns		Lehman	
	CEO	Executives 2-5*	CEO	Executives 2-5*
Initial stock	$360,277,489	$437,934,567	$194,570,847	$194,778,981
Initial options	-	-	$106,197,280	$105,654,222
TOTAL	**$360,277,489**	**$437,934,567**	**$300,768,127**	**$300,433,203**
Total Top-5	**$798,212,056**		**$601,201,330**	

Source: authors' calculations from CRSP stock prices and holdings reported in Bear Stearns 1999 proxy statement and Lehman's 2000 (Fuld, Gregory), 2003 (Russo), 2004 (Goldfarb), and 2007 (O'Meara) proxy statements; stock includes phantom stock and is valued at the 12/31/1999 stock price (except that the holdings of Goldfarb, O'Meara, and Russo are valued at the January 31 stock price of the year when their holdings were first disclosed); option values are "naïve" calculations of max{0,(exercise price minus current stock price)} as reported in the respective proxy statements. All amounts shown are inflation-adjusted to January 2009 dollars.

* Executives 2-5 are the other "named executive officers" in the 2007 proxy statement.

A comparison of Tables 4 and Table 5 shows the significance of the large amounts that the executives cashed from bonuses and equity sales during 2000-2008. Despite the large losses the banks' executives suffered on their holdings when their banks crashed, and after accounting for the value of the executives' initial positions in their companies, the net payoffs for the top executive teams during the 2000-2008 period were decidedly positive.

We estimate that Bear Stearns' top executive team made an aggregate net non-salary payoff exceeding $650 million. Lehman's top executive team, in turn, made an aggregate net non-salary payoff estimated to exceed $400 million. For the reasons we explained earlier, our estimates might be conservative. Looking at individual members of the teams, our estimates indicate that, with one exception, each of the members of the two teams ended up with a positive net non-salary payoff during the 2000-2008 period.[46] In sum, the top executives of Bear Stearns and Lehman, both collectively as teams and individually, benefitted from large amounts of performance-based compensation, that made up for the decline in the value of their initial holdings and enabled them to fare much better than their long-term shareholders.

VII. IMPLICATIONS

We now turn to the implications of our findings. We have seen that, during 2000-2008, the top executive teams received large amounts of performance-based compensation, which were large enough to provide them with net positive payoffs for the period after accounting for the losses they suffered on their holdings at the beginning of this period. This conclusion might lead some to wonder whether the teams received excessive amounts of performance-based compensation. Given that overall performance during the period under consideration was indisputably disastrous for the company's shareholders, some might view the executives' performance-based compensation levels as excessive. In response, others might argue that, even though this compensation was labeled performance-based, significant parts of it were in fact salaries. In Wall Street firms, so the argument goes, significant portions of an executive's performance-based compensation are, in fact, salary and are expected to be paid even if performance is abysmal.[47]

In this paper, however, we would like to put aside the question of pay levels and whether they were appropriate or excessive. Our focus is instead on the issue of

[46] The exception is Lehman's O'Meara, for whom we calculate a net loss of $20m. O'Meara, however, only joined Lehman's NEO team in 2007, so that earnings and trades are disclosed for few years and the initial holdings are valued at almost the peak stock price of early 2007. It is likely that a positive net benefit would obtain in a full review of O'Meara's undisclosed compensation and initial holdings as of 2000.

[47] What incentives do firms have to label salary as performance-based compensation? They might try to camouflage the nature of compensation to hide it either from Uncle Sam (for top executives, compensation in excess of $1 million is deductible only if it is performance-based) or from shareholders (who might be more resistant to high pay levels when they are not performance-based).

incentives. In particular, our chief interest is in whether the companies' pay arrangements provided their executives with excessive incentives to take risks.

In particular, we are now able to assess the positions of those commentators who use the Bear Stearns and Lehman examples as a basis for dismissing the possibility that incentives played a role in the firms' risk-taking decisions. Recall that, in their view, the large losses executives suffered when their firms collapsed indicate that their earlier risk-taking decisions were largely due to failure to perceive risks and could not have been a response to excessive risk-taking incentives. Our analysis does not provide support for this view.

To the contrary, our analysis indicates that the cases of Bear Stearns and Lehman if anything provide a basis for concerns about the incentives executive their had, not for dismissing such concerns. The analysis indicates that the design of the firms' performance-based compensation did not produce a tight alignment of executives' interests with long-term shareholder value. Rather, the design provided executives with substantial opportunities (of which they made considerable use) to take large amounts of compensation based on short-term gains off the table and retain it even after the drastic reversal of the two companies' fortunes. Such a design provides executives with incentives to seek improvements in short-term results even at the cost of maintaining an excessively elevated risk of an implosion at some point down the road.

Consider the structure of the firms' bonus compensation. The executives were able to obtain large amounts of bonus compensation based on high earnings in the years preceding the financial crisis, but did not have to return any of those bonuses when the earnings subsequently evaporated and turned into massive losses. Such a design of bonus compensation provides executives with incentives to seek improvements in short-term earnings figures even at the cost of maintaining an excessively high risk of large losses down the road.

Similarly, the cashing out of large amounts of shares and options by executives throughout the period provided those executives with incentives to place significant weight on the effect of their decisions on short-term stock prices. Such a design again gives executives an incentive to seek improved short-term results, which can lift short-term prices or prevent short-term price declines, even when doing so has the potential for adverse effects on long-term value.

We would like to emphasize that the question is not whether the firms' top executives fully anticipated such a collapse. Surely, the fact that the executives did not sell in 2007 all the shares they were free to sell indicates that they did not anticipate that a collapse of their firms was around the corner. The question is whether the executives – and executives in similar circumstances in other firms – had incentives to run the firms in a way that involved an excessive probability – though by no means a certainty – of massive losses at some uncertain date down the road. Our analysis indicates that the pay arrangements at the firms – and similar pay arrangements elsewhere – *did* provide some such incentives.

That the firms' executives had incentives to take excessive risks, it should be stressed, does not imply that their decisions were in fact affected by such incentives. To begin, many individuals may be influenced by non-monetary motivations. Moreover, to the extent that the top executives of Bear Stearns and Lehman were "excessively optimistic" and did not, say, perceive any risks to their firms, their behavior would have been the same whether or not they had incentives to take excessive risks. Our analysis indicates that the executives' payoffs provided them with excessive risk-taking incentives, but it does not establish that these incentives in fact had an impact on the executives' decisions. Yet even though our analysis does not show these incentives in fact had an effect, it does show that concerns that this might have happened should not be dismissed, but rather taken seriously.

In any event, whether the risk-taking that took place in the past resulted from executives' misperceptions or executives' incentives need not be resolved for the important purposes of deciding what should be done going forward. Even if misperceptions and excessive optimism drove risk-taking during this decade, there is a good reason to get rid of incentives for excessive risk-taking going forward, lest they produce excessive risk-taking in the future.

One of the powerful lessons of economics is that incentives matter. When agents have interests that diverge from those of their principals, economists worry that the agents' incentives may lead them to act in a way that does not best serve the principals.

The logic of incentives has led institutional investors and others to support pay packages that are quite large in order to enable the provision of strong incentives. Such packages come to address the widely accepted concern that, absent equity-based and bonus compensation, executives' interests will not be sufficiently aligned with shareholder interests. This logic, however, makes it essential as well to ensure that the design of performance-based compensation does not create perverse incentives.

Thus, firms and regulators would do well to devote considerable attention to examining how the design of performance based compensation can better link the payoffs of executives with long-term results. As to bonus plans, the adoption of clawback provisions and bonus bank provisions should be considered. Such arrangements would prevent executives from pocketing in their entirety bonuses based on results in a given year when the results do not hold afterwards.

As to equity-based compensation, consideration should be given to refining its design to induce executives to place lower weight on short-term stock prices and greater weight on long-term stock prices. As we have seen, the top executives of Bear Stearns and Lehman were able to sell more shares during 2000-2008 than they were left with at the time of the firms' collapse. The executives' regular cashing out of equity incentives provided them with incentives to attach weight to short-term results.

Whereas Lehman's executives were in many cases free to unload options shortly after their vesting, companies would do well to place meaningful constraints on such unloading. As to shares, Bear Stearns and Lehman did have substantial limitations on unloading, which was permitted only five years after vesting. With such limitations, executives who are in their first or second year of their service would not attach any weight to short-term prices. However, when a firm's top executives serve for many years, as was largely the case with Bear Stearns and Lehman's executives, such arrangements will not prevent executives who have served the company for a long time (and who consequently have some awarded shares they are free to unload) from placing a significant weight on short-tem prices.

One way to ensure that executives place more weight on long-term stock prices is to require them to retain a substantial fraction of the shares and options awarded to them until retirement. This approach has been long followed by Goldman Sachs, which requires executives to hold 75% of awarded shares until they retire. As one of us stressed in recent work with Jesse Fried, however, hold-till-retirement requirements provide executives with a counterproductive incentive to depart, and this incentive would be especially strong in the case of executives who have been successful and have amassed a large equity portfolio. An alternative approach put forward in this work is to allow executives in any given year to cash out only a rather limited fraction, say 10%, of the portfolio of shares and options that they hold. A comprehensive discussion of the optimal design of limits on the unloading of options and shares is, of course, beyond the scope of this paper.[48] But the analysis of this paper indicates that the importance of such reforms should not be dismissed.

VIII. CONCLUSION

The stories of Lehman and Bear Stearns will undoubtedly remain in the annals of financial disaster for many years to come. To understand what has happened, and what lessons should be drawn, it is important to get the facts right. In contrast to what has been commonly assumed thus far, the top executives of those two firms were not financially devastated by their management of the firms during 2000-2008. They were able to cash out rather large amounts of performance-based compensation, both from bonuses and from share sale, during the years preceding the firms' collapse. This cashed-out performance-based compensation was large enough to make up the losses on the executives' initial holdings in the beginning of the period. As a result, the executives' net payoffs from their leadership of the firm during 2000-2008 were decidedly positive.

Thus, the large paper losses that the executives suffered when their companies collapsed should not provide a basis for dismissing either the possibility that executives' choices have been influenced by excessive risk-taking incentives or the importance of improving compensation structures going forward. Legislators and regulators seeking to

[48] For a detailed examination of this subject, see Lucian Bebchuk and Jesse Fried, Equity Compensation for Long-Term Performance, Working Paper, September 2009; Alex Edmans, Xavier Gabaix, Research, Tomasz Sadzik, and Yuliy Sannikov, Dynamic Incentive Accounts, Working Paper, August 2009.

prevent future crises would do well to consider seriously the role of incentives in the financial crisis of 2008-2009 and the fixing of such incentives in the future.