Bank Executive Compensation And Capital Requirements Reform

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Abstract

We study the executive compensation structure in the largest 14 U.S. financial institutions during 2000-2008. Our results are mostly consistent with and supportive of the findings of Bebchuk, Cohen and Spamann (2010), that is, managerial incentives matter - incentives generated by executive compensation programs led to excessive risk-taking by banks leading to the current financial crisis. Also, our results are generally not supportive of the conclusions of Fahlenbrach and Stulz (2011) that the poor performance of banks during the crisis was the result of unforeseen risk.

We recommend the following compensation structure for senior bank executives: Executive incentive compensation should only consist of restricted stock and restricted stock options – restricted in the sense that the executive cannot sell the shares or exercise the options for two to four years after their last day in office.

The above equity based incentive programs lose their effectiveness in motivating managers to enhance shareholder value as a bank's equity value approaches zero (as they did for the too-big-to-fail banks in 2008). Hence, for equity based incentive structures to be effective, banks should be financed with considerable more equity than they are being financed currently.

NOTE: For brevity, this version does not include tables or appendices.
If you wish to see the full text version, please contact either of the authors at the e-mail addresses above.

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1. Introduction

Policy makers at the highest levels continue to be engaged with the ongoing global financial crisis. Factors that have been identified as contributing to this crisis include misguided government policies to an absence of market discipline of financial institutions that had inadequate or flawed risk-monitoring and incentive systems.[1] Such government policies include low interest rates by the Federal Reserve and promotion of subprime risk-taking by government-sponsored entities dominating the residential mortgage market so as to increase home ownership by those who could not otherwise afford it. Sources of inadequate market discipline include ineffective prudential regulation including capital requirements that favored securitized subprime loans over more conventional assets. Internal organizational factors contributing to the crisis include business strategies dependent on high leverage and short-term financing of long-term assets, reliance on risk and valuation models with grossly unrealistic assumptions, and poorly-designed incentive compensation. These factors, taken as a whole, encouraged what was, as can readily be observed with the benefit of hindsight, excessive risk-taking.

However, of the items on the extensive list of factors contributing to the crisis only one issue has consistently been a focal point of the reform agenda across nations: executive compensation. In the United States, for example, multiple legislative and regulatory initiatives have regulated the compensation of executives of financial institutions receiving government assistance. The governments of many European nations have followed a similar regulatory

[1] See, for example, French et al (2010), Diamond and Rajan (2009) and Calomiris (2009).

strategy, while the European Union's Competition Commissioner has announced that it will be examining banks' compensation in light of government support received during the crisis.[2] An important assumption behind these regulatory reform efforts is the supposition that incentives generated by executive compensation programs led to excessive risk-taking. In an insightful recent paper, Bebchuk, Cohen and Spamann (2010) study the compensation structure of the top executives in Bear Stearns and Lehman Brothers and conclude, "…given the structure of executives' payoffs, the possibility that risk-taking decisions were influenced by incentives should not be dismissed but rather taken seriously." We refer to this as the *Managerial Incentives Hypothesis*: *Incentives generated by executive compensation programs led to excessive risk-taking by banks leading to the current financial crisis; the excessive risk-taking would benefit bank executives at the expense of the long-term shareholders.*

Fahlenbrach and Stulz (2011) focus on the large losses experienced by CEOs of financial institutions via the declines in the value of their ownership in their company's stock and stock option during the crisis and conclude, "Bank CEO incentives cannot be blamed for the credit crisis or for the performance of banks during that crisis." They argue that bank CEOs and senior executives could not or did not foresee the extreme high risk nature of some of the bank's investment and trading strategies. The poor performance of these banks during the crisis is attributable to an extremely negative realization of the high risk nature of their investment and trading strategy. We refer to this as the *Unforeseen Risk Hypothesis*: *Bank executives were*

[2] Regulating bank executives' compensation took a prominent place on the agenda of the October 2009 G-20 summit, which produced a set of principles as a guideline for nations' regulation of financial executives' pay. Jonathan Weisman, *Obama Retakes Global Stage, but With Diminished Momentum*, Wall Street Journal, Sept. 19-20, 2009, (noting that French President Nicolas Sarkozy threatened to walk out of the G-20 summit if leaders do not adopt strict compensation limits for financial executives).

faithfully working in the interests of their long-term shareholders; the poor performance of their banks during the crisis was the result of unforeseen risk of the bank's investment and trading strategy.

The Unforeseen Risk Hypothesis is supported by the Culture of Ownership that many banks publicly revere and espouse.[3] Per this Culture of Ownership, bank employees - especially senior executives - are supposed to have significant stock ownership in their bank such that their incentives are aligned with that of the long-term shareholders.

We study the executive compensation structure in the largest 14 U.S. financial institutions during 2000-2008, and compare it with that of CEOs of 37 U.S. banks that neither sought nor received Trouble Asset Relief Program (TARP) funds from the U.S. Treasury. We refer to the above 14 banks as the "too-big-to-fail" TBTF banks, and the other 37 banks as No-TARP banks. We focus on the CEO's buys and sells of their bank's stock, purchase of stock via option exercise, and their salary and bonus during 2000-2008. We consider the capital losses these CEOs incur due to the dramatic share price declines in 2008. We compare the shareholder returns for these 14 TBTF banks and the 37 No-TBTF banks. Finally, we consider three measures of risk-taking by these banks: (a) the bank's Z-score (number of standard deviations below the mean bank profit by which the profit would have to fall before the bank's equity loses all value), (b) the bank's asset write-downs, and (c) whether or not a bank borrows capital from various Fed bailout programs, and the amount of such capital.

[3] See, for example, Goldman Sachs 2002 Annual Report: "Retaining the Strengths of an Owner Culture: The core of the Goldman Sachs partnership was shared long-term ownership." Lehman Brothers 2005 Annual Report states: "The Lehman Brothers Standard means…Fostering a culture of ownership, one full of opportunity, initiative and responsibility, where exceptional people want to build their careers…"

Our results are mostly consistent with and supportive of the findings of Bebchuk, Cohen and Spamann (2010), that is, managerial incentives matter: incentives generated by executive compensation programs led to excessive risk-taking by banks and contributing to the current financial crisis. Also, our results are generally not supportive of the conclusions of Fahlenbrach and Stulz (2011) that the poor performance of banks during the crisis was the result of unforeseen risk.

The remainder of the paper is organized as follows. The next section develops the Managerial Incentives Hypothesis, the Unforeseen Risk Hypothesis, and their testable implications. Section 3 details the sample selection and data sources. Section 4 highlights bank managers' payoffs during 2000-2008, and interprets this data in the context of the Managerial Incentives Hypothesis and the Unforeseen Risk Hypothesis. The following section compares various manager incentive compensation proposals designed to serve long-term shareholder interests and avoid excessive risk-taking. Section 6 presents our proposal for bank capitalization reform which is complementary to the manager incentive compensation proposal. Section 7 focuses on board compensation. The final section concludes with a summary.

2. Managerial Incentives Hypothesis versus the Unforeseen Risk Hypothesis

The Managerial Incentives Hypothesis posits that incentives generated by executive compensation programs led to excessive risk-taking by banks and contributing to the current financial crisis. The excessive risk-taking would benefit bank executives at the expense of the long-term shareholders; that is, projects that led to the excessive risk-taking were ex ante value-diminishing (negative net present value).

How might the incentives generated by executive compensation programs in banks lead to their excessive risk-taking and benefit these executives at the expense of long-term shareholders? Consider an investment project or trading strategy that in any given year can lead to six cash flow outcomes with equal probability: $500 million, $500 million, $500 million, $500 million, $500 million, and the sixth outcome is -$5 billion (a loss of $5 billion).[4] The probability and the magnitude of the cash flows of the six outcomes are known only to the bank executives. However, given the information disclosed to the investing public, the stock market is led to believe that the trading strategy can lead to the following six annual cash flow outcomes with equal probability: $500 million, $500 million, $500 million, $500 million, $500 million, and the sixth outcome is -$1 billion (a loss of $1 billion).[5]

How should the bank executives respond to the above investment strategy if they were acting in the interest of the long-term shareholders? Since these six outcomes are equally likely, the expected cash flow from this trading strategy is negative - given what the bank executives know. Hence, the bank should not engage in this trading strategy.

[4] These cash flows and probabilities have been simplified for illustrative purposes to clarify the intuition of our argument. Instead of the abovementioned cash flows and probabilities, it would be straightforward to consider a project with a 99% probability of a cash flow of $500 million, and a 1% probability of a loss of $100 billion. More complicated cash flows and probabilities can be considered; all we need from this numerical illustration is the project have a negative net present value.

[5] Continuing with the numerical example noted in the above footnote: Given the information disclosed to the investing public, the stock market is led to believe that the trading strategy has a 99% probability of a cash flow of $500 million, and a 1% probability of a loss of $10 billion. Again, more complicated cash flows and probabilities can be considered; all we need from this numerical illustration is the project be perceived to have a positive net present value.

Will the bank executives invest in the above trading strategy? To answer this, we have to consider the compensation structure of the bank executives or CEO. Assume the bank CEO owns a significant number of bank shares, say, 100 million shares. Furthermore, these shares are *unrestricted*, that is, they have either vested or have *no vesting requirements*. If the bank adopts the above trading strategy, and given the beliefs of the stock market about this trading strategy, the bank share price will increase. In any given year there is a very high probability (5/6 = 83%) that the trading strategy will generate very large positive cash flow of $500 million. If the realization from the trading strategy is one of the positive cash flow outcomes (and there is an 83% probability of this), the bank share price goes up by, say, $3, – the bank declares generous bonuses to key employees, and the CEO liquidates a significant part of her equity holdings, say, worth $200 million.

To be sure, the bank CEO knows that the expected cash flow from this trading strategy is negative. Hence, there is some probability (17%) that in any given year the trading strategy will lead to the extremely negative cash flow outcome of -$5 billion. What then? In the textbook corporate finance paradigm, the bank's share price drops significantly, and, depending on the bank's equity capitalization, the bank may have to declare bankruptcy.[6] This bankruptcy or close-to-bankruptcy scenario will certainly have a collateral significant negative impact on the value of the CEO's bank stockholdings. However, if during the first few years of this trading strategy the cash flow outcomes have been positive and the CEO has liquidated significant amount of her stockholdings, even when the bank faces bankruptcy in a future year, the CEO's personal fortune may well be still quite substantial.

[6] Given the events of fall of 2008, the following is a realistic alternative: The bank can claim that it is too big to fail, that is, its bankruptcy would have a significant negative impact on the economy; hence the bank should be bailed out with taxpayer funds.

Fahlenbrach and Stulz (2011) document the significant value losses from holdings of stock and vested unexercised options in their companies of these and other bank CEOs during 2008. The authors point to this wealth loss in 2008 as evidence "…inconsistent with the view that CEOs took exposures that were not in the interests of shareholders. Rather, this evidence suggests that CEOs took exposures that they felt were profitable for their shareholders *ex ante* but that these exposures performed very poorly *ex post*." This is the essence of the Unforeseen Risk Hypothesis noted earlier. Under the Unforeseen Risk Hypothesis, the bank executives only invest in projects that, ex ante, have a positive net present. In this case, we should not see the executives engage in insider trading that suggests that they are aware of the possibility of an extreme negative outcome. If the firm does suffer from the negative $5 billion outcome due to risks associated with the investment that the executives could not anticipate, they will suffer as much or more than the long-term shareholder will.

The predictions of the Unforeseen Risk Hypothesis are in contrast to the risk-taking incentives of bank executives - as per the Managerial Incentives Hypothesis noted above. The Managerial Incentives Hypothesis posits that incentives generated by executive compensation programs led to excessive risk-taking by banks that benefited bank executives at the expense of the long-term shareholders. Bank executives receive significant amounts of stock and stock option as incentive compensation. If the vesting period for these stock and option grants is "long," managers will identify more closely with creating long-term shareholder value. If the vesting period for these stock and option grants is "short," managers will identify more closely with generating short term earnings, even at the expense of long-term value.

Managers that own significant amounts of *vested* stock and options have a strong incentive to focus on short term earnings. If these short term earnings are generated by value-enhancing projects, there would be no conflict vis-a-vis serving long-term shareholder interests. What if managers invest in value-decreasing (negative net present value) projects that generate positive earnings in the current year (and perhaps a few subsequent years) but lead to a large negative earnings outcome after a few years? If managers and outside investors have similar understanding of the magnitude and probability of the large negative outcome, managers will be discouraged from investing in such value-decreasing projects, because stock market participants will impound the negative impact of such projects on share prices of these banks. (The negative impact on share prices will have a similar negative effect on the value of the managers' stock and option holdings.) However, managers have discretion over the amount, substance and timing of the information about a project they release to outside investors.[7] Hence, given the information provided the outside investors, the stock market may underweight the probability of a very negative outcome – and view a value-decreasing project as value-enhancing.

How might managers behave if they were presented with a value-decreasing (negative net present value) project that generated positive earnings in the current year (and perhaps a few subsequent years) but leads to a large negative earnings outcome after a few years? If these managers were acting in the interests of long-term shareholders, they would not invest in such a project. If the managers were not necessarily acting in the interests of long-term shareholders but in their own self-interest only, and if they owned sufficient (vested) stock and options, they

[7] There is substantial evidence in the finance literature that insiders have an informational advantage and use it to generate superior returns; for example, see Ben-David and Roulstone (2010).

would have an incentive to invest in such a value-decreasing project. If the earnings from the project are positive in the current and the next few years, the company's share price rises giving managers the opportunity to liquidate their (vested) stock and option holdings at a higher price.[8] In other words, managers can take a significant amount of money "off the table" during the early years of the project. If the large negative earnings outcome occurs after a few years, the firm's share price will decline and the managers will incur a wealth loss via their stock and option ownership. While these wealth losses can be large, they can be less than the money the managers have taken off the table in the earlier years. The end result is – Managers make positive profits in spite of investing in a value-decreasing project; long-term shareholders, of course, experience a negative return.

The above discussion suggests a way to empirically distinguish whether the Unforeseen Risk Hypothesis or the Managerial Incentives Hypothesis leads to a better understanding of bank manager incentives and behavior during the past decade. The Manager Incentive Hypothesis predicts that manager payoffs would be positive over a period of years whereas long-term shareholders will experience a negative return over this same period. The Unforeseen Risk Hypothesis predicts that both manager payoffs and long-term shareholder returns would be negative during this period. Table 1, Panel A, outlines the testable implications from these two hypotheses.

Table 1, Panel B, notes another way, complementary to the one noted above, to empirically distinguish whether the Unforeseen Risk Hypothesis or the Managerial Incentives Hypothesis leads to a better understanding of bank manager incentives and behavior during the

[8] What if the earnings from the project are negative in the current year? See the discussion above and footnote 6.

past decade. The Manager Incentive Hypothesis suggests that manager trades of the shares of their bank's stock (sale of shares, and exercise of options and subsequent sale of shares) are "unusually large" during the financial crisis and the prior period. In contrast, the Unforeseen Risk Hypothesis holds that manager trades of the shares of their bank's stock are "normal" during the financial crisis and the prior period.

3. Sample, data, and variable construction

3.1.Sample selection

The 14 firms studied in this analysis were chosen due to their role in the U.S. financial crisis during 2008. Nine firms are included because the U.S. Treasury required them to be the first participants in TARP in October 2008. These firms are Bank of America, Bank of New York Mellon, Citigroup, Goldman Sachs, JP Morgan Chase, Morgan Stanley, State Street, Wells Fargo, and Merrill Lynch, which was subsequently acquired by Bank of America.[9] Bear Stearns and Lehman Brothers are included because we suspect they would have been included in this first round of TARP funding had they been independent going concerns in October 2008. Bear Stearns was acquired by JP Morgan Chase in May 2008 and Lehman Brothers declared bankruptcy in September 2008. Mellon Financial merged with Bank of New York in July 2007; it is included to allow for consistency throughout the period under study. Countrywide Financial is included because it was one of the largest originators of subprime mortgages prior to the crisis. Countrywide was acquired by Bank of America in July 2008, so all of its investments and liabilities became Bank of America's investments and liabilities at

[9] Bank of America reached an agreement to acquire Merrill Lynch on September 15, 2008; the acquisition was completed on January 1, 2009. As such, Merrill Lynch is analyzed as an independent institution for the majority of this study.

that time. Finally, American International Group, or AIG, is included because of its central role in the crisis. While not a depository institution or investment bank, AIG was a trading partner with most of the other institutions in this study, and was involved in the real estate market by selling credit default swaps and other mortgage-related products to these institutions and other investors. AIG was also one of the largest recipients of TARP funds and is one of the few TARP recipients in this study that has not repaid the Treasury's investment, yet. In our discussion below we refer to AIG and the 13 other firms noted above as too-big-to-fail (TBTF) "banks."

Besides the 14 TBTF banks, for comparison purposes we consider two additional samples of lending institutions. An initial list of lending institutions was obtained from the appendix in Fahlenbrach and Stulz (2011). The first comparative sample includes 49 lending institutions that received TARP funds several months after many of the TBTF banks received the TARP funds; we refer to these 49 lending institutions as later-TARP banks or L-TARP. The second comparative sample includes 37 lending institutions that did not receive TARP funds; we refer to these 37 lending institutions as No-TARP. Appendices A and B note details of the L-TARP and No-TARP banks. Table 2 provides summary data on the size (total assets and market capitalization) of the TBTF, L-TARP and No-TARP banks. As expected, TBTF banks are much larger than L-TARP and No-TARP banks. L-TARP and No-TARP banks are of similar size.

3.2. Data

The insider trading data comes from the Thomson Insiders database. We rely on Form 4 data filed with the Securities and Exchange Commission for this study. In addition to direct

acquisitions and dispositions of common stock, we also consider acquisitions of stock through the exercise of stock options.[10] Many individual Form 4 filings are manually reviewed on the SEC website to ensure the consistency of the data.

Director ownership data are from RiskMetrics, formerly Investor Responsibility Research Center, or IRRC. The compensation data are from Compustat's ExecuComp. Individual proxy statements are reviewed to corroborate director ownership and compensation data. In some cases, for example, the ownership data used is slightly different than the RiskMetrics data because of disclosures about the nature of the ownership provided in the footnotes of the proxy statement. For example, in the 2001 Bear Stearns' proxy statement, 45,669 shares of common stock owned by CEO James Cayne's wife are not included in his beneficial ownership; in the 2002 proxy, these same 45,669 shares are included in his beneficial ownership. Manually reviewing the proxy statements and the relevant footnotes allow us to be more consistent across time and across firms. Further, manually reviewing the proxy statements allows us to distinguish and appropriately characterize securities such as unexercised options or restricted stock.[11]

Finally, stock price data are from Center for Research in Securities Prices, CRSP, and financial statement data are from Compustat. Again, individual financial statements are reviewed to better characterize the information in some cases.

[10] It is common practice for insiders to exercise stock options only to immediately sell the stock in the open market. By making both trades simultaneously, the insider avoids using any cash to exercise the options.

[11] The beneficial ownership we consider includes common stock equivalents that the individuals have immediate access to. This generally includes common stock, in-the-money and vested options, and vested restricted stock received through incentive plans. It does not include options that are not exercisable and restricted stock that has not vested. Options may not be exercisable because the market price of the stock is below the option exercise price or because the option has not vested.

3.3.Variables

The primary variable used in this study is *Net Trades*. This variable subtracts the dollar value of all of an insider's purchases of common stock during a fiscal year from the dollar value of all of that insider's sales of common stock during the year. Exercising options to acquire stock is considered a purchase of common stock in the calculation of *Net Trades.* We consider the post-trade ownership after each transaction. One information item disclosed on the Form 4 is "amount of securities beneficially owned following reported transaction." We multiply the number of shares disclosed on the Form 4 with the transaction price of the stock from the Form 4 to get the dollar value of ownership following the transaction. We add back the value of shares sold or subtract off the value of shares purchased to determine the pre-trade ownership stake.

We consider *Salary* and *Bonus* for compensation data, which represent current cash consideration. We do not directly consider stock or option grants. We analyze any stock or option compensation only when the insider converts that into cash through selling the stock or exercising the option.[12]

We also calculate the *Estimated Value Lost*, or the change in beneficial ownership for each CEO in 2008. This amount is estimated by subtracting *Net Trades* from *Beginning Beneficial Ownership* in number of shares to get estimated shares at end of 2008. This is

[12] We consider exercising options as a purchase of stock. In many cases, when insiders exercise options, they immediately sell the stock received. These two transactions are frequently disclosed on the same day. In 2007, Angelo Mozilo of Countrywide filed more than 30 Form 4s in which he disclosed exercising exactly 70,000 options and then immediately selling exactly 70,000 shares of common stock. In the same year, he filed another 30 Form 4s in which he disclosed the same pair of trades on exactly 46,000 options and shares. By simultaneously exercising options and selling shares, he likely did not have to use any cash to exercise the options.

multiplied by the ending stock price change and then subtracted from the *Beginning Beneficial Ownership* in dollars to get the estimated value lost. We calculate the *Estimated Value Remaining* at the end of 2008 using the above estimate of shares owned at end of 2008, multiplied by ending stock price. This is not necessarily the same as Beneficial Ownership at the beginning of 2009 because it does not include stock gifts or compensation received during 2008. We do not include these values because doing so would not directly capture the effects of the financial crisis on the CEO's ownership stake during 2008.

4. The Culture of Ownership and bank CEOs' buys and sells during 2000-2008

4.1.The bankers' Culture of Ownership?

Appendix B lists the names of the CEOs during 2000-2008 for the sample of large banks. Table 3 details the buys and sells of these CEOs in the shares of their own companies during 2000-2008. As a group these CEOs bought shares of their respective banks 73 times during 2000-2008, but sold their shares 2,048 times during the same period. In dollar terms, they purchased shares worth $36 million but sold shares worth $3,467 million during 2000-2008. In addition, CEOs acquired stock by exercising options 470 times during the 2000-2008 period at a total cost of $1,660 million. Because they typically paired these option exercises with open market sales, they did not necessarily invest $1,660 million of (pre-sale) cash to acquire these shares. Even including the option purchases, CEOs sold twice as much stock as they acquired during this period. There are two reasons why CEOs are more likely to sell their shares than buy:

a. CEOs are less well-diversified with regard to equity holdings in their bank. This situation is exacerbated given that their human capital is also tied to their company.

The size of their equity holdings might necessitate a liquidity discount if they wished to sell within a short timeframe. For these diversification and liquidity reasons, CEOs would value a dollar of their company's stock at less than a dollar.

b. CEOs receive significant grants of shares as part of their incentive compensation. To create liquid funds from these shares, they have to sell.

While the above two reasons provide a partial explanation for the lopsided nature of the sells to buys, it does raise the question: Is the notion of a Culture of Ownership consistent with the empirical fact of bank CEOs selling shares of their bank 100 times the amount they buy on the open market?

4.2.Net Payoff to bank CEOs during 2000-2008

Table 3 provides details on the CEOs' buys and sells of their own company stock during 2000-2008. During this period the 14 CEOs as a group bought stock in their companies 73 times and sold shares of their companies 2,048 times. In other words, CEOs are about 30 times more likely to be involved in a sell trade compared to an open market buy trade. The ratio of the dollar value of their sells to buys is even more lop-sided. During 2000-2008 the 14 bank CEOs bought stock in their banks worth $36 million, but sold shares worth $3,467 million. The dollar value of sales of stock by bank CEOs of their own bank's stock is about 100 times the dollar value of open market buys of stock of their own bank's stock.[13] In addition, CEOs acquired stock by exercising options at a total cost of $1,660 million.

[13] Even the 24 CEO 'buys' in 2008 worth over $32 million can be misleading: only 2 of these trades worth about $11.3 million occurred prior to the mandatory TARP investments being announced on October 14, 2008. All others occurred after October 20, 2008.

Table 3 also notes the *Value of Net Trades* for these CEOs in the shares of their own company; *Value of Net Trades* subtracts the dollar value of all purchases of common stock from the dollar value of all sales of common stock. There is significant cross-sectional variation in the net trades of the CEOs during 2000-2008. Lehman Brothers' CEO engaged in the largest dollar value of net trades of about $428 million, followed by Countrywide's CEO at $402 million, and Bear Stearns' CEOs at $243 million. On the low end, AIG CEOs engaged in net acquisitions of $7 million, while Mellon Financial and Bank of America CEOs engaged in net trades worth $17 million and $24 million, respectively.

Observers of U.S. capital markets know that investors in these 14 banks fared poorly during 2008; see figure 1. Since these CEOs owned significant blocks of stock in their companies, they also suffered significant declines in the value of their stockholdings. As a group these CEOs suffered value losses (from stockholdings in their companies) in 2008 of about $2,013 million. Individually these losses range from a low of about $3 million (Wells Fargo) to about $796 million (Lehman Brothers).[14]

Both bank CEOs and their shareholders experienced negative returns during 2008. This evidence is consistent with both the Manager Interests Hypothesis and the Unforeseen Risk Hypothesis. To distinguish between the Unforeseen Risk Hypothesis and the Managerial Incentives we would need to consider their returns during a period prior to 2008. The Manager Incentive Hypothesis predicts that manager payoffs would be positive during the period whereas long-term shareholders will experience a negative return over this same period. The

[14] Mellon Financial CEOs actually gained just over $1 million; however, this does not include the 2008 crisis. Mellon Financial merged with Bank of New York in mid-2007, so this gain is for 2007, not 2008.

Unforeseen Risk Hypothesis predicts that both manager payoffs and long-term shareholder returns would be negative during this period.

To distinguish between the Unforeseen Risk Hypothesis and the Managerial Incentives Hypothesis we need to consider manager payoffs for a period of years prior to 2008. What time period is implied by this "period of years prior to 2008?" Conceptually this period would include the years when bank managers initiated or started emphasizing excessively risky investments or trading strategy. Chesney, Stromberg, and Wagner (2010) consider bank CEO incentives during 2002-2005 arguing that, "…the vast majority of deals related to the subprime and mortgage backed security market originated in the early part of the decade…" Bebchuk, Cohen and Spamann (2010) consider the period 2000-2008 in their case study of manager compensation in Bear Stearns and Lehmann.[15] Consistent with this literature, we consider 2000-2008 as our period for analysis. As a robustness check, in a later section, we consider two additional overlapping time-periods in our analysis: 2002-2008, and 2004-2008.

Table 4, Panel A, notes that as a group these 14 CEOs experienced a cash inflow of $1,771 million from their net trades during 2000-2008. In addition, these 14 CEOs received cash compensation worth $891 million during this period. Combining these two numbers – as a group, CEOs of the 14 banks experienced cash inflow worth $2,662 million; we refer to this as *CEO Payoff*. Compare this with their estimated combined losses from beneficial stock holdings in 2008 of $2,013 million.[16] The *CEO Payoff* sum of $2,662 million for the 14 CEOs as a group

[15] Inside Mortgage Finance (2010) provides data on issuance of subprime mortgage backed securities; these data illustrate the dramatic increase in issuance of subprime mortgage backed securities around 2000 - see figure 2.

[16] This ignores the possibility that the CEOs were able to renegotiate and restructure stock and option holdings during 2008. Boards frequently re-issue new options with new exercises for stock options that are substantially

can be considered as money these CEOs took "off the table" as their banks continued with the high risk but negative net present value trading/investment strategies during 2000-2008. However, the high risk but negative net present value trading/investment strategy would ultimately lead to a large negative outcome – namely, the large loss of $2,013 million in 2008. The sum of net trades and cash compensation for 2000-2008 is greater than the value lost in 2008 (from beneficial stock holdings) by $649 million for these 14 CEOs as a group – we refer to this as the *Net CEO Payoff*. The data for the CEOs of the 14 companies as a group are consistent with the Managerial Incentives Hypothesis and inconsistent with the Unforeseen Risk Hypothesis.

Table 4, Panel A, also provides data on the net trades, cash compensation, and value losses in 2008 for CEOs of each of the 14 companies. The *Net CEO Payoff* is positive for CEOs in 10 of the 14 sample firms; Bank of America, Goldman Sachs, Lehman Brothers and State Street are the exception. The *Net CEO Payoff* ranges from $221 million for Citigroup and $377 million for Countrywide to losses of $126 million for Goldman Sachs and $311 million for Lehman Brothers. However, even for Goldman Sachs and Lehman Brothers, *CEO Payoffs* for 2000-2008 are quite substantial at $132 million and $485 million, respectively. In other words, the CEOs of Goldman Sachs and Lehman Brothers enjoyed *realized* cash gains of $132 million and $485 million, respectively, during 2000-2008, but suffered *unrealized* paper losses that exceeded these amounts. Overall, the evidence from individual *Net CEO Payoffs* is consistent with the Managerial Incentives Hypothesis and inconsistent with the Unforeseen Risk Hypothesis.

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out-of-the-money. See, for example, Chen (2004). In reality, the value lost after restructuring their beneficial ownership was likely less than $2,013 million.

4.3.Robustness check: Different sample periods

Table 4, Panel B, notes that as a group these 14 CEOs experienced a cash inflow of $1,398 million from their net trades during 2002-2008. In addition, these 14 CEOs received cash compensation worth $667 million during this period. Combining these two numbers – as a group CEOs of the 14 banks experienced *CEO Payoff* worth $2,065 million, including costs associated with exercising options. As noted earlier, these CEOs suffered combined losses from beneficial stock holdings in 2008 of $2,013 million. Consistent with our findings for the 2000-2008 period, the data for the CEOs of the 14 companies as a group are consistent with the Managerial Incentives Hypothesis and inconsistent with the Unforeseen Risk Hypothesis.

The sum of net trades and cash compensation for 2002-2008 is greater than the value lost in 2008 (from beneficial stock holdings) for CEOs at half of the 14 sample firms. Even for the CEOs of the banks with *Net CEO Payoff* losses, the realized *CEO Payoff* for 2002-2008 is quite substantial, ranging from $35 million up to $391 million. Notice that the above *CEO Payoff* amounts were taken off the table by the CEOs of these seven banks during 2002-2008 before they incurred the large 2008 losses from the drop in the value of their stockholdings. Similar to our conclusion for 2000-2008, we interpret this evidence as consistent with the Managerial Incentives Hypothesis and inconsistent with the Unforeseen Risk Hypothesis.

Table 4, Panel C, focuses on the period 2004-2008. As a group these 14 CEOs experienced a cash inflow of $1,132 million from their net trades. In addition, these 14 CEOs received cash compensation worth $469 million during this period. As noted earlier, these CEOs suffered combined losses from beneficial stock holdings in 2008 of $2,013 million. The *Net CEO Payoff* for the 14 CEOs as a group is negative $412 million for 2004-2008. It is

worth noting that the *Net CEO Payoff* for the 14 CEOs as a group would be positive were it not for the large negative *Net CEO Payoff* of $486 million for Lehman Brothers (which declared bankruptcy in September 2008). Even for Lehman Brothers, the realized cash from *CEO Payoff* during 2000-2008 is $310 million – this amount was taken off the table; of course, the unrealized paper losses during this period are $796 million.

The sum of net trades and cash compensation for 2004-2008 is greater than the value lost in 2008 (from beneficial stock holdings) for CEOs in half of the 14 sample firms. Even for the CEOs of the seven banks with negative *Net CEO Payoffs*, the realized cash from *CEO Payoffs* for 2004-2008 ranges from $15 million to $310 million. We note that the abovementioned sums of money were taken off the table by the CEOs of these banks during 2004-2008 before they incurred the large 2008 losses from the drop in the value of their stockholdings.

4.4.Robustness check: Comparing TBTF, L-TARP and No-TARP banks

The dollar value of the net trades of the 14 TBTF bank CEOs during 2000-2008 provides an important perspective on the payoff these executives received from working in their banks. An important question is whether the net trades of the 14 TBTF bank CEOs are normal or abnormal. We compare the net trades of the 14 TBTF bank CEOs to the net trades of the 49 L-TARP bank CEOs and the 37 No-TARP bank CEOs. Since TBTF banks are considerably larger than L-TARP and No-TARP banks, we consider the ratio of the CEO's net trades during the sample period to the CEO's holdings at the beginning of the period. We consider three sample periods: 2000-2008, 2002-2008, and 2004-2008.

As detailed in Table 5 Panel A, the median ratio of the CEO's net trades during 2000-2008 to the CEO's holdings in 2000 is 59.7% for the TBTF banks, compared to 17.6% for L-TARP banks and 4.0% for the No-TARP banks.[17] We find consistent results for the two other sample periods. The median ratio of the CEO's net trades during 2002-2008 to the CEO's holdings in 2002 is 21.9% for the TBTF banks, compared to 8.4% for L-TARP banks and 2.6% for the No-TARP banks. The median ratio of the CEO's net trades during 2004-2008 to the CEO's holdings in 2004 is 11.8% for the TBTF banks, compared to 3.5% for L-TARP banks and 0.1% for the No-TARP banks.[18] *This provides strong evidence that net trades of the 14 TBTF bank CEOs during 2000-2008 was abnormally high.* [19] This evidence is consistent with the Managerial Incentives Hypothesis and inconsistent with the Unforeseen Risk Hypothesis.

4.5.Robustness check: Net trades of officers and directors

In the analysis above we have focused on the trades and incentives of the CEO since he is the most significant decision maker. However, other officers and directors can have significant impact on the bank's trading/investment strategies. Table 6 provides data on the net trades of the officers and directors of these 14 banks. Data on the compensation and beneficial holdings are less readily available or unavailable for the officers and directors. We note the data on net trades to provide as complete a perspective as possible regarding the incentives of decision

[17] Statistical tests confirm that the median ratio of the CEO's net trades during 2000-2008 to the CEO's holdings in 2000for the TBTF banks is significantly greater than the corresponding ratio for the No-TARP banks.

[18] Statistical tests confirm that the median ratio of the CEO's net trades during 2002-2008 (2004-2008) to the CEO's holdings in 2002 (2004) for the TBTF banks is significantly greater than the corresponding ratio for the No-TARP banks.

19 Table 5, Panel C, provides evidence consistent with the joint hypothesis that net trades of the 14 TBTF bank CEOs during 2000-2008 was abnormally high and the shareholders of these banks fared poorly - compared to the No-TARP banks. Direct evidence on shareholder returns is provided below in Table 7.

makers in these banks. Officers and directors of these 14 banks were involved in 14,687 sales during 2000-2008, but only 1,671 buys during this period. Officers and directors acquired stock via option exercises in 3,454 separate transactions. Net trades, including the costs of exercising options, of officers and directors of these 14 banks sums to almost $127 billion. On the high side, net trades of officers and directors of Goldman Sachs was $32 billion, followed by AIG at $28 billion and Citigroup at $19 billion. Notice that the above figures do not include the value of any cash compensation received by these officers and directors from their banks.

4.6.Shareholder returns to TBTF, L-TARP and No-TARP banks

Table 7 summarizes abnormal shareholder returns for the TBTF, L-TARP and No-TARP banks for 2000-2008, 2002-2008, and 2004-2008. We use the Fama-French Carhart (1997) four-factor model to compute these abnormal returns. Shareholders of the No-TARP banks enjoyed significantly more positive returns than the TARP banks for 2000-2008, 2002-2008 and 2004-2008. Shareholders of the No-TARP banks also enjoyed significantly more positive returns than the L-TARP banks for these periods. This evidence coupled with the evidence in sections 3.2 and 3.4 suggests a positive correlation between bank CEOs retaining more of the stock they receive as incentive compensation, and their shareholders' return.

4.7.Risk-taking by TBTF banks, L-TARP and No-TARP banks

In the model developed above we suggest that TBTF managers engaged in high-risk (and negative net present value) investment strategies during 2000-2008. As noted above, the annual stock sales by TBTF managers and their stock return during 2000-2008 provide evidence consistent with this argument. In this section, we provide more direct evidence on the risk-taking characteristics of the TBTF banks.

The banking literature has used Z-score as a measure of bank risk; for example, see Boyd and Runkle (1993), Laeven and Levine (2009), and Houston et al (2010). Z-score measures a bank's distance from insolvency. More specifically, Z-score is the number of standard deviations below the mean bank profit by which the profit would have to fall before the bank's equity loses all value. A higher Z-score suggests a more stable bank. The evidence in columns (1) and (2) in Table 8 suggests that Z-score of TBTF banks is significantly less than the Z-score of No-TARP banks and that Z-score of L-TARP banks is also significantly less than the Z-score of No-TARP banks.

More recently, Chesney, Stromberg and Wagner (2010) have suggested that asset write-downs are a good indicator of bank risk-taking. The evidence in columns (3), (4) and (5) in Table 8 suggests that write-downs (as a percentage of total assets) of TBTF banks are significantly greater than the write-downs (as a percentage of total assets) of No-TARP banks, as are the write-downs of L-TARP banks relative to No-TARP banks.

Finally, Gande and Kalpathy (2011) consider whether or not a bank borrows capital from various Fed bailout programs, and the amount of such capital, as a measure of bank risk-taking. We find that the TBTF banks borrowed significantly more than L-TARP and No-TARP banks in terms of both absolute dollars and as a percentage of their assets; details are noted in Appendix D.

5. Solutions to excessive risk-taking by bank managers

5.1.The Restricted Equity proposal

How might we prevent the bank executives from undertaking excessively risky and value-destroying trading or operating strategies? One solution could be to offer bank executives compensation contracts consistent with the proposal of Bhagat and Romano (2009) (BR). These authors propose that *executive incentive compensation should only consist of restricted equity (restricted stock and restricted stock option)* – restricted in the sense that the executive cannot sell the shares or exercise the options for two to four years after their last day in office. We refer to this as the Restricted Equity proposal.

If the bank executives in the scenario noted above in section 2 had been offered incentive compensation contracts consistent with the above proposal, they would have had different incentives regarding whether or not to invest in the high-risk but negative net present value trading strategy. To wit, the CEO's equity holdings would now consist only of restricted stock and restricted stock options. Not only would the CEO be required to hold these shares and options for the duration of their employment in the bank, but for two to four years subsequent to their retirement/resignation. If the trading strategy resulted in a positive cash flow in a certain year, the bank's share price would go up, the CEO's net worth would go up, *but the CEO would not be able to liquidate their stockholdings in their bank*. The CEO would have to make an assessment of the likelihood of the large negative cash flow outcome during the years they continue to be employed at the bank plus two to four years. After making this assessment, any CEO is less likely to authorize or encourage the high-risk but negative net present value trading strategy. If the bank does not engage in the negative net present value trading strategy, this would also serve the interests of the long-term shareholders.

The Restricted Equity proposal is consistent with several recent theoretical papers which suggest that a significant component of incentive compensation should consist of stock and stock options with long vesting periods; for example, see Edmans et al (2010), and Peng and Roell (2009). If these vesting periods were "sufficiently long" they would be similar to the above proposal.

BR note three important caveats to their proposal. First, if executives are required to hold restricted shares and options, then they would most likely be under-diversified. This would lower the risk-adjusted expected return for the executive. One way of bringing an executive's risk-adjusted expected return back up to the former level (that before the executive was required to hold the shares and options) would be to increase the expected return by granting additional restricted shares and options to the executive. To ensure that the incentive effects of restricted stock and options are not undone by self-help efforts at diversification, executives participating in such compensation plans should be prohibited from engaging in transactions, such as equity swaps, or borrowing arrangements, that hedge the firm-specific risk from their having to hold restricted stock and options (where not already restricted by law). Of course, derivative transactions based on other securities, such as a financial industry stock index, could be used to undo the executives' interest in the restricted shares, subjecting the executive to the lower level of basis risk (the risk that co-movements in the firm's stock and the security or securities underlying the hedge are not perfect). To address this possibility, approval of the compensation committee or board of directors should be required for other (non-firm-specific) derivative transactions, such as a put on a broader basket of securities. In addition, to ensure that under-diversification does not result in managers taking a suboptimally low level of risk, compared to the risk preferences of shareholders (behavior that may be of particular concern as

an aging executive nears retirement and may wish to protect the value of accrued shares), the incentive plan can be fine-tuned to provide a higher proportion in restricted options than restricted shares to increase the bank CEO's incentive to take risk.

Second, if executives are required to hold restricted shares and options post-retirement, it would raise concerns regarding lack of liquidity. Third, the proposal could lead to early management departures, as executives seek to convert (after the two to four year waiting period) illiquid shares and options into more liquid assets.

The concerns regarding under-diversification, lack of liquidity, and early departure are valid. To address these concerns we recommend managers be allowed to liquidate annually a small fraction of their stock and option holdings in their bank. What is the magnitude of the "small fraction?" Given the evidence in Table 4, we recommend managers be permitted to annually liquidate about 5% to 15% of their ownership positions. Table 4 documents the rather large dollar holdings of some managers. 15% of stock holdings in 2000 would exceed $100 million for several CEOs. Allowing managers to take such a significant sum off the table would significantly lessen their incentive to serve the interests of long-term shareholders. The 85% of their stock-holdings that they still own will provide incentives to serve shareholder interests for the next several years - as they continue liquidating (up to) 15% of their holdings every year. Hence, we also recommend that these ownership position annual liquidations be restricted to an amount of $5 million to $10 million.

If incentive compensation were constrained to restricted stock and restricted stock options, managers will attempt to circumvent this by arguing for higher, perhaps much higher, cash compensation. Higher cash compensation will tend to negate the effects of incentive

compensation. For this reason, we are suggesting a limit of $2 million on annual cash compensation.

The above amounts may seem low compared to what bank executives have received during the past several decades. However, that is not necessarily the case. This proposal only limits the annual cash payoffs the executives can realize. *Under this proposal, the net present value of all salary and stock compensation can be higher than they have received historically, so long as they invest in projects that lead to value creation that persists in the long-term.*

To be clear, we are not recommending the Restricted Equity proposal be the basis for additional regulations. Rather the proposal is just a set of ideas for corporate boards, rather their compensation committees, and their institutional investors to consider. In implementing the proposal, we think corporate boards should be the principal decision-makers regarding:

a) The mix of restricted stock and restricted stock options a manager is awarded.

b) The amount of restricted stock and restricted stock options the manager is awarded.

c) The maximum percentage and dollar value of holdings the manager can liquidate annually.

d) Number of years post retirement/resignation for the stock and options to vest.

While our focus here is on banks, the incentives generated by the above compensation structure would be relevant for maximizing long-term shareholder value in other industries. For example, consider the cases of Enron, WorldCom and Qwest whose senior executives have

been convicted of criminal violation of insider trading laws.[20] Senior executives in these companies made misleading public statements regarding the earnings of their respective companies. These misleading statements led to a temporary rise in the share prices of these companies. These executives liquidated significant amounts of their equity positions during the period while their companies' share price was temporarily inflated. If these executives' incentive compensation had consisted of only restricted stock and restricted stock option that they could not liquidate for two to four years after their last day in office, they would not have had the financial incentive to make the abovementioned misleading statements. Hence, corporate board compensation committees and institutional investors in firms in other industries should also give the above Restricted Equity executive incentive compensation structure serious consideration.

5.2.Clawbacks

French et al (2010) in *The Squam Lake Report* recommend "…that government regulators require systemically important financial firms to hold back for several years a fraction of each employee's annual compensation. Employees would forfeit these holdbacks if the firm declares bankruptcy or receives extraordinary government assistance." Conceptually this proposal has merit since the clawback will discourage managers from undertaking high-risk negative net present value investments and trading strategies.

We note three concerns with this proposal. Table 4 documents that annual cash compensation (salary plus bonus) is, on average, only about 50 % of manager payoff from net

20 See, for example, http://www.forbes.com/2005/03/15/cx_da_0315ebbersguilty.html; "Appeals Court Restores Qwest Insider Trading Conviction," at http://www.nytimes.com/2009/02/26/business/26qwest.html.

trades.[21] Hence, if managers were allowed to take large sums off the table annually in the form of sales of their stock and option holdings, clawbacks of compensation might not be a major consideration for these bank managers. Second, incentives generated from the above clawback provisions are not *directly* aligned with that of the long-term shareholders. Decreases in firm value may have no impact on manager compensation (via the clawback provisions) as long as the firm is not "bankrupt" or recipient of "extraordinary government assistance." These same decreases in firm value, of course, have a negative impact on shareholder wealth.

Third, the implementation details would be important: How much is held back and for how long? What constitutes "bankruptcy" and "extraordinary government assistance?" BR note that, in the past, managers have successfully taken advantage of any flexibility/ambiguity provided in their incentive compensation plans at the expense of long-term shareholders. Managers will likely take advantage of abovementioned clawback related implementation flexibility/ambiguity to benefit themselves at the expense of long-term shareholders.[22]

The Restricted Equity proposal, noted above, whereby managers' incentive compensation consists solely of restricted stock and restricted stock options (that they are required to hold for two to four years post-retirement) is not subject to the above concerns. Furthermore, the Restricted Equity proposal (via the restricted stock and option holdings) provides for an automatic, ongoing, *direct and proportionate* impact of the change in a company's equity value on the manager's net worth.

[21] For some banks cash compensation (salary plus bonus) can be less than 25% of manager payoff via net trades, for example, Lehman Brothers and Countrywide Financial.

22 The recently enacted Financial Reform Act mandates the SEC to require companies to adopt clawback policies; for example, see Joann Lublin "Law Sharpens 'Clawback' Rules for Improper Pay*," Wall Street Journal*, July 26, 2010. However, industry observers are raising concerns regarding the implementation of such clawback policies - similar to the implementation concerns noted above.

5.3.Grant-based and aggregate limitations on unwinding

Bebchuk and Fried (2010) (BF) provide an insightful set of recommendations for structuring executive incentive compensation to serve long-term shareholder interests. They recommend grant-based and aggregate restrictions on the unwinding of vested equity incentives: "All equity-based awards should be subject to aggregate limitations on unwinding so that, in each year (including a specified number of years after retirement), an executive may unwind no more than a specified percentage of her equity incentives that is not subject to grant-based limitations on unwinding at the beginning of the year."

The BF proposal has considerable merit since it focuses the attention of managers to long-term value creation by limiting their ability to liquidate their vested equity. The BF recommendations are conceptually consistent with the Restricted Equity proposal whereby managers' incentive compensation consists solely of restricted stock and restricted stock options (that they are required to hold for two to four years post-retirement).[23]

6. Capital structure and executive compensation

6.1.Restricted-Equity-More-Equity-Capital

[23] There are two minor implementation differences between the Restricted Equity proposal and the BF proposal: a) The Restricted Equity proposal requires executives to hold the restricted stock and restricted stock options for two to four years post-retirement. BF suggest a period of five years post-retirement during which the aggregate unwinding limitation expires. b) Given the rather large dollar holdings of some bank managers during 2000-2008, even a 10% stock-holding in 2000 could exceed $100 million for several CEOs. Allowing managers to take such a significant sum off the table would significantly lessen their incentive to serve the interests of long-term shareholders. Hence, the Restricted Equity proposal recommends that these ownership position annual liquidations be restricted to an amount of $5 million to $10 million. BF's unwinding limitations are based only on percentage ownership whereas the Restricted Equity proposal restrictions on annual liquidations are based on percentage *and* dollar value of stock and option holdings.

Corporate capital structure is arguably the most intensely and thoroughly researched topic in corporate finance. Any standard corporate finance textbook would argue that bankruptcy costs and financial distress costs (incurred prior to bankruptcy) are a significant determinant of a company's capital structure; for example, see Ross, Westerfield and Jaffe (2010). Hence, companies with greater uncertainty of operating income should be financed mostly with equity. In the U.S. about 90% of a bank's capital is debt capital, and this ratio is even higher for the larger banks, about 95%; for example, see Bolton, Mehran and Shapiro (2010). Compared to the debt ratio in other industries, banks have one of the highest, if not the highest debt ratio; for the corporate sector as a whole – debt ratio is about 47%. Given the alleged systemic risk and resulting significant negative impact on the other sectors of the economy from large banks' going into bankruptcy (or facing serious financial distress), banks (especially the larger banks) should move towards a much lower debt ratio. How low of a debt ratio should large banks consider? Given that large banks comprise one of the riskier industries and perhaps the riskiest in light of recent economic experience, their debt ratio should be one of the lowest in the economy and certainly in the neighborhood of the median economy-wide debt ratio of 47%.

The three solutions to excessive risk-taking by banks noted above are predicated on equity based incentives for bank managers. The high leverage implied by debt ratios in the order of 95% will magnify the impact of losses on equity value. As a bank's equity value approaches zero (as they did for some banks in 2008), equity based incentive programs lose their effectiveness in motivating managers to enhance shareholder value. Hence, for equity based incentive structures to be effective, banks should be financed with considerable more equity than they are being financed currently; we refer to this as the Restricted-Equity-More-Equity-Capital proposal. Our recommendation for significantly greater equity in a bank's

capital structure is consistent with the recent recommendations of Admati, Demarzo, Hellwig and Pfleiderer (2010) and Fama (2010).[24] In op-eds on June 16, 2011, and October 24, 2011, the *Wall Street Journal* has recommended significantly higher equity capital requirements for banks.

It is also possible that if bank managers' incentive compensation is structured along the lines of the Restricted Equity proposal noted above, managers would voluntarily move to a lower debt ratio in their capital structure since this would lower the probability of bankruptcy (or serious financial distress). Lowering the debt ratio may not only serve the interests of long-term shareholders of these banks, but would also lessen the probability of alleged systemic risk resulting from the failure of one or more large banks.[25]

6.2.Regulatory hybrid security

French et al (2010) in *The Squam Lake Report* propose a thoughtful solution to the current thin equity capitalization of large banks, "The government should promote a long term debt instrument that converts to equity under specific conditions. Banks would issue these bonds before a crisis and, if triggered, the automatic conversion of debt into equity would transform an undercapitalized or insolvent bank into a well-capitalized bank at no cost to taxpayers." Figure 3 provides a stylized depiction of a large bank's capital structure under three scenarios: the current situation, The Regulatory Hybrid Security proposal, and the Restricted-Equity-More-Equity-Capital proposal noted in 5.1 above.

[24] Fama (2010) suggests, "The simple solution is to make sure these firms have a lot more equity capital—not a little more, but a lot more, so they are not playing with other people's money. There are other people here who think that leverage is an important part of the system. I am not sure I agree with them."

[25] Wallison (2010 a) questions the conventional wisdom whether failure of even a large bank can lead to a systemic financial crisis.

A potential advantage of the Regulatory Hybrid Security proposal is it requires less equity capital upfront. However, several authors have raised concerns about the incentive and other problems the triggering mechanism (that would lead to the conversion of the hybrid capital to equity) would generate; for example, see Duffie (2010) and McDonald (2010). Furthermore, Admati, Demarzo, Hellwig and Pfleiderer (2010) provide a thorough and detailed analysis of the flaws in the current received wisdom that large banks should be mostly financed with debt; in other words, they question the potential advantage of the Regulatory Hybrid Security proposal's requirement of less equity capital upfront. Besides providing the correct incentives to managers to create and sustain long-term shareholder value, the Restricted-Equity-More-Equity-Capital proposal has the advantage of being simple and transparent. Capital market participants, especially bondholders, will value simplicity and transparency in a bank's capital structure - in light of their recent experience with large banks,

6.3.Manager incentives and risk-shifting

There is a consensus in corporate finance that with risky debt outstanding, managers acting in the interest of shareholders have an incentive to invest in high-risk projects even if they are value-decreasing (negative net present value); for example, see Smith and Warner (1979). Consistent with this argument, several authors have argued that bank CEO compensation should be restructured so as to maximize the value of bank equity *and* debt. For example, Bolton, Mehran and Shapiro (2010) (BMS) suggest that bank managers' compensation should be tied to the bank's default probability as reflected in their default spread (CDS).

Conceptually, we are supportive of the BMS suggestion and think it has considerable merit. However, we note two concerns with this recommendation. First, the above shareholder-bondholder conflict of interest becomes relevant when the bank has risky debt outstanding. If a bank's debt is relatively "safe" the relevance of this recommendation is less critical. On the other hand, if the bank debt is quite risky, the recommendation is quite relevant. At what point does a bank's debt transition from being relatively safe to quite risky? Second, and related to the first point, Bhagat and Romano (2010) emphasize that executive compensation structures should be transparent and simple; the transparency and simplicity criteria would enhance investor confidence in the company's compensation and governance structure. Tying managers' compensation to the bank's CDS would make managers' compensation both less transparent and less simple. Furthermore, managers will have an incentive to misrepresent financial/accounting numbers (which may be partially under their control) that outside analysts use to compute the CDS.[26]

7. Director compensation and incentives

While the theoretical and empirical literature on executive compensation is extensive, the literature on director compensation is relatively modest. Director compensation typically consists of a cash component (called the retainer) and incentive compensation in the form of stock and stock option grants which vest over a period of time. If directors are allowed to liquidate their vested stock and options, and a director feels the need to liquidate her position in the near future - she may focus on short-term performance perhaps to the detriment of long-

[26] Some have argued that managers can misreport financial/accounting numbers to influence share prices in the short run. However, under the restricted equity proposal the incentive to misreport is minimized since managers have to hold the shares until well after their retirement, that is, they cannot benefit from short term share price movements.

term shareholder value. Hence, we suggest that director incentive compensation be constructed along the lines of the Restricted Equity proposal noted above. Specifically, all incentive compensation for directors *should only consist of restricted equity (restricted stock and restricted stock option)* – restricted in the sense that directors cannot sell the shares or exercise the options for two to four years after their last board meeting.[27]

However, we are not recommending the Restricted Equity proposal be the basis for additional regulations. Rather the proposal is just a set of ideas for corporate boards and their institutional investors to consider.[28] In implementing the proposal on director compensation, we think corporate boards should be the principal decision-makers regarding:

a) The mix of restricted stock and restricted stock options directors are awarded.

b) The amount of restricted stock and restricted stock options directors awarded.

c) The maximum percentage and dollar value of holdings directors can liquidate annually.

d) Number of years after the last board meeting for the stock and options to vest.

7.1.Mid-level managers

The Restricted Equity incentive compensation proposal noted above is appropriate for only the senior-most executives and directors in a company. The Restricted Equity incentive

[27] Board members are supposed to be successful professionals. Hence, we do not see any incentive compensation related reason for a cash retainer. We recommend boards diminish/eliminate the cash retainer part of their compensation and correspondingly increase the size of their restricted stock and restricted stock option grants.

[28] Bhagat and Tookes (2011) document that many boards have recently started implementing mandatory stock ownership requirements on themselves. These mandatory stock ownership requirements are steps in the right direction; however, the other elements of the Restricted Equity proposal also need to be considered.

compensation proposal is *not* appropriate for mid-level managers, and even less appropriate for rank and file employees; the under-diversification problem would be a particularly serious problem for rank and file employees. Once the incentives of senior executives are aligned with that of long-term shareholders, the senior executives should be entrusted with the task of constructing incentive programs for the mid-level managers.

8. Summary and conclusions

Before stating our conclusions, it is important to note that executive compensation reform is not a panacea. While incentives generated by executive compensation programs led to excessive risk-taking by banks contributing to the current financial crisis, there are several more important causes of the current financial and economic crisis. For example, the perverse incentives created by Fannie Mae and Freddie Mac encouraged individuals to purchase residential real estate - ultimately at considerable public taxpayers' expense; this is perhaps the single most important cause of the current financial and economic crisis. Ironically, the recent Financial Reform Act signed into law in July 2010 did not even acknowledge, much less address, the perverse incentives created by Fannie Mae and Freddie Mac.[29]

Our focus in this paper, however, is on the executive compensation activities at the largest U.S. financial institutions during the 2000s. We study the executive compensation structure in the largest 14 U.S. financial institutions during 2000-2008, and compare it with that of CEOs of 37 U.S. banks that neither sought nor received TARP funds. We focus on the CEO's buys and sells of their bank's stock, purchase of stock via option exercise, and their

[29] See, for example, Michael Corkey, "The Ultimate Taboo: The Overhaul of Fannie Mae and Freddie Mac," *Wall Street Journal*, June 21, 2010; and Wallison (2010 b).

salary and bonus during 2000-2008. We consider the capital losses these CEOs incur due to the dramatic share price declines in 2008. We compare the shareholder returns for these 14 TBTF banks and the 37 No-TBTF banks. Finally, we consider three measures of risk-taking by these banks: the bank's Z-score, the bank's asset write-downs, and whether or not a bank borrows capital from various Fed bailout programs, and the amount of such capital.

Our results are mostly consistent with and supportive of the findings of Bebchuk, Cohen and Spamann (2010), that is, managerial incentives matter - incentives generated by executive compensation programs led to excessive risk-taking by banks contributing to the current financial crisis. Also, our results are generally not supportive of the conclusions of Fahlenbrach and Stulz (2009) that the poor performance of banks during the crisis was the result of unforeseen risk.

We recommend the following compensation structure for senior bank executives (the Restricted Equity proposal): Executive incentive compensation should only consist of restricted stock and restricted stock options – restricted in the sense that the executive cannot sell the shares or exercise the options for two to four years after their last day in office. However, to address liquidity concerns, managers should be permitted to annually liquidate about 5% to 15% of their ownership positions, but these ownership position annual liquidations should be restricted to an amount of $5 million to $10 million. This compensation structure will provide the managers stronger incentives to work in the interests of long-term shareholders, and avoid excessive risk-taking.[30] Finally, these recommendations should not necessitate new

[30] The above amounts may seem low compared to what bank executives have received during the past several decades. However, that is not necessarily the case. This proposal only limits the annual cash payoffs the executives can realize. Under this proposal, the net present value of all salary and stock compensation can be

regulations; these policies should be implemented by corporate boards, taking into account specific firm and executive situations to craft compensation structures that are in the best long-term interests of the institution itself.

The above incentive compensation proposal is consistent with several recent theoretical papers which suggest that a significant component of incentive compensation should consist of stock and stock options with long vesting periods; for example, see Edmans et al (2010), and Peng and Roell (2009). If these vesting periods were "sufficiently long" they would be similar to the above proposal.

The Restricted Equity proposal logically leads to a complementary proposal regarding a bank's capital structure: The high leverage implied by debt ratios in the order of 95% (as was the case for many large banks in 2008) will magnify the impact of losses on equity value. As banks' equity values approach zero (as they did for some banks in 2008), equity based incentive programs lose their effectiveness in motivating managers to enhance shareholder value. Hence, for equity based incentive structures to be effective, banks should be financed with considerable more equity than they are being financed with currently. Our recommendation for significantly greater equity in a bank's capital structure is consistent with the recent recommendations of Admati, Demarzo, Hellwig and Pfleiderer (2010) and Fama (2010). Also, in an op-ed on June 16, 2011, the *Wall Street Journal* has recommended significantly higher equity capital requirements for banks.

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higher than they have received historically, so long as they invest in projects that lead to value creation that persists in the long-term.

While our focus here is on banks, the incentives generated by the above compensation structure would be relevant for maximizing long-term shareholder value in other industries. Hence, corporate board compensation committees and institutional investors in firms in other industries should also give the above executive incentive compensation structure serious consideration. Additionally, if banks and other firms want to establish a Culture of Ownership for their officers, incentive compensation policies such as those recommended in this study need to be established to better match the incentives of insiders and long-term outside investors. Finally, we suggest that directors should adopt a similar incentive compensation structure with regard to their own incentive compensation.

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