1 Introduction

The financial crisis that started in 2008 has inflicted a large cost on the US economy and an even larger cost on US workers and families. Hall (2014) estimates the shortfall of output at the end of 2013 as 13.3%, or $2.2 trillion. The labor force participation rate is currently at 62.8% – the lowest it has been for more than three decades. Hall (2014) estimates that the labor force participation rate in 2013 was 1.9% below the 1990–2007 trend. This 1.9% figure translates to 4.4 million *additional* US adults who are unemployed as of 2013.

We write this book because despite the honorable intentions of the Dodd-Frank Act to make "too-big-to-fail" (TBTF) banks a thing of the past, many investors and policymakers still believe that many big banks are TBTF.[1] This issue has come up repeatedly in the 2016 US presidential campaign and among senior policymakers in the United States and Europe. We propose a solution to the TBTF problem that can be implemented with minimal or no additional regulations, only the intervention of corporate board members and institutional investors in these big banks.

In the wake of the global financial crisis, attention has often focused on whether incentives generated by bank executives' compensation programs led to excessive risk-taking. Broadly speaking, postcrisis compensation reform proposals have taken one of three approaches: long-term deferred equity incentive compensation, mandatory bonus clawbacks on "inappropriate" risk-taking, accounting restatements or financial losses, and debt-based compensation. Governments worldwide have, in particular, regulated bank executives' compensation by requiring deferral of incentive compensation, mandating clawbacks, and in some instances even restricting compensation amounts.[2] In earlier work we recommended the

following compensation structure for bank executives, with which these government initiatives are only partially consistent: incentive compensation should consist only of restricted stock and restricted stock options – restricted in the sense that executives cannot sell the shares or exercise the options for one to three years after their last day in office; we refer to this as the *restricted equity proposal*.[3] We contend that such an incentive compensation package will focus bank management's attention on the long run and discourage investment in high-risk, value-destroying projects.

Equity-based incentive programs such as our proposal may lose effectiveness in motivating managers to reduce excessive risk-taking as a bank's equity value approaches zero. There is a moral hazard or agency cost of debt in this context arising from shareholders' potential preference to take extreme risks when close to insolvency. This is because shareholders gain from the upside of a positive outcome, albeit low in probability, while limited liability leaves the losses, should the gamble fail, on creditors. The moral hazard problem when equity value approaches zero may well be more severe for banks, as their creditors have less interest in monitoring against risk-taking activity because the government not only stands behind retail depositors but also often bails out other creditors as well.[4] Properly aligning management's incentives in this context therefore calls for focus on the interaction among bank capital structure, bank capital requirements, and bank executive incentive compensation – whereas the extant literature analyzes compensation reform in isolation.[5]

Incentive compensation reform proposals that advocate linking bank executives' compensation to debt are directed at this moral hazard concern, although the tendency for broad-based creditor bail-outs complicates the efficacy of such an approach compared with using debt-based compensation to address the phenomenon in non-financial firms. We contend that equity-based incentive pay is still decisively preferable to debt-based pay in motivating managers to maximize bank value. In our judgment, the appropriate approach to mitigate the insolvency-related moral hazard problem is to combine

a properly structured equity incentive scheme with a capital structure that contains considerably more equity than currently required.

Our focus is incentive compensation not because we believe that it was the most important contributing factor to the crisis. We doubt that to be the case. We believe that public policies regarding home mortgages, whose goal was to increase home ownership by those who could not otherwise afford it, was the primary cause of the financial crisis; we discuss this in detail in Chapter 2. Our focus is on bank executive incentive compensation because it is an area in which legislators and banking regulators worldwide have implemented regulatory reforms, though the appropriateness of pay structures is still a matter of contentious debate. It is also the factor most within the control of bank corporate boards and shareholders, so the private sector could undertake further beneficial changes without the need for coordinated government action.

Although we believe that the restricted equity proposal is superior to the approach regulators have taken to compensation, our proposal is directed to boards of directors because we recognize that it is unrealistic to expect regulators to substitute it for their recently adopted initiatives, especially at an international level, given the arduous process of obtaining multinational consensus. The complementary proposal for increased equity capital could also be implemented by financial institutions without regulatory action. But because deposit insurance and creditor bailouts have resulted in the market not requiring banks to hold substantially higher equity capital than current levels, short of the market believing that postcrisis resolution initiatives will be effective at limiting future bailouts, we think it improbable that our proposal would be voluntarily adopted given the sustained and strong opposition by bank managers with regard to increasing equity capital. Although the restricted equity proposal's effectiveness would be further optimized if it were combined with an increase in equity capital requirements, it does not require such a regulatory change. It would, we assert, reduce the probability that

a bank will be near insolvency, the zone in which the need for increased capital requirements is most critical.

Greater equity financing of banks coupled with the aforementioned compensation structure for bank managers and directors will drastically diminish the likelihood of a bank falling into financial distress. This will effectively address two of the more significant challenges facing implementation of the Dodd-Frank Act:

1. *The too-big-to-fail problem*. Regulators and their critics have observed that implementation of the Dodd-Frank Act may have institutionalized the TBTF aspect of the largest US banks.[6] Policymakers note that TBTF banks are here to stay and are proposing explicit or implicit taxes on banks above a certain threshold size. The major problem with the TBTF banks is exactly that – they are "too big to fail"; that is, these large banks have to be bailed out with taxpayer funds (when faced with insolvency) to prevent "alleged" significant disruption to the national economy. We placed alleged in quotation marks here because whether or not insolvency of one or more large banks might cause significant disruption is an open question. We are not aware of any empirical evidence that documents significant disruption to the national economy resulting from the recent insolvency of few large banks. Under our proposal (of greater equity financing of banks coupled with a compensation structure for bank managers and directors that discourages managers from undertaking high-risk investments that are value destroying and instead focuses their attention on creating and sustaining long-term shareholder value), managers (and directors) would not want to grow the bank to a size (or manage a bank of a size) that jeopardizes the solvency/financial viability of the bank, for that would also jeopardize the value of their restricted stock and restricted stock options that they own and cannot sell until some years after they leave the bank. Furthermore, greater equity capitalization of the banks would provide a cushion against investments that ex ante were value enhancing but ex post were value-reducing.
2. The Volcker Rule essentially prohibits/discourages proprietary trading by TBTF banks. The problem in implementing the Volcker Rule is in defining and identifying trades that are proprietary (where profits/losses accrue to the bank) versus the market-making trades a bank makes in its normal course of business to serve a particular client. Under our proposal (of greater

> equity financing of banks coupled with the aforementioned compensation structure for bank managers and directors), managers (and directors) would not want to engage in proprietary trades that jeopardizes the solvency/financial viability of the bank, for that would also jeopardize the value of their restricted stock and restricted stock options that they own and cannot sell until some years after they leave the bank. Furthermore, greater equity capitalization of the bank would provide a cushion against proprietary trades that do not turn out well for the bank. Regarding the market-making trades – to the extent that the market-making trades were value-enhancing for the bank, the bank managers would have the incentive to continue to engage in such market-making trades.

Professor Anat Admati of Stanford University is waging a heroic campaign to get the banks to significantly increase their equity capital; see her coauthored book (Admati and Hellwig 2013) and her website (www.gsb.stanford.edu/news/research/Admati.etal.html). We view this book as complementary to the efforts of Professor Admati and her colleagues.

Also, we study the effect of size on the risk-taking of US-based financial institutions. Using data on the size and risk-taking of financial institutions from 2002 to 2012, we investigate whether cross-sectional variation in the size of banks is related to risk-taking. Our measures of risk-taking are comprehensive. They include two model-based measures (namely, the *Z*-score, and Merton's distance to default [Merton DD]), a market-based measure (volatility of stock returns) and an accounting-based measure (write-downs). We document four important facts. First, bank size is positively correlated with risk-taking, even when controlling for endogeneity between size and risk-taking. Our second finding: the decomposition of *Z*-score reveals that bank size has a consistent and significant negative impact on the bank common-stock-to-total-assets ratio; we do not find a consistent relation between bank size and return on assets or earnings volatility. *These findings suggest that banks engage in excessive risk-taking mainly through increased leverage.* They also suggest that economies of scale do

not exist for banks. Regressions with volatility of stock return as the dependent variable indicate that size-related diversification benefits may not exist in the financial sector because size is positively associated with return volatility. Third, we find that our recently developed corporate governance measure (Bhagat and Bolton 2008), calculated as median director dollar stockholding, is negatively associated with risk-taking. This has important policy implications, to wit, policymakers interested in discouraging banks from engaging in excessive risk should focus on bank director compensation and stock ownership. Finally, we document that the positive relation between bank size and risk was present in the precrisis period (2002–6) and the crisis period (2007–9) but not in the postcrisis period (2010–12). Perhaps the intense scrutiny put on bank risk-taking by the bank regulators, senior policymakers, and the media in the postcrisis period may have curbed the appetite and ability of large banks to engage in high-risk investments.

This book is organized as follows. Chapter 2 highlights how public policies regarding home mortgages "caused" the financial crisis. Chapter 3 briefly overviews precrisis compensation packages and how they might have led to misaligned incentives. The next two chapters present the evidence of such misalignment of executive compensation incentives. We find that TBTF bank CEOs were able to realize a substantial amount on their common stock sales in the precrisis period (2000–7) compared to the large losses the executives experienced on their equity stake during the crisis (2008). Additionally, stock sales by TBTF bank CEOs were significantly greater than stock sales by other bank CEOs (defined in Chapter 5) in the precrisis period. Finally, several different bank risk-taking measures suggest that TBTF banks were significantly riskier than other banks. Our results are mostly consistent with the argument that incentives generated by executive compensation programs in the TBTF banks are positively correlated with excessive risk-taking by these banks in high-risk but value-decreasing investment and trading strategies. Also, our results are inconsistent with the argument that

the poor performance of the TBTF banks during the crisis was the result of unforeseen risk.

Chapter 6 states and discusses our restricted equity proposal, which we maintain will mitigate bank managers' excess risk-taking incentives (but maintain their incentives to invest in value-increasing strategies), and explains why it is preferable to both compensation reforms that governments have implemented and debt-based compensation proposals. An aspect of our restricted equity proposal needs emphasis: this proposal, unlike most other executive compensation reform proposals, does *not* place a ceiling on executive compensation. The proposal only limits the annual *cash* payouts an executive can realize. The *present value* of all salary and stock compensation can be higher than bank managers have received historically because the amount of restricted stock and restricted stock options that can be awarded to a bank manager is essentially unlimited per our proposal, though, in practice, the award amounts should and need to be anchored to the current practices in the particular company. Of course, the higher value would only be realized were the banks to invest in projects that lead to value creation that persists in the long term, in which case we have a win for long-term investors and a win for managers. Also, a focus on creating and sustaining long-term shareholder value would minimize the likelihood of a bailout, which would be a win for taxpayers.

Chapter 6 concludes with a discussion of some recent public policy developments regarding executive compensation. On April 21, 2016, six US agencies (Federal Reserve System, Federal Deposit Insurance Corporation, Federal Housing Finance Agency, Office of the Comptroller of the Currency, National Credit Union Administration, and the Securities and Exchange Commission) jointly proposed new regulations, *incentive-based compensation arrangements*, to prohibit incentive-based compensation that would encourage "excessive" risk-taking by banks. We support the essence of the April 2016 incentive-based compensation arrangements regulations proposed by the six US agencies. The deferral, forfeiture, and

clawback provisions in the proposed regulations are focused on discouraging "inappropriate" risk-taking by banks. A critical question: What is *inappropriate* risk-taking by banks? From a financial viewpoint, the risk of a project or trading strategy would be inappropriate if the net present value (NPV) of the project or trading strategy is negative. However, the measurement of such risk (and associated cash flows) is subject to both manager biases and estimation errors; we discuss this in Chapter 3. Our evidence in Chapter 5 suggests that enforcing deferral, forfeiture, and clawback provisions can lead to very large potential losses for managers. Given the potential losses of tens or hundreds of millions of dollars, affected managers are likely to litigate the occurrence of a particular trigger event or the measurement of the "inappropriate" risk. Given the inherent uncertain outcome of any litigation, the disciplining effect of the April 2016 regulations on bank manager inappropriate risk-taking behavior would be muted. The restricted equity proposal has an inherent clawback (and deferral and forfeiture) feature that renders unnecessary intricate mechanisms requiring repayments (forfeiture) of bonuses on income from transactions whose value proved illusory. The automatic clawback inherent in the restricted equity proposal is simpler to administer than the specified regulatory clawbacks, avoiding definitional and, consequently, litigation pitfalls.

We note a second concern with the April 2016 regulations, which cover bonuses but do not cover compensation derived from the sale of stock. Our evidence in Chapter 5 suggests that TBTF bank managers' compensation derived from sale of their banks' stock is usually twice as large as, or greater than, their compensation from salary and bonus. Hence, even if the April 2016 regulations are successful in discouraging some inappropriate risk-taking by banks, the adverse incentives from compensation derived from the sale of stock remains a potent problem. Our restricted equity proposal would address this problem as well.

On June 23, 2016, the United Kingdom voted to leave the European Union – the Brexit vote. Subsequent to the vote, the

United Kingdom elected a new prime minister. Prime Minister May has noted that reforming executive incentive compensation would be one of her government's priorities. On July 21, 2016, Prime Minister May proposed making annual shareholder votes on executive compensation binding. Despite the obvious attractiveness of "say on pay" (on the surface, allowing shareholders a voice on management compensation appears to be a sensible proposition), there is no consistent evidence supportive of "say on pay" in either the United States or the United Kingdom. Instead of focusing on "say on pay" regulations, we believe that public policymakers (as well as corporate board members and institutional investors) should focus their efforts on an "optimal" executive compensation policy. The restricted equity proposal (that incentive compensation of executives should consist only of restricted equity – restricted in the sense that the individual cannot sell the shares or exercise the options for one to three years after his or her last day in office) is our suggestion for the most important component of an optimal "pay" policy in "say on pay" regulations.

Chapter 7 outlines our proposal for director compensation; this would be complementary to the restricted equity proposal for managers. Chapter 8 focuses on the relation between bank size, bank risk-taking, and bank leverage.

Chapter 9 presents our approach to bank equity capitalization reform, which is complementary to the restricted equity incentive compensation proposal. We advocate that banks hold significantly higher equity capital (tangible common-stock-to-total-assets ratio) than presently required; specifically, bank equity capital should be, at least, 20% of bank total assets; we recommend against any risk-weighting of bank total assets. In our judgment, combining the restricted equity proposal with bank equity capitalization reform is a better mechanism for reducing the probability of banks taking on excessive risk and contributing to another financial crisis. We note that the restricted equity proposal and the bank equity capitalization proposal rely only on the private incentives and actions of bank

managers, bank directors, and bank institutional investors. More specifically, our proposals do *not* rely on additional regulations.

We conclude Chapter 9 with a discussion of some recent public policy developments regarding bank capital. On June 2, 2016, two Federal Reserve Board governors signaled that big banks will be required to hold more equity. We applaud the efforts of these Federal Reserve Board governors. We hope that the Federal Reserve requires bank capital to be calibrated to the ratio of tangible common equity to total assets not the risk-weighted capital (i.e., to total assets independent of risk) and requires the denominator to include balance-sheet assets and off-balance-sheet assets (of structured investment vehicles).

On June 23, 2016, the US House Financial Services Committee released a discussion draft of the Financial CHOICE (Creating Hope and Opportunity for Investors, Consumers, and Entrepreneurs) Act. The Financial CHOICE Act allows banks that have a leverage ratio of at least 10% to elect exemption from Basel III capital and liquidity standards and the Dodd-Frank Act Section 165 heightened prudential standards. The denominator of this leverage ratio would include total balance-sheet and off-balance-sheet assets; importantly, these total assets would be independent of risk. We applaud this proposal of the Financial CHOICE Act.

The *Wall Street Journal* in its on July 29, 2016, op-ed noted that both the Republican and Democratic Party platforms called for reinstating the Glass-Steagall Act of 1933, which separated commercial banking and investment banking businesses. In a similar vein, the Volcker Rule of the Dodd-Frank Act attempts to prevent/discourage commercial banks from risky securities trading. As noted earlier, the problem in implementing the Volcker Rule is in defining and identifying trades that are proprietary (where profits/losses accrue to the bank) versus market-making trades that a bank makes in its normal course of business to serve a particular client. The *Wall Street Journal* suggests, "The better solution is to shrink the taxpayer safety net, raising capital standards high enough so that banks that take insured deposits