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Risky Business: Competition, Compensation, and Risk-Taking

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RISKY BUSINESS: COMPETITION, COMPENSATION, AND RISK-TAKING

By Simone M. Sepe⁺ and Charles K. Whitehead[✧]

Efforts to control bank risk-taking by regulating executive pay presume that non-executive pay is set internally. Bank executives, they suppose, can determine how non-executives are paid once their own pay is regulated, bringing non-executives into line by using incentives to manage risk-taking.

What those efforts overlook is the effect on non-executive pay of the competition to hire new talent. As this Article describes, prior to the 2007 financial crisis, the level of non-executive incentives was determined largely by the market demand for talent. Hiring typically is based on short-term results, since it is difficult for employers to fully assess a current or prospective hire's long-term performance. Non-executives, therefore, have an interest in incurring significant risks upfront—bootstrapping short-term performance and leaving for a new job before losses materialize. The rewards are greater compensation from new or existing employers that compete for staff who performed well in the short-term. Non-executive pay, therefore, is a function more of market demand—increasingly set by non-banks—than of what a bank's executives believe to be optimal in influencing performance.

New regulation must address the tension between competition and compensation. Regulators should take account of the effect of competition on market-wide levels of pay, including by non-banks who compete for talent. The ability of non-executives to jump from a bank employer to another financial firm should also be limited. In addition, new regulation should restrict an employer's ability to offset losses that new employees incur based on compensation paid by a prior employer that is tied to long-term performance.

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INTRODUCTION

Nick Leeson, a mid-level futures trader, was not yet 30 years old in 1995 when he incurred the \$1.3 billion in losses that blew up Barings Bank. In 1992, when Leeson's trading profits were ten percent of Barings' annual income, he earned a bonus of £130,000 on a salary of £50,000.¹ Fabrice Tourre, then a 29-year-old vice president, was charged with fraud in Goldman Sachs' 2007 sale of its Abacus subprime collateralized debt obligations. Tourre's compensation that year, well before the start of the fraud investigation, was \$2 million.² Bruno Iksil, nicknamed the "London Whale" for the size of his trading portfolio, was a JPMorgan proprietary trader in his late 30's who realized

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¹ See Mark Roodhouse, *Leeson, Nick*, in 2 ENCYCLOPEDIA OF WHITE-COLLAR & CORPORATE CRIME 493, 493 (Lawrence M. Salinger ed., 2005); see also *How Leeson Broke the Bank*, BBC NEWS (June 22, 1999), <http://news.bbc.co.uk/2/hi/business/375259.stm>.

² See Steven M. Davidoff & Peter J. Henning, *The Importance of Fabrice Tourre*, N.Y. TIMES (Apr. 20, 2010), <http://dealbook.nytimes.com/2010/04/20/the-importance-of-fabrice-tourre/>.

losses of up to \$6.2 billion in 2012. Iksil's total compensation was \$7.32 million in 2010 and \$6.76 million in 2011.³

All three—Leeson, Tourre, and Iksil—share common characteristics: None was a bank executive. Each had the authority (real or apparent) to engage in significant business activities on their employer's behalf. And the risks they incurred profited their employers in the short-term—eventually causing losses or lawsuits, but only after each was paid handsomely for the risks they undertook.

As this Article describes, prior to the 2007 financial crisis, non-executive⁴ incentives significantly affected bank risk-taking, and the level of those incentives was determined largely by the market demand for talent, independent of executive incentives.⁵

³ See STAFF OF SUBCOMM. ON INVESTIGATIONS OF S. COMM. ON HOMELAND SEC. AND GOVERNMENTAL AFFAIRS, 113TH CONG., *JPMORGAN CHASE WHALE TRADES: A CASE HISTORY OF DERIVATIVES RISKS AND ABUSES* 58 (Comm. Print 2013) [hereinafter U.S. SENATE REPORT]; Shannon D. Harrington et al., *JPMorgan Trader Iksil Fuels Prop-Trading Debate with Bets*, BLOOMBERG (Apr. 9, 2012), <http://www.bloomberg.com/news/2012-04-09/jpmorgan-trader-iksil-fuels-prop-trading-debate-with-bets.html>; Jessica Silver-Greenberg, *JPMorgan Sues Boss of 'London Whale' in Trading Loss*, N.Y. TIMES, (Oct. 31, 2012), <http://dealbook.nytimes.com/2012/10/31/jpmorgan-sues-boss-of-london-whale/>.

⁴ In this Article, “non-executives” of a bank refers to employees who are not senior executives of the bank.

⁵ See *infra* notes 105–109 and accompanying text. Although compensation was not the sole cause of the 2007 financial crisis, its effect on risk-taking was widely recognized as an important cause of the losses that resulted. See INST. OF INT'L FIN., *COMPENSATION IN FINANCIAL SERVICES: INDUSTRY PROGRESS AND THE AGENDA FOR CHANGE* 2, 10 (2009), www.iif.com/download.php?id=YgXfGGw8KEA= (stating that 98 percent of survey respondents believed that compensation was a factor underlying the financial crisis); see also Lucian A. Bebchuk et al., *The Wages of Failure: Executive Compensation at Bear Stearns and Lehman 2000-2008*, 27 YALE J. ON REG. 257, 259–60 (2010) (arguing that bank executives benefited from short-term compensation that was not tied to long-term performance); Ing-Haw Cheng et al., *Yesterday's Heroes: Compensation and Creative Risk-Taking* 2–5 (European Corporate Governance Inst., Working Paper No. 285, 2010), available at <http://ssrn.com/abstract=1502762> (presenting evidence linking compensation and risk-taking at financial firms during 1992–2008 that is consistent with payouts to top managers being tied to incentives for short-term risk); Marc Chesney et al., *Managerial Incentives to Take Asset Risk* 4–5 (Swiss Fin. Inst., Working Paper No. 10-18, 2012), available at <http://ssrn.com/abstract=1595343> (finding incentives to take asset risk promoted risk-taking by banks prior to the financial crisis); Robert DeYoung et al., *Executive Compensation and Business Policy Choices at U.S. Commercial Banks* 6–7 (Fed. Reserve Bank of Kan. City, Working Paper 10-02, 2010), available at <https://www.kansascityfed.org/PUBLICAT/RESWK/PAP/PDF/rwp10-02.pdf> (finding evidence that bank CEO incentives encouraged risk-taking); Felix Suntheim, *Managerial Compensation in the Financial Service Industry* 4–5 (Aug. 26, 2011) (unpublished manuscript), available at <http://ssrn.com/abstract=1592163> (showing that over time bank risk has been positively correlated with CEOs' risk-taking incentives); UBS, *SHAREHOLDER REPORT ON UBS'S WRITE-DOWNS* 32, 41–42 (2008), <http://www.ubs.com/1/ShowMedia/investors/agm?contentId=140333&name=080418ShareholderReport.pdf> (finding the incentive effects of UBS's compensation practices to be one overarching cause for its losses from exposure to the subprime mortgage market). Some have argued, however, that excessive compensation—at least with respect to CEOs and other senior executives—was not a likely cause of risk-taking by banks prior to the 2007 financial crisis. See Rüdiger Fahlenbrach & René M. Stulz, *Bank CEO Incentives and the Credit Crisis*, 99 J. FIN. ECON. 11, 12–13 (2011); see also Francesco Valscas & Jens Hagedorff, *CEO Bonus Compensation and Bank Default Risk: Evidence from the U.S. and Europe* 22 FIN. MARKETS, INSTITUTIONS & INSTRUMENTS 47, 47 (2013) (finding increases in CEO cash bonuses lower a bank's default risk, except when the bank is financially distressed or operating within a weak regulatory regime).

Why, then, in the wake of the 2007 financial crisis, has *executive* compensation been a principal focus of efforts to control bank risk?⁶ Although bank supervisors have provided new guidance on non-executive pay,⁷ the Troubled Asset Relief Program⁸ and its implementing rules⁹ require banks that received government aid during the financial

⁶ Prior to the crisis, the Federal Deposit Insurance Act required the Office of the Comptroller of the Currency (OCC), the Federal Reserve Board (Fed), the Federal Deposit Insurance Corporation (FDIC), and the Office of Thrift Supervision (OTS) to prescribe standards that would regulate compensation. *See* 12 U.S.C. § 1831p-1(c) (2006)); Standards for Safety and Soundness, 60 Fed. Reg. 35674, 35674, 35678 (July 10, 1995). Those agencies adopted guidelines prohibiting “excessive compensation”—compensation that is “unreasonable or disproportionate to the services performed by an executive officer, employee, director, or principal shareholder”—and any compensation that “could lead to material financial loss.” 12 C.F.R. pt. 30, app. A (2013) (OCC); pt. 208, app. D-1 (Fed); pt. 364, app. A (FDIC); pt. 570, app. A (OTS).

⁷ *See* Guidance on Sound Incentive Compensation Policies, 75 Fed. Reg. 36,395 (June 25, 2010) [hereinafter Compensation Guidance]. The Compensation Guidance is a principles-based approach to incentives, without mandating or prohibiting any specific forms of compensation or establishing mandatory levels or caps, *see id.* at 36,399, although large banking organizations are expected to adopt formal policies and procedures to implement the principles that may not be necessary in less complex banks, *see id.* at 36,400. The Compensation Guidance is directed toward senior executives at banks, individuals (including non-executives) whose activities may expose a bank to material amounts of risk, and groups of employees who are subject to the same or similar incentive compensation and who, in aggregate, may expose the bank to material amounts of risk (even if no individual is likely to do so). *Id.* at 36,407. It is premised on three core principles, namely that (i) incentives should appropriately balance risk and financial results in order not to encourage employees to take imprudent risks, (ii) incentives should be compatible with effective controls and risk management, and (iii) incentives should be supported by strong corporate governance, including board oversight. *Id.* at 36,398. *See also* FINANCIAL STABILITY FORUM, FSF PRINCIPLES FOR SOUND COMPENSATION PRACTICES 2–3 (2009) [hereinafter FSF PRINCIPLES], available at http://www.financialstabilityboard.org/publications/r_0904b.pdf (setting out consistent principles; the Financial Stability Forum was renamed the Financial Stability Board in April 2009); FINANCIAL STABILITY BOARD, FSF PRINCIPLES FOR SOUND COMPENSATION PRACTICES: IMPLEMENTATION STANDARDS 2–5 (2009), available at http://www.financialstabilityboard.org/publications/r_090925c.pdf (setting out high-level guidance on implementing principles). Bank regulators have committed to ensure that banks incorporate the Compensation Guidance through a supervisory process that includes inspections and examinations that will produce a supervisory rating reflective of bank compliance. *See* Compensation Guidance, *supra*, at 36,406.

The Troubled Asset Relief Program’s pay restrictions, *see infra* notes 8–9 and accompanying text, apply only to banks that received government assistance. Section 956 of the Dodd-Frank Wall Street Reform and Consumer Protection Act, 12 U.S.C. § 5641 (Supp. V 2012), goes further by requiring the OCC, the Fed, the FDIC, the OTS, the National Credit Union Administration (NCUA), the Securities and Exchange Commission (SEC), and the Federal Housing Finance Agency (FHFA) (together, the Agencies) to jointly introduce rules or guidelines regarding incentive pay for a much broader range of financial institutions. The proposed rules contain standards that are consistent with the Compensation Guidance. Specifically, the Agencies would prohibit incentive-based pay to executive officers, employees, directors, or principal shareholders that is excessive and encourages inappropriate risks or that could lead to material financial loss. The new rules would also prohibit pay that is unreasonable or disproportionate to the amount, nature, quality, and scope of services performed. In addition, for larger firms, incentive pay would be required to be deferred for executives and others who have the ability to expose the firm to substantial losses. *See* Incentive-Based Compensation Arrangements, 76 Fed. Reg. 21,170, 21,172–21,174 (proposed April 14, 2011) (to be codified at 12 C.F.R. pt. 42 (OCC), at pt. 236 (Fed), at pt. 372 (FDIC), at pt. 563h (OTS), at pts. 741, 751 (NCUA), at 17 C.F.R. pt. 248 (SEC), at 12 C.F.R. pt. 1232 (FHFA)) [hereinafter Jointly Proposed Incentive Rules].

⁸ *See* Emergency Economic Stabilization Act of 2008, 12 U.S.C. §§ 5211–5241 (Supp. V 2012).

⁹ *See* 31 C.F.R. pt. 30 (2012).

crisis to modify only how senior executives and top earners are paid.¹⁰ The new “say-on-pay” rules also give shareholders a non-binding vote on compensation, but again only on executive pay.¹¹

The focus on executive pay presumes that a bank’s managers set non-executive pay internally. Bank executives, it supposes, will bring non-executives into line—using incentives to manage risk-taking¹²—once executive pay is regulated.¹³ What it misses is

¹⁰ See 12 U.S.C. § 5221 (Supp. V 2012); *id.* Academics have also primarily focused on senior executive pay. See, e.g., Lucian A. Bebchuk & Holger Spamann, *Regulating Bankers’ Pay*, 98 GEO. L.J. 247, 249 (2010) (identifying incentives for risk-taking embedded in executive compensation); Bebchuk et al., *supra* note 5, at 275 (explaining compensation reforms resulting from the belief that executive pay arrangements before the financial crisis might have encouraged excessive risk-taking); Janice Kay McClendon, *The Perfect Storm: How Mortgage-Backed Securities, Federal Deregulation, and Corporate Greed Provide a Wake-up Call for Reforming Executive Compensation*, 12 U. PA. J. BUS. L. 131 (2009) (focusing on major legislation enacted as a result of the collapse of the financial industry); Vallasca & Hagedorff, *supra* note 5, at 47 (focusing on a panel of U.S. and European banks to demonstrate the impact of CEO compensation); David I. Walker, *The Challenge of Improving the Long-Term Focus of Executive Pay*, 51 B.C. L. REV. 435, 455–56 (2010) (examining the pitfalls of existing compensation programs and recent proposals to combat short-term decision-making); David I. Walker, *Evolving Executive Equity Compensation and the Limits of Optimal Contracting*, 64 VAND. L. REV. 609 (2011) (considering the evolution in executive equity pay practices and examining the limitations on efficient compensation contracting); Sanjai Bhagat & Roberta Romano, *Reforming Executive Compensation: Simplicity, Transparency and Committing to the Long-Term* 4 (John M. Olin Ctr. for Studies in Law, Econ., and Pub. Policy, Working Paper No. 393, 2009), available at <http://ssrn.com/abstract=1506742> (suggesting an executive compensation proposal in which incentive compensation plans consist only of restricted stock and restricted stock options in order to manage the firm in the long-term interest of shareholders); Patrick Bolton et al., *Executive Compensation and Risk Taking* (Fed. Reserve Bank of N.Y., Working Paper No. 456, 2010) (studying the connection between risk-taking and executive compensation in financial institutions, and providing an empirical analysis of market perceptions of debt-like compensation), http://www.newyorkfed.org/research/staff_reports/sr456.pdf; Yoram Landskroner & Alon Raviv, *The 2007-2009 Financial Crisis and Executive Compensation: An Analysis and a Proposal for a Novel Structure* (May 24, 2010) (unpublished manuscript), available at <http://ssrn.com/abstract=1695490> (analyzing executive compensation and its risk-taking incentives and proposing a new form of executive compensation to motivate moderate risk-taking and enhance financial security). Not all analyses have been limited to executives. More recent scholarship has also begun to consider the effect of non-executive compensation on risk-taking. See Christina E. Bannier et al., *Competition, Bonuses, and Risk-taking in the Banking Industry*, 17 REV. FIN. 653 (2013); Viral Acharya et al., *Non-Executive Incentives and Bank Risk-Taking* (Wharton Fin. Institutions Ctr., Working Paper No. 13-18, 2013), available at <http://fic.wharton.upenn.edu/fic/papers/13/13-18.pdf>.

¹¹ See 15 U.S.C. § 78n–1 (Supp. V 2012); 17 C.F.R. § 240.14a–21 (2012).

¹² Non-executive pay shares goals similar to those identified for executive compensation, namely (i) rewarding success, (ii) providing incentives, (iii) retaining and attracting talent, and (iv) aligning shareholder and employee interests. See Jeffrey N. Gordon, “Say on Pay”: *Cautionary Notes on the U.K. Experience and the Case for Shareholder Opt-In*, 46 HARV. J. ON LEGIS. 323, 329 (2009) (listing the goals of executive compensation). The tension between competition and compensation described in this Article potentially places those goals in conflict. An employer’s interest in rewarding success and hiring talent may create incentives for a new hire or prospective employee to take excessive risk. See *infra* notes 75–79, Figure 2, and accompanying text.

¹³ See, e.g., Bebchuk & Spamann, *supra* note 10, at 281 (“Compensation structures shape the incentives of those actually making the decisions on behalf of banks, namely bank executives. Pay structures that provide executives with powerful incentives to take risks, as current executive pay structures do, incentivize managers to work against the goals of prudential regulation.”); John Thanassoulis, *The Case*

the effect on compensation of the competition among financial firms to hire non-executives. That effect is significant. Banks must adjust their incentives, in line with their competitors, in order to attract or retain profitable employees. They often do so on the basis of short-term performance,¹⁴ since new employers are unable to assess how well a prospective hire will do over time—providing non-executives with a strong incentive to increase risk-taking and bootstrap returns in the short-term, so long as they can switch jobs before the consequences of their high-risk strategy materialize. Thus, notwithstanding the usual benefits of competition in efficiently allocating employees to profitable firms,¹⁵ competition also played an important role in diluting a bank manager’s ability to set non-executive pay, contributing to the rise in risk prior to the financial crisis.¹⁶ For non-executives, the rewards are reflected in the higher compensation a new employer will pay or an existing employer must pay in order to retain its profitable performers.¹⁷ In short, each bank’s effort to hire non-executives produces a negative externality—compensation is the result of market-wide demand for the same talent, and

for Intervening in Bankers’ Pay, 67 J. FIN. 849, 850 (2012) (“Individual bankers work under a risk control regime overseen by the CEO and the board of directors. Those senior executives can control bank risk through their policies on hedging, diversification, and asset allocation. Financial regulation exists to make sure that CEOs and boards properly exercise their duties to build structures allowing them to manage the risks taken by their employees.”).

¹⁴ Throughout this Article, we refer to “short-term” and “long-term” periods (or similar phrases) in relation to non-executive performance and compensation. Our purpose is only to signify successive periods over which employees perform or are paid without identifying particular lengths of time.

¹⁵ See *infra* notes 28–29 and accompanying text.

¹⁶ See *infra* notes 75–79, Figure 2, and accompanying text. Our focus on competition’s effect on compensation and risk-taking is not intended to exclude other factors that influence pay. For example, increases in compensation and risk-taking may also be the product of innovation waves when default rates are low, resulting in an increase in the size of the innovative sector, as well as risk-taking and the amounts that participants are paid. At its heart, increases resulting from innovation waves turn on information asymmetries and moral hazard, since investors are unable to fully assess how well the innovative sector is performing, how much risk is being incurred, or how much effort an individual participant invests in valuable projects. See Bruno Biais et al., *Innovation, Rents and Risk* 3–4 (De Nederlandsche Bank, Working Paper No. 356, 2012), available at <http://ssrn.com/abstract=2171740>.

¹⁷ See Bannier et al., *supra* note 10, at 655, 679. As the *Financial Times* described it,

Banks operate in a world where their star talent is apt to jump between different groups, whenever a bigger pay-packet appears, with scant regard for corporate loyalty or employment contracts. The result is that the compensation committees of many banks feel utterly trapped. . . . [A]s [one senior financial executive] says: “These bonuses are crazy—we all know that. But we don’t know how to stop paying them without losing our best staff.”

Gillian Tett, *What Bankers Can Learn from Chelsea Football Club*, FIN. TIMES ASIA EDITION 1 (London), Sept. 11, 2009, at 20, available at <http://www.ft.com/intl/cms/s/0/03988992-9e6a-11de-b0aa00144feabdc0.html#axzz2RFNvwcoC>; see also Roy C. Smith, *Greed is Good*, WALL ST. J., Feb. 7-8, 2009, at W1, available at <http://online.wsj.com/article/SB123396915233059229.html#CX> (“You had to pay everyone well . . . because there was always someone trying to poach your best trained people, whom you didn’t want to lose even if they were not superstars.”). The result, as then-New York State Attorney General Andrew Cuomo noted, was that “compensation for bank employees [became] unmoored from the banks’ financial performance.” ANDREW M. CUOMO, N.Y. OFFICE OF THE ATTORNEY GENERAL, NO RHYME OR REASON: THE ‘HEADS I WIN, TAILS YOU LOSE’ BANK BONUS CULTURE 1 (2009), available at <http://www.ag.ny.gov/sites/default/files/press-releases/archived/Bonus%20Report%20Final%207.30.09.pdf>.

since hiring is based on short-term performance, greater risk-taking is rewarded without accounting for potential longer-term losses.¹⁸

Banks, therefore, face information and coordination problems. The information problem arises from the hiring bank's inability to assess a prospective employee's risk-adjusted results. The higher compensation it offers, based on short-term performance, helps set the industry standard for paying those employees.¹⁹ The coordination problem arises from bank efforts to hire non-executives from competitors. Each bank has a legitimate interest in hiring the best performers, but in doing so, it rewards employees who enhance short-term performance potentially at the expense of increased risk-taking and long-term losses.²⁰

We argue for three regulatory changes. First, reflecting change in the financial markets, regulators should expand their assessment of compensation beyond individual banks to include the effect of competition on market-wide levels of pay, including the broader range of participants who now compete with banks for talent.²¹ Second, certain of a bank's non-executives should be restricted from moving to other financial employers (including banks, insurance companies, broker-dealers, and hedge funds) for a period of time after leaving the bank, subject to defined exceptions. A mandatory "garden leave" period²² will increase the cost of departure, as well as permit successor employers to better assess a prospective hire's performance, helping balance a non-executive's incen-

¹⁸ See Viral V. Acharya et al., *Seeking Alpha: Excess Risk Taking and Competition for Managerial Talent* 2, 4 (Nat'l Bureau of Econ. Research, Working Paper No. 18891, 2013), available at <http://www.nber.org/papers/w18891>; Acharya et al., *supra* note 10, at 3. The Treasury Department, the Fed, and the FDIC noted the effect of compensation on long-term risk-taking during the period leading up to the 2007 financial crisis:

[O]ffering large payments to managers or employees to produce sizable increases in short-term revenue or profit—without regard for the potentially substantial short or long-term risks associated with that revenue or profit—can encourage managers or employees to take risks that are beyond the capability of the financial institution to manage and control.

Flawed incentive compensation practices in the financial industry were one of many factors contributing to the financial crisis that began in 2007. Banking organizations too often rewarded employees for increasing the organization's revenue or short-term profit without adequate recognition of the risks the employees' activities posed to the organization.

Compensation Guidance, *supra* note 7, at 36,396; see also FSF PRINCIPLES, *supra* note 7, at 1 (noting the same).

¹⁹ See *infra* notes 71–74 and accompanying text.

²⁰ See *infra* notes 75–79 and accompanying text.

²¹ See *infra* notes 132–139 and accompanying text.

²² "Garden leave" is a U.K.-originated employment practice that has become increasingly common in the United States, often as a substitute for a covenant not to compete. Under a garden leave provision, an employee is required to give her employer advance notice of her intention to depart, but must serve out a period of time at home (or "in the garden") before starting a new job. The employee receives all salary and benefits (but not bonus) during the period. See Timothy J. Perri, *Garden Leave vs. Covenants Not to Compete*, 6 REV. L. & ECON. 167, 167–68 (2010); Jeffrey S. Klein & Nichols J. Pappas, 'Garden Leave' Clauses in Lieu of Non-Competes, N.Y. L.J., Feb. 5, 2009, at 3.

tives for short-term risk-taking.²³ Third, new employers should be restricted from compensating a new hire for that portion of the compensation she received from her prior employer that was tied to long-term performance.²⁴

We also discuss the value of a mandatory compensation cap that is more robust than the measure proposed in the European Union.²⁵ Although a cap can help lower risk-taking incentives, it is unlikely to fully address the effects of competition on compensation. If one is adopted, it should be coupled with the other proposals made in this Article.

To be clear, our goal is not to set an optimal, one-size-fits-all pay structure. Banks are diverse, suggesting that compensation—to be effective in helping manage risk—must take account of the circumstances of each individual firm.²⁶ Rather, we argue, an approach to regulating pay that focuses on individual banks without also taking account of the competition for talent is unlikely to be adequate in addressing the risk-taking incentives that arose prior to the 2007 financial crisis. That competition will continue to distort individual efforts to craft compensation that aims to minimize incentives to incur excessive risk.²⁷

We lay out our basic claim in Part I—namely, that non-executive pay in the financial markets is largely set by the competitive demand for talent, typically based on short-term performance, creating a strong incentive for employees to increase short-term risk-taking in order to bootstrap results. Part II sets out empirical findings in support of our theoretical claims. First, we show that bank non-executive compensation before the financial crisis (2003–2006) was linked to short-term performance, and this contributed to the increased bank risk and reduced bank value that occurred during the financial crisis (2007–2009). Second, we identify the impact of market factors (rather than individual banks) on non-executive incentives and, in turn, on bank risk-taking and bank values. Finally, in Part III, we outline regulatory changes that would help address the problems that result from competition’s effect on compensation.

I. COMPETITION AND COMPENSATION

Firms generally benefit from the competition for talent. Employers must determine which prospective hires are most likely to excel. Sorting the best candidates can be difficult, because information is often asymmetric and incomplete. Thus, when deciding who to hire, employers often rely on signals of quality—for example, selecting those with the strongest reputational, career, and educational credentials, each of which provides some evidence of ability that, on average, is positively associated with better perfor-

²³ See *infra* notes 148–155 and accompanying text.

²⁴ See *infra* notes 156–164 and accompanying text.

²⁵ See *infra* notes 140–147 and accompanying text.

²⁶ See Compensation Guidance, *supra* note 7, at 36,397.

²⁷ See *infra* notes 126–129 and accompanying text.

mance.²⁸ Competition across those signals helps allocate the best managers to the largest and most complex—and, often, the most challenging—firms to manage.²⁹

Competition, however, has a potential downside. For competition to arise, the firms must be relatively homogeneous, sharing a substantial overlap in the skills and qualities that make employees valuable.³⁰ Thus, firms that benefit by hiring talent from others can also have their own employees hired by someone else.³¹ Since the best hires—those with the strongest signals—can switch jobs easily, compensation levels are influenced by what others, not just a current employer, will pay. Outside job options, consequently, limit an employer's ability to manage its own employees.³²

That version of employment differs from the standard framing within traditional economic theory. Adam Smith's invisible hand,³³ for example, is premised on a world where markets generate competitive prices, buyers and sellers maximize their respective utilities, and the parties' exchange determines the optimal allocation of resources.³⁴

²⁸ See Antonio Falato et al., Which Skills Matter in the Market for CEOs? Evidence from Pay for CEO Credentials 2–3 (Apr. 1, 2013) (unpublished manuscript), available at <http://ssrn.com/abstract=1699384>. But see Sanjai Bhagat et al., CEO Education, CEO Turnover, and Firm Performance 4 (Sept. 27, 2010) (unpublished manuscript), available at <http://ssrn.com/abstract=1670219> (finding no evidence of a systematic relationship between CEO education and long-term company performance). Growing competition for talent can create significant disparities in compensation between “superstars” and others. See Sherwin Rosen, *The Economics of Superstars*, 71 AM. ECON. REV. 845, 846–47 (1981).

²⁹ See Falato et al., *supra* note 28, at 3 (CEOs). Compensation for non-executive bank employees suggests that competing employers similarly struggle to identify the more talented. See Bannier et al., *supra* note 10, at 654–55. The positive correlation between CEO pay and firm size, see, e.g., Alex Edmans et al., *A Multiplicative Model of Optimal CEO Incentives in Market Equilibrium*, 22 REV. FIN. STUD. 4881, 4882–83 (2009); Xavier Gabaix & Augustin Landier, *Why Has CEO Pay Increased so Much?*, 123 Q. J. ECON. 49, 50–51 (2008), is consistent with the role that competition plays in sorting managerial candidates. The relationship, however, may only be a recent phenomenon; executive compensation remained fairly flat from the mid-1940s to the mid-1970s, even though firms grew considerably over the same period. See Carola Frydman & Raven E. Saks, *Executive Compensation: A New View from a Long-Term Perspective, 1936–2005*, 23 REV. FIN. STUD. 2099, 2100 (2010). Part of the shift may reflect changes in management, as growth in the importance of general (over firm-specific) skills increased the competition for senior executives, like CEOs. See Carola Frydman, *Rising Through the Ranks: The Evolution of the Market for Corporate Executives, 1936–2003* 2 (Nov. 18, 2005) (unpublished manuscript), available at http://web.mit.edu/frydman/www/frydman_market%20for%20executives.pdf.

³⁰ See Robert Parrino, *CEO Turnover and Outside Succession: A Cross-Sectional Analysis*, 46 J. FIN. ECON. 165, 179 (1997) (“evidence suggests that industry-specific human capital is highly valued in most industries”).

³¹ See K.J. Martijn Cremers & Yaniv Grinstein, *Does the Market for CEO Talent Explain Controversial CEO Pay Practices?* REV. FIN. (forthcoming) (manuscript at 5–6), available at http://ssrn.com/abstract_id=1108761.

³² See *id.*; Roland Bénabou & Jean Tirole, *Bonus Culture: Competitive Pay, Screening, and Multitasking* 1–2 (Nat'l Bureau of Econ. Research, Working Paper No. 18936, 2013), available at <http://www.nber.org/papers/w18936>.

³³ In his seminal work, Adam Smith characterized the virtues of a free-market economy where individuals selfishly interact among themselves. See generally ADAM SMITH, *THE WEALTH OF NATIONS* (Simon & Brown 2010) (1776).

³⁴ The analytical characterization of Smith's “invisible hand” is represented by the First Welfare Theorem, which states that a competitive equilibrium (the equilibrium outcome which arises when

Employee compensation in that world reflects the marginal product of labor; employees who contribute to profitability are paid more, and those who misbehave are penalized.³⁵ Consequently, no employee has an interest in misbehaving, because information is symmetric and complete—employers observe whether an employee benefits the firm or not, and compensation reflects that information.³⁶ Compensation design is less important, since competition and symmetric information always lead to an optimal outcome.

Information, in fact, is often asymmetric and incomplete, which explains why incentive theory is at center stage in modern economic analyses.³⁷ The starting point is the classic principal-agent model in which an agent (the employee) acts on behalf of a principal (the employer), the agent's incentives differ from the principal's, and there is a cost to screening the agent or monitoring its actions.³⁸ Within this setting, the model identifies two crucial problems. The first is one of adverse selection, due to the employer's inability to observe the employee's characteristics (sometimes referred to as the employee's "type").³⁹ The second is moral hazard, which arises when the principal

consumers maximize their utility and firms maximize their profits) is also Pareto optimal. For an analysis of the First Welfare Theorem within the context of a general equilibrium, see ANDREU MAS-COLELL ET AL., *MICROECONOMIC THEORY* 549–50 (1995).

³⁵ Under general equilibrium, each agent sells his labor at a price that equals the marginal product of labor within the production function. For a mathematical discussion, see HAL R. VARIAN, *MICROECONOMIC ANALYSIS* 146 (3rd ed. 1992).

³⁶ With perfect information, there is no room for an agent to act opportunistically. The agent's misbehavior will always be detected, making opportunism irrational. See Bengt Holmstrom, *Moral Hazard and Observability*, 10 *BELL J. ECON.* 74, 74 (1979).

³⁷ When information is asymmetric, the individuals may not have incentives to exchange. In his seminal work, George Akerlof showed that when one side of the market is made of both *good* and *bad* agents and the distribution of the bad agents is relatively high, the other side of the market may prefer to stop exchanging goods or services. This leads to a market breakdown. See George A. Akerlof, *The Market for "Lemons": Quality Uncertainty and the Market Mechanism*, 84 *Q. J. ECON.* 488, 490 (1970); see also Bruce C. Greenwald & Joseph E. Stiglitz, *Externalities in Economies with Imperfect Information and Incomplete Markets*, 101 *Q. J. ECON.* 229 (1986) (discussing how different forms of asymmetric information lead to market breakdown). The economic scholarship on asymmetric information is immense and has pervaded most of the economic debates over the last forty years. See generally Joseph E. Stiglitz, *The Contributions of the Economics of Information to Twentieth Century Economics*, 115 *Q. J. ECON.* 1441 (2000).

³⁸ Screening and monitoring are activities that a principal can perform in order to reduce the amount of private information about the agent. The seminal contribution on screening studies its role in the insurance market. See Michael Rothschild & Joseph Stiglitz, *Equilibrium in Competitive Insurance Markets: An Essay on the Economics of Imperfect Information*, 90 *Q. J. ECON.* 629, 639, 643 (1976). Monitoring involves the collection and processing of both forward- and backward-looking information about the agent. See JEAN TIROLE, *THE THEORY OF CORPORATE FINANCE* 334–35 (2006).

³⁹ Adverse selection typically arises when there is a seller and a buyer, and the seller does not know how much the buyer is willing to pay for a good. In this environment, the principal (the seller) does not know the characteristics of the agent (the buyer). See PATRICK BOLTON & MATHIAS DEWATRIPONT, *CONTRACT THEORY* 47–48 (2005). Other examples appear in MAS-COLELL ET AL., *supra* note 34, at 436–37, including (i) when a firm hires a worker and does not know the worker's ability and (ii) when an automobile insurance company insures a car and the driver has private information about her risk propensity. In those contexts, the agent may have private information, meaning that she knows her own type, while the principal knows only the type's distribution. See JEAN-JACQUES LAFFONT & DAVID MARTIMORT, *THE THEORY OF INCENTIVES: THE PRINCIPAL-AGENT MODEL* 36 (2002).

cannot monitor the employee's actions.⁴⁰ Compensation design is important in this world, because it aims to align principals and agents by providing agents with incentives to act in the principal's interest.⁴¹

Importantly, the model assumes that principals and agents interact solely within a bilateral relationship—one that involves only a principal and an agent, but without interaction among principals. That is also the case with dynamic principal-agent models in which an agent has an outside option (for example, another job offer) and, through negotiation, the principal designs a contract to match the agent's other opportunities.⁴² There, again, principals interact strategically with agents, and vice versa, but not among themselves.⁴³

That limitation is relaxed within a common agency model in which a number of principals compete for a common agent's services. Under this model, each principal has an incentive to offer the agent a contract (such as a pay package) that makes the others' contracts less appealing.⁴⁴ As part of a dynamic process, the employee can also use com-

⁴⁰ As described in LAFFONT & MARTIMORT, *supra* note 39, at 145, "By the mere fact of delegation, the principal often loses any ability to control those actions [of the agent] that are no longer observable Those actions cannot be contracted upon because no one can verify their value. In such cases we will say that there is moral hazard." Moral hazard involves effort choices and risk choices by an agent that take place at the same time. See Simone Sepe, *Making Sense of Executive Compensation*, 36 DEL. J. CORP. L. 189, 196–207 (2011) (noting that, with respect to moral hazard, fixed compensation schemes may be more desirable when the risk choice is dominant). Effort choices involve the choice by the agent of a given level of effort intensity which affects her performance. See BOLTON & DEWATRIPONT, *supra* note 36, at 129. Moral hazard arises because effort is costly to the agent, who may then have incentives to exercise suboptimal effort. The other aspect of moral hazard concerns risk choices, since the agent also chooses the level of risk she is willing to assume on behalf of the principal. Like suboptimal effort, suboptimal risk-taking (which may include excessive risk-taking or insufficient risk-taking) affects the principal's welfare. See Bruno Biais & Catherine Casamatta, *Optimal Leverage and Aggregate Investment*, 54 J. FIN. 1291, 1293 (1999). For a discussion of moral hazard and its negative consequences in corporate finance contexts, see Bengt Holmstrom & Jean Tirole, *Financial Intermediation, Loanable Funds, and the Real Sector*, 112 Q. J. ECON. 663 (1997).

⁴¹ In law and economics jargon, the cost of the incentives to the principal corresponds to the information (or agency) rents he must pay the agent. See TIROLE, *supra* note 38, at 117. More generally, the amount of the agency rent left to the agent is analytically determined when the incentive scheme offered by the principal satisfies two constraints. The first is the so-called *incentive compatibility constraint*, which is satisfied when the principal's contract successfully realigns the parties' incentives by paying the agent an amount (information rent) that is equivalent to the monetary benefits the agent would extract by behaving opportunistically. The second is the *individual rationality constraint* (or *participation constraint*), which is satisfied when the contract induces the agent to voluntarily enter into the contractual relationship, that is, when participation rewards the agent by an amount at least equal to her reservation utility. For an analytical description, see LAFFONT & MARTIMORT, *supra* note 39, at 36–37.

⁴² See Jonathan Levin, *Relational Incentive Contracts*, 93 AM. ECON. REV. 835, 836 (2003) ("[E]ach party has the option to walk away, [thus] the gap between the highest and the lowest payments promised as a function of performance cannot exceed the present value of the relationship.").

⁴³ Michael Rothschild and Joseph Stiglitz were the first to analyze strategic interaction among principals in the context of adverse selection. See Rothschild & Stiglitz, *supra* note 38, at 637 (showing that competition among principals can result in no equilibrium).

⁴⁴ See B. Douglas Bernheim & Michael D. Whinston, *Common Agency*, 54 ECONOMETRICA 923, 925 (1986). For more recent articles, see, e.g., Avinash Dixit et al., *Common Agency and Coordination*, 105 J.

petition among current and future employers to her advantage. She can negotiate higher compensation with one employer by threatening to take a competitor's offer.⁴⁵ In addition, by anticipating others' interests in hiring the employee, the original employer has an incentive to redesign (and enhance) the pay package it originally offers. The result is an escalation in pay, as well as an increase in the number of contracts that fail to align principal and agent interests.⁴⁶

The common agency model is the most similar to our analysis of non-executive bank compensation. First, as Section A describes next, banks routinely compete for employees who are best able to create and sell financial products and services. Growing homogeneity in the financial markets has resulted in intense competition for talent, benefiting firms that can attract new employees, but also raising compensation levels in line with market demand. Second, as Section B describes, how well a bank does tends to depend on employee performance, which makes moral hazard (in the form of excessive risk-taking) a critical problem.⁴⁷ Greater risk can enhance short-term performance, making a non-executive more attractive to prospective employers—and, by switching jobs, she can avoid the later consequences of the risks she assumes. Competition, therefore, undercuts the ability of any one employer to design a pay package that offsets the employee's interest in incurring risk. As the common agency model anticipates, the result is likely to be a rise in compensation accompanied by incentives that encourage the

POL. ECON. 752 (1997); David Martimort, *Multi-Contracting Mechanism Design*, in 1 ADVANCES IN ECONOMICS AND ECONOMETRICS 57 (Richard Blundell et al. eds., 2006) (providing a detailed survey of prior common agency studies and highlighting the crucial importance of principals' coordination); David Martimort & Lars Stole, *The Revelation and Delegation Principles in Common Agency Games*, 70 ECONOMETRICA 1659 (2002); Michael Peters, *Common Agency and the Revelation Principle*, 69 ECONOMETRICA 1349 (2001). Under a common agency model, competition is reframed as a condition under which the parties' strategic interaction leads to the production of reciprocal externalities, because no principal can observe what the other principals are contracting with the agent. See Ilya Segal & Michael D. Whinston, *Robust Predictions for Bilateral Contracting With Externalities*, 71 ECONOMETRICA 757, 758–59 (2003). For a discussion of common agency in the context of corporations, see Simone M. Sepe, *Corporate Agency Problems and Dequity Contracts*, 36 J. CORP. L. 113, 128–33 (2010).

⁴⁵ For example, when the principals compete on the basis of price, the agent, by exploiting that competition, can earn rents from her monopoly power over the principals (in addition to normal agency rents). The strategic interaction induced by price competition is discussed in MAS-COLELL ET AL., *supra* note 34, at 388–89.

⁴⁶ For example, assume that Employer A offers an Employee a pay package whose returns are entirely tied to realized performance. If the Employee's performance is related to her level of effort, the contract will provide the Employee with the right incentives to exert adequate effort. Assume also that Employer B is willing to offer the Employee a contract including both a fixed compensation component (unrelated to the Employee's level of effort) and a performance-based component. Further, assume that Employer B's contract delivers the same expected returns as Employer A's contract. Under those circumstances, so long as the Employee can switch employers, the original Employer A contract will no longer be desirable. That is because the Employee will receive the same amount under Employer B's contract while avoiding the cost of exerting effort. Anticipating this, Employer A will redesign the original pay package it offers to the Employee, with Employer B also responding in kind, and so forth. See *infra* notes 74–88 and accompanying text.

⁴⁷ See Biais & Casamatta, *supra* note 40, at 1292–93 (showing that when risk is taken together with effort, the principal may not be able to determine whether the performance is mainly due to risk or effort); see also TIROLE, *supra* note 38, at 314–18 (modeling incentives to control the mix of risk-taking and effort).

agent to continue to engage in excessive risk-taking. The inability of firms to coordinate provides the basis for our proposals in Part III on new regulation to address the potential effect of competition on compensation and risk-taking.

A. *Competition in the Financial Markets*

The U.S. financial markets were divided by regulation into separate categories following the Great Depression, largely in response to perceived abuses leading up to the economic collapse of the late 1920s.⁴⁸ The Glass-Steagall Act,⁴⁹ for example, created a regulatory divide between commercial and investment banking.⁵⁰ Twenty years later, the Bank Holding Company Act⁵¹ extended that separation by walling off banks from the underwriting of insurance products.⁵²

Those regulations began evolving in the 1950s in response to change in the financial markets as new financial practices appeared⁵³ and banks became less competitive than other intermediaries.⁵⁴ Regulators, for example, began to loosen their interpretation

⁴⁸ See Gary Gorton, *Bank Regulation When ‘Banks’ and ‘Banking’ Are Not the Same*, OXFORD REV. ECON. POL’Y, Winter 1994, at 106, 107 (describing historical definition of banks); Roberta S. Karmel, *The Challenge to Financial Regulators Posed by Social Security Privatization*, 64 BROOK. L. REV. 1043, 1056–57 (1998) (describing definitional distinctions that control regulatory oversight); Franklin Allen & Douglas Gale, *Capital Adequacy Regulation: In Search of a Rationale* 3 (Wharton Fin. Institutions Ctr., Working Paper No. 03-07, 2002), available at <http://fic.wharton.upenn.edu/fic/papers/03/0307.pdf>; see also John C. Coffee Jr. & Hillary A. Sale, *Redesigning the SEC: Does the Treasury Have a Better Idea?*, 95 VA. L. REV. 707, 717–19 (2009) (suggesting that regulation tied to business model is durable); Heidi Mandanis Schooner & Michael Taylor, *United Kingdom and United States Responses to the Regulatory Challenges of Modern Financial Markets*, 38 TEX. INT’L L.J. 317, 328–29 (2003) (noting that U.S. regulation remains largely tied to business models despite support for a functional approach). As a result, financial regulation has been premised on decades-old business models—from the 1930s for banks, securities firms, and thrifts, and from the 1940s for investment advisors and mutual funds. For a description of the types of financial intermediaries, see Robert Charles Clark, *The Federal Income Taxation of Financial Intermediaries*, 84 YALE L.J. 1603, 1605–08 & nn.1–21 (1975), and Howell E. Jackson, *Regulation in a Multisectoral Financial Services Industry: An Exploratory Essay*, 77 WASH. U. L. Q. 319, 322–31 (1999).

⁴⁹ Banking Act of 1933, Pub. L. No. 73-66, 48 Stat. 162 (codified as amended in scattered sections of 12 U.S.C.). The barrier between banking and investment banking was largely repealed by the Financial Services Modernization Act of 1999, also known as the Gramm-Leach-Bliley Act. See Pub. L. No. 106-102, §§ 501–505, 506(c), 507–509, 113 Stat. 1338, 1436–43 (current version at 15 U.S.C. §§ 6801–6809 (2006)); §§ 521–527, 113 Stat. at 1446–50 (codified at 15 U.S.C. §§ 6821–6827 (2006)).

⁵⁰ See § 16, 48 Stat. at 184–85 (current version at 12 U.S.C. § 24 (2006)); § 20, 48 Stat. at 188–89 (repealed 1999); § 21, 48 Stat. at 189 (current version at 12 U.S.C. § 378(a) (2006)); § 32, 48 Stat. at 194 (repealed 1999); James R. Smoot, *Bank Operating Subsidiaries: Free at Last or More of Same?*, 46 DEPAUL L. REV. 651, 655–56 (1997).

⁵¹ Bank Holding Company Act of 1956, ch. 240, 70 Stat. 133 (current version at 12 U.S.C. §§ 1841–1844, 1846–1850 (2006)).

⁵² See Alan E. Sorcher & Satish M. Kini, *Does the Term “Bank Broker-Dealer” Still Have Meaning?*, 6 N.C. BANKING INST. 227, 231 (2002).

⁵³ See Donald C. Langevoort, *Statutory Obsolescence and the Judicial Process: The Revisionist Role of the Courts in Federal Banking Regulation*, 85 MICH. L. REV. 672, 677–80 (1987); *id.* at 233.

⁵⁴ See Franklin Allen & Anthony M. Santomero, *The Theory of Financial Intermediation*, 21 J. BANKING & FIN. 1461, 1464–74 (1997); Richard J. Herring & Anthony M. Santomero, *What is Optimal*

of permissible activities under the Glass-Steagall Act and the Bank Holding Company Act when banks became interested in offering new products and services.⁵⁵

That change accelerated in the 1970s and 1980s⁵⁶ with increased competition across intermediaries and categories,⁵⁷ as well as a shift in capital-raising from traditional intermediation to lower-cost alternatives, in many cases in the capital markets.⁵⁸ For banks, new regulatory capital requirements made it more costly to continue the lending business as they had before, causing them to shift resources away from businesses that generated interest income toward new sources of revenue, such as securitization and trading in the capital markets.⁵⁹ Banks also experienced a decline in market share within the traditional lending business—often losing ground to less-regulated competitors as the securities markets became a lower cost source of capital and risk-bearing.⁶⁰

The result was convergence in the financial markets. Non-bank participants began to compete with banks, in some cases introducing new products and services that replicated those of traditional intermediaries, but now were offered by new entities or through the capital markets. A classic example is the rise of money market funds (MMFs) and finance companies that together began to offer products and services similar to what banks offered, but at competitive prices, drawing away substantial numbers of depositors and borrowers from the banking industry. MMFs are required by the federal securities laws to invest in short-term, liquid, high-quality debt instruments, such as

Financial Regulation? 29–35 (Wharton Fin. Institutions Ctr., Working Paper No. 00-34, 1999), available at <http://fic.wharton.upenn.edu/fic/papers/00/0034.pdf>.

⁵⁵ See Thomas G. Fischer et al., *The Securities Activities of Commercial Banks: A Legal and Economic Analysis*, 51 TENN. L. REV. 467, 474–502 (1984); Sorcher & Kini, *supra* note 52, at 233–34.

⁵⁶ See KERRY COOPER & DONALD R. FRASER, *BANKING DEREGULATION AND THE NEW COMPETITION IN FINANCIAL SERVICES* 195–217 (1st ed. 1984); *see also* ROBERT E. LITAN, *WHAT SHOULD BANKS DO?* 33–59 (1987) (noting importance of changes at the state level); Allen N. Berger et al., *The Transformation of the U.S. Banking Industry: What a Long, Strange Trip It's Been*, BROOKINGS PAPERS ON ECON. ACTIVITY, 1995 No. 2, at 55, 127 (1995) (summarizing changes from 1979 onward).

⁵⁷ See COOPER & FRASER, *supra* note 56, at 2–17; *see also* LOWELL L. BRYAN, *BREAKING UP THE BANK: RETHINKING AN INDUSTRY UNDER SIEGE* 22–28 (1988) (focusing on banks and thrifts); Franklin Allen & Anthony M. Santomero, *What Do Financial Intermediaries Do?*, 25 J. BANKING & FIN. 271, 274–82 (2001) (showing how competition evolved through the 1990s); Michael C. Keeley, *Deposit Insurance, Risk, and Market Power in Banking*, 80 AM. ECON. REV. 1183, 1184–86 (1990) (discussing the relationship between competition, risk-taking, and bank and thrift failures); Sorcher & Kini, *supra* note 52, at 232–34 (surveying the development of the competition).

⁵⁸ See Ronald J. Gilson & Charles K. Whitehead, *Deconstructing Equity: Public Ownership, Agency Costs, and Complete Capital Markets*, 108 COLUM. L. REV. 231, 244–47 (2008); *see also* Berger et al., *supra* note 56, at 68–70 (predicting changes in bank lending patterns); Merton H. Miller, *Financial Innovation: The Last Twenty Years and the Next*, 21 J. FIN. & QUANTITATIVE ANALYSIS 459, 459–60 (1986) (suggesting innovations were primarily driven by regulation and tax structures); Peter Tufano, *Financial Innovation*, in 1A HANDBOOK OF THE ECONOMICS OF FINANCE 307, 310–12 (George M. Constantinides et al. eds., 2003) (noting the ubiquity of innovations over time and the difficulty classifying them).

⁵⁹ See Kevin J. Stiroh, *Diversification in Banking: Is Noninterest Income the Answer?*, 36 J. MONEY, CREDIT & BANKING 853, 853–55 (2004); Smoot, *supra* note 50, at 654–60; DeYoung et al., *supra* note 5, at 8–11.

⁶⁰ See Allen & Santomero, *supra* note 54, at 1466–74; Herring & Santomero, *supra* note 54, at 27–30.

Treasury bills and commercial paper.⁶¹ They offer investors the convenience of a bank account, including checking services, toll-free telephone numbers, record-keeping, and wire transfers, but with nominally higher returns than bank deposits.⁶² Finance companies, in turn, lend to business and retail borrowers, relying on MMFs for funding through the sale to them of short-term commercial paper.⁶³ Together, MMFs and finance companies began to mirror the traditional balance between depositors and borrowers within banks—but now between MMFs and finance companies—resulting in a substantial shift in liquid household assets from the banking sector to the capital markets.⁶⁴

Banks modified their business models in response, partly to minimize regulatory costs. For example, during the twenty years leading up to the 2007 financial crisis, the asset-backed securities market was fueled by the drive toward lower-cost financing. Banks reportedly were forced to move subprime assets off their balance sheets in light of the higher costs they incurred compared to securities firms. As a result, assets traditionally held by banks moved to a “shadow” banking system comprised of structured investment vehicles and other financing conduits set up to minimize the effect of regulatory capital requirements.⁶⁵

In addition, banks began to apply traditional banking skills to new businesses. Market-making is one example.⁶⁶ A market-maker trades securities as principal on either side of the market, as both buyer and seller of the same securities. If there are more buyers than sellers, or vice versa, the market-maker must adjust its inventory in response to customer demand, as well as change the bid-ask prices in order to rebalance order flow.⁶⁷ In that respect, market-makers mirror a classic bank function: both span the

⁶¹ See 17 C.F.R. § 270.2a–7 (2012); see also MONEY MARKET WORKING GROUP, INVESTMENT COMPANY INSTITUTE, REPORT OF THE MONEY MARKET WORKING GROUP 31–39 (2009), available at http://www.ici.org/pdf/ppr_09_mmwg.pdf (describing regulation of MMFs).

⁶² See FRANKLIN R. EDWARDS, *THE NEW FINANCE REGULATION AND FINANCIAL STABILITY* 16 (1996).

⁶³ See Jane W. D’Arista & Tom Schlesinger, *ECON. POLICY INST., THE PARALLEL BANKING SYSTEM* 3–4, 7–14 (1993).

⁶⁴ See EDWARDS, *supra* note 62, at 73–74; D’Arista & Schlesinger, *supra* note 63, at 3–4, 7–14.

⁶⁵ See Floyd Norris, *No Way To Make A Loan*, N.Y. TIMES, Oct. 19, 2007, at C1; Timothy F. Geithner, President and Chief Exec. Officer, Fed. Reserve Bank of N.Y., *Reducing Systemic Risk in a Dynamic Financial System* (June 9, 2008), available at <http://www.newyorkfed.org/newsevents/speeches/2008/tfg080609.html>; see also Aaron Unterman, *Innovative Destruction—Structured Finance and Credit Market Reform in the Bubble Era*, 5 HASTINGS BUS. L.J. 53, 59 (2009). As Representative Barney Frank recalled, former Citigroup Chairman and CEO, Chuck Prince, told him that off-balance sheet financing was necessary because on-balance sheet financing “would have put Citigroup at a disadvantage with Wall Street investment banks that were more loosely regulated and were allowed to take far greater risks.” Nelson D. Schwartz & Julie Creswell, *What Created This Monster? Yes, the Markets Can Bite Back*, N.Y. TIMES, Mar. 23, 2008, at BU1.

⁶⁶ See THE CITY UK, *BOND MARKETS 2010* 3 (2010), http://www.astrid-online.it/dossier--d1/eurobonds/the-city-UK_bond_markets_06_2010.pdf (noting that the U.S. bond market lacks a central exchange and instead operates through hundreds of market-makers).

⁶⁷ See Maureen O’Hara & George S. Oldfield, *The Microeconomics of Market Making*, 21 J. FIN. & QUANTITATIVE ANALYSIS 361, 361 (1986).

maturity gap between capital providers (who, as depositors or investors, expect liquidity) and capital users (who require longer-term stability).⁶⁸

Banks also entered new business lines. Since the 1980s, for example, banks began trading commodity derivatives—financial contracts whose values are linked to changes in the price of a referenced commodity, such as oil or iron ore. More recently, banks began to buy and sell the physical commodities underlying those derivatives—in some cases, requiring them to take ownership and delivery of the commodity itself—as an activity that was “complementary” to their derivatives business. Part of the shift reflected the banks’ interest in the business following a sharp rise in trading volume and the value of physical commodities beginning in the early 2000s. Part of it also reflected acquisitions that extended the reach of bank holding companies to businesses that engaged in traditional commodities trading.⁶⁹

Over time, market participants began to compete across financial categories using a variety of products and services, many of which did not exist thirty years ago.⁷⁰ The greater homogeneity meant that banks and non-banks also began to seek the same employees. The result, as described next, was a rise in the competition for talent—and,

⁶⁸ See OLIVER WYMAN INC., THE VOLCKER RULE—CONSIDERATIONS FOR IMPLEMENTATION OF PROPRIETARY TRADING REGULATIONS 9 (2011), <http://www.sifma.org/issues/item.aspx?id=22888> (report commissioned by the Securities Industry and Financial Markets Association). There are, of course, important differences between market-making and traditional banking. For example, a bank’s obligation is evidenced by a contract to pay a fixed return on demand; and a market-maker’s obligation is typically enforced through reputation, and price is not agreed in advance. Both, however, facilitate capital-raising by providing investors with liquidity—the ability to raise cash quickly—without interrupting the end-user’s longer-term employment of capital. See Hans R. Stoll, *Alternative Views of Market Making*, in MARKET MAKING AND THE CHANGING STRUCTURE OF THE SECURITIES INDUSTRIES 67, 81–82 (Yakov Amihud et al. eds., 1985) (noting that, from a functional standpoint, a market-maker’s services mirror those provided by financial intermediaries, such as banks, since the market-maker borrows short-term to finance long-term investments); see also Darrel Duffie, *The Failure Mechanics of Dealer Banks* 2 (Bank for Int’l Settlements, Working Paper No. 301, 2010), <http://www.bis.org/publ/work301.pdf> (describing depositors as individuals interested in short-term liquidity and borrowers as individuals looking for longer-term finance).

⁶⁹ In 2003, for example, following its acquisition of Salomon Brothers, Citigroup became the first bank holding company to obtain bank regulatory approval of its commodity-trading unit’s buying and selling of physical commodities. That approval included trading in commodities on the spot market, as well as taking and making physical delivery of commodities to settle commodity derivatives. See Dietrich Domanski & Alexandra Heath, *Financial Investors and Commodity Markets*, BIS Q. REV., Mar. 2007, 53, 65–66, available at <http://ssrn.com/abstract=1600058> (describing the rise of financial investors in the commodities market); Saule T. Omarova, *The Merchants of Wall Street: Banking, Commerce, and Commodities* 98 MINN. L. REV. (forthcoming 2013) (manuscript at 33–42), available at <http://papers.ssrn.com/abstract=2180647> (describing the growth of bank trading in physical commodities).

⁷⁰ See Gorton, *supra* note 48, at 116–18; Jonathan R. Macey, *Derivative Instruments: Lessons for the Regulatory State*, 21 J. CORP. L. 69, 78 (1995); Robert C. Merton, *Operation and Regulation in Financial Intermediation: A Functional Perspective*, in OPERATION AND REGULATION OF FINANCIAL MARKETS 17, 33–41 (Peter Englund ed., 1993). Some new regulation limits this competition. For example, section 619 of the Dodd-Frank Wall Street Reform and Consumer Protection Act, commonly known as the “Volcker Rule,” limits financial market competition (with some exceptions) by, among other things, prohibiting a “banking entity” from “engag[ing] in proprietary trading” or “acquir[ing] or retain[ing] any equity, partnership, or other ownership interest in or sponsor[ing] a hedge fund or private equity fund.” 12 U.S.C. § 1851(a)(1)(A)–(B) (Supp. V 2012).

like the competition for products and services, a market-wide shift by banks from their traditional business models.

B. Competition's Effects on Compensation and Risk-Taking

Before the financial markets began to converge, bankers were paid a largely fixed salary. Performance incentives were unnecessary, since competition among intermediaries was limited and bankers were not expected to seek substantial returns. That began to change as competition among financial market participants grew.⁷¹

How pay was set shifted from being an internal process to increasingly being directed by the marketplace—which included investment banks and, more recently, hedge funds—as individual firms adjusted what they paid in order to remain competitive.⁷² A banker's compensation also became tied to financial returns, providing new incentives to take risk. Assessments of performance were made on a relative basis. That resulted in even further risk-taking incentives, but now also the incentive to conceal the high-risk strategy from others—making it appear, in light of the higher returns, as if the risk-taker had outperformed her peers.⁷³

⁷¹ See Kevin J. Murphy, *Regulating Banking Bonuses in the European Union: A Case Study in Unintended Consequences* 4 (Univ. of S. Cal. Legal Studies, Working Paper No. 13-8, 2013), available at <http://ssrn.com/abstract=2235395> (noting that, as banks moved into investment banking, they “faced a growing tension between . . . traditional commercial bankers—paid high salaries with relatively little performance-based pay—and the professionals in its investment-banking divisions. Ultimately, commercial banks began offering investment-banking-type remuneration for top performers throughout the organization.”). The result was a substantial increase in financial sector compensation. From 1980 onwards, the financial sector became a high-skill and high-wage industry (compared to other sectors of the U.S. economy), in line with changes in regulation that permitted greater competition across the financial markets. See Thomas Philippon & Ariell Reshef, *Wages and Human Capital in the U.S. Finance Industry: 1909-2006*, 127 Q. J. ECON. 1551, 1552 (2012); see also Claudia Goldin & Lawrence F. Katz, *Transitions: Career and Family Lifecycles of the Educational Elite*, 98 AM. ECON. REV. 363, 366 (2008) (finding a rise in the percentage of Harvard graduates entering and remaining in the financial sector between the 1970s and 2000s).

⁷² As the Treasury Department, the Fed, and the FDIC noted when summarizing comments on the proposed Compensation Guidance:

Several commenters . . . expressed concern that the proposed guidance, if implemented, could impede the ability of banking organizations to attract or retain qualified staff and compete with other financial services providers. In light of these concerns, some commenters suggested that the guidance expressly allow banking organizations to enter into such compensation arrangements as they deem necessary for recruitment or retention purposes. A number of commenters also encouraged the Federal Reserve to work with other domestic and foreign supervisors and authorities to promote consistent standards for incentive compensation practices at financial institutions and a level competitive playing field for financial service providers.

Compensation Guidance, *supra* note 7, at 36,398.

⁷³ See RAGHURAM G. RAJAN, *FAULT LINES: HOW HIDDEN FRACTURES STILL THREATEN THE WORLD ECONOMY* 137-39 (2010) (explaining how bankers' search for “alpha” (excess returns) resulted in the undertaking of excessive risk); Raghuram G. Rajan, *Has Financial Development Made the World Riskier?*, in *THE GREENSPAN ERA: LESSONS FOR THE FUTURE* 313, 315-17 (2005).

For an employee, greater mobility and increased compensation—whether paid by a current or future employer—depends on the ability to demonstrate earnings potential. To do so, she has an incentive to incur risk in the short-term so long as any resulting losses are likely to materialize in the long-term (sometimes referred to as tail risk). The greater risk and corresponding return may prompt a short-term rise in performance and pay, even if the employee’s long-term results fall significantly short.⁷⁴

In a heterogeneous industry, where an employee’s outside job options are limited, the potential for negative long-term results is likely to weigh against the employee’s interest in pursuing a tail risk strategy. An employer is better able to assess performance if it can do so over the long-term and, based on those results, adjust compensation and responsibilities. That constraint weakens as the industry becomes more homogeneous and the employee can more easily move from one firm to another. In a more fluid labor market, an employee can jump to a competitor before any long-term risks (and related losses) materialize. In effect, having performed well in the short-term, the employee can move to a new employer—who is unable either to assess the risks a prospective hire took or differentiate hires who pursued a tail risk strategy from those who did not.⁷⁵ In that respect, the competition for talent lowers the natural constraint on risk-taking that long-term employment creates, making it difficult for an employer to unilaterally adjust compensation to reflect risk-taking and long-term outcomes.⁷⁶ In addition, if compensation is tied to short-term results, other employees—even if they are normally inclined to pursue less-risky strategies—are more likely to incur greater risk rather than underperform colleagues and potentially face a drop in pay.⁷⁷ Thus, notwithstanding competition’s benefits,⁷⁸ tying compensation to short-term performance, coupled with the ability of an employee to move to other firms, has costs—a negative externality that arises from each bank’s natural interest in luring strong performers from its competitors.⁷⁹

In Figures 1 and 2 below, we illustrate the upward pressure on compensation caused by the competition for talent and, in turn, the incentives for non-executives to

⁷⁴ See Bannier et al., *supra* note 10, at 655–56; Acharya et al., *supra* note 18, at 2, 4; see also Krishnan Sharma, *Financial Sector Compensation and Excess Risk-taking—a Consideration of the Issues and Policy Lessons* 2, 7 (U.N. Dep’t of Econ. & Social Affairs, Working Paper No. 115, 2012), available at http://www.un.org/esa/desa/papers/2012/wp115_2012.pdf (identifying asymmetries that created incentives for excess risk-taking).

⁷⁵ See Bannier et al., *supra* note 10, at 655–56; Acharya et al., *supra* note 18, at 2–3. An employee who seeks to conceal a tail risk strategy may pursue complicated projects that are difficult for an employer to monitor or jump to a new job before the risks are realized so that management of the projects moves to someone else. See Igor Makarov & Guillaume Plantin, *Rewarding Trading Skills Without Inducing Gambling* 1–3 (Apr. 2011) (unpublished manuscript), available at <http://ssrn.com/abstract=1571545> (describing the incentive of fund managers to incur risk without detection in order to manipulate reputations and attract more funds).

⁷⁶ See Bannier et al., *supra* note 10, at 655; Acharya et al., *supra* note 18, at 2–3; Bénabou & Tirole, *supra* note 32, at 1–2.

⁷⁷ See Rosen, *supra* note 28, at 846–47; see also *supra* note 73 and accompanying text on banks’ competitive hiring practices.

⁷⁸ See *supra* notes 28–29 and accompanying text.

⁷⁹ See Acharya et al., *supra* note 18, at 2; see also *infra* note 129 and accompanying text.

adopt a tail risk strategy. Figure 1 uses a basic coordination problem to illustrate the circumstances that favor greater risk-taking. Figure 2 highlights the pressure on compensation that results from competition for financial talent, in particular when a non-executive can move from one employer to another.

In Figure 1, for simplicity's sake, we assume there are three players: Bank 1, Bank 2, and the Employee. The Employee has a choice between two risk-taking strategies. In the left matrix, the Employee always adopts a *Low Risk* strategy, and in the right matrix, the Employee always adopts a *High Risk* (tail) strategy.⁸⁰ The Banks also have a choice between two strategies. Bank 1 and Bank 2 can each decide to *Cooperate* or *Compete*, with the outcomes reflected in the four cells contained in each matrix. In each case, Bank 1 and Bank 2 always *Cooperate* in the short-term, but (depending on the cell) they may continue to *Cooperate* or change their strategies to *Compete* in the long-term. This assumption reflects the likelihood that in the short-term the Banks are unlikely to compete for a given employee, because they are unable to evaluate her performance. Banks only compete for those Employees whose short-term performance has been successful. We also assume that: (i) a *Low Risk* strategy will yield a lower return for the Bank in the short-term than a *High Risk* strategy; (ii) a *High Risk* strategy, by yielding no return for the Bank, will underperform a *Low Risk* strategy in the long-term; and (iii) in general, neither Bank 1 nor Bank 2 is able to identify whether the Employee is *Low Risk* or *High Risk*. We relax some of those assumptions in Figure 2 below.⁸¹

Within each matrix, each cell reflects three possible outcomes—the first is for Bank 1, the second for Bank 2, and the third for the Employee. For each outcome, the first entry in gray is the short-term payoff, the second in gray is the long-term payoff, and the total payoff (combining short- and long-term payoffs) is in bold. For example, if the Employee is *High Risk*, and Bank 1 and Bank 2 *Compete*, the Bank 1 payoff (in the lower right cell of the right matrix) is 82 (comprised of a short-term payoff of 56 and a long-term payoff of 26), the Bank 2 payoff is 82, and the Employee payoff is 16.

When the Banks *Cooperate*, all decisions (including who to employ and how much to pay) are made in parallel; neither Bank competes for talent with the other. The Employee, as a result, remains with her current employer—which means she realizes both the short- and long-term consequences of her strategy.⁸² If both Banks *Compete*, the

⁸⁰ We define a *High Risk* strategy to be a business strategy adopted by a bank employee that exposes the bank to a level of risk-taking that is more likely to (i) lead to short-term gains that are greater than under a *Low Risk* strategy, but (ii) result in long-term gains (or even losses) sufficiently below the gains resulting from a *Low Risk* strategy to offset the short-term difference. A *Low Risk* strategy exposes the financial firm to a level of risk-taking that is more likely to (i) lead to short-term gains that are less than under a *High Risk* strategy and (ii) yield substantially similar long-term gains that are greater than the losses (or decline in gains) that would result from a *High Risk* strategy. See also *infra* note 83 and accompanying text.

⁸¹ See *infra* Figure 2 and accompanying text.

⁸² The case in which banks *Cooperate* in both the short-term and long-term can be interpreted as analogous to the heterogeneity in services that characterized the financial industry before the shift toward

Employee instead can move from her current employer to a competitor. The current employer may also raise the Employee's compensation in an effort to retain her. Hence, the result of greater competition is likely to be higher pay, either by the current or a future employer.

In principle, it might be possible for one Bank to *Compete* while the other *Cooperates*. As illustrated in Figure 1, however, this situation is unlikely to be sustained, since the *Competing* Bank would receive a higher payoff at the expense of the *Cooperating* Bank, causing the *Cooperating* Bank to then decide to *Compete*. Accordingly, the discussion below focuses only on two cases: when the Banks (*Cooperate, Cooperate*) and (*Compete, Compete*).

Figure 1: Employee High and Low Risk Strategies

| | | Bank 2 | | Bank 2 | |
|----------------|------------------|-------------------|-------------------|----------------------|-------------------|
| | | <i>Compete</i> | | <i>Cooperate</i> | <i>Compete</i> |
| Bank 1 | <i>Cooperate</i> | 50+50= 100 | 50+0= 50 | 56+30.5= 86.5 | 56+0= 56 |
| | | 50+50= 100 | 50+99= 149 | 56+30.5= 86.5 | 56+55= 111 |
| | | 5+5= 10 | 5+6= 11 | 7+0= 7 | 7+6= 13 |
| <i>Compete</i> | <i>Compete</i> | 50+99= 149 | 50+48= 98 | 56+55= 111 | 56+26= 82 |
| | | 50+0= 50 | 50+48= 98 | 56+0= 56 | 56+26= 82 |
| | | 5+6= 11 | 5+9= 14 | 7+6= 13 | 7+9= 16 |
| | | <i>Low Risk</i> | | <i>High Risk</i> | |
| | | Employee | | | |

The Employee can adopt one of two strategies with different short- and long-term outcomes. From a social perspective, a *Low Risk* strategy is desirable over a *High Risk* strategy. Consequently, the sum of the payoffs in the left *Low Risk* matrix (for each cell, totaling 210) is always greater than in the right *High Risk* matrix (totaling 180).⁸³ From the Employee's perspective, however, a *High Risk* strategy may be preferable if she can increase her share of total value (through greater compensation) by maximizing her returns in the short- and long-term, without realizing the negative effects of greater risk-taking.

In Figure 1, if Bank 1 and Bank 2 *Cooperate*, the Employee is more likely to adopt a *Low Risk* strategy. Under the circumstances, absent competition between the two Banks, the Employee would remain with her original employer. A *High Risk* strategy in that case yields greater compensation in the short-term (equal to 7, compared to a *Low Risk* strategy of 5), reflecting the Employee's greater short-term performance, but results in a significant drop in the long-term (equal to 0, compared to a *Low Risk* strategy of 5),

greater homogeneity and the resulting rise in the competition for talent. See *supra* notes 48–72 and accompanying text.

⁸³ See Bannier et al., *supra* note 10, at 679.

reflecting the losses incurred by her employer and what the Employee is paid as a result of those losses. With limited competition and job mobility, an Employee would be more likely to select a *Low Risk* strategy (5 + 5) over a *High Risk* strategy (7 + 0).

When, instead, Bank 1 and Bank 2 *Compete* in the long-term,⁸⁴ the Employee benefits by selecting a *High Risk* strategy. In that world, the Employee has job mobility; she can move from one Bank to another. She receives greater compensation in the short-term as a result of her initial *High Risk* strategy (equal to 7, compared to a *Low Risk* strategy that yields 5), but equal compensation in the long-term (9 in each case). She is paid more in the long-term when Bank 1 and Bank 2 *Compete* than when they *Cooperate* due to the pressure on each Bank to attract new staff. The Employee can move from Bank 1 to Bank 2, or vice versa, based on the strong short-term performance arising from her *High Risk* strategy. As a result, the Employee will be paid at least as much as if she stayed with her first employer (and may, in fact, get paid more than a lower-performing *Low Risk* Employee, particularly if her new employer must pay more to lure her away).

Figure 2 below further illustrates the relationship between *Employee Payoff* (compensation) and an employee's contribution to *Bank Performance*—the lower graph for the short-term and the upper graph for the long-term.⁸⁵ In particular, it illustrates the relationship between compensation and performance, and the effect of outside job options on the incentives of non-executives to take on greater risk.

⁸⁴ Figure 1 predicts such an outcome. *Compete* is the dominant strategy for both banks, which renders *Compete/Compete* the only equilibrium. See Richard H. McAdams, *Beyond the Prisoners' Dilemma: Coordination, Game Theory and Law*, 82 S. CAL. L. REV. 209, 216 (2009).

⁸⁵ *Bank Performance* refers to the Employee's contribution to the bank's revenues. Recall that, for the purposes of this Article, *Short-Term* and *Long-Term* refer to successive periods without identifying particular lengths of time. See *supra* note 14.

when the consequences of her *High Risk* strategy materialize at point D. In a competitive market, however, greater competition for talent increases Employee compensation as banks and other financial firms bid for high performers, shifting pay upward to the *New Contract*.⁸⁷

A *Low Risk* Employee with medium performance may be able to negotiate higher compensation at point E. More significantly, a *High Risk* Employee—due to the high level of *Bank Performance* in the short-term—can more easily switch jobs and, in turn, avoid the losses that result from her short-term *High Risk* strategy. So long as employers are unable to distinguish between *High Risk* and talented *Low Risk* Employees, both are likely to be paid the same for the same performance. Thus, if a *High Risk* Employee adopts the same *High Risk* strategy at her new employer, with the same high level of short-term *Bank Performance*, the result will be an increase in total pay from point D (the point where her compensation would have reflected her actual long-term losses) to point F. Greater competition and the ability of *High Risk* Employees to change jobs cause an upward pressure on compensation that fails to reflect the actual long-term results of the *High Risk* Employee at her first employer.

In addition, since a *Low Risk* strategy is more likely to underperform a *High Risk* strategy in the short-term, and since *Payoff* is determined by *Bank Performance* and not by levels of risk-taking, both less-talented and talented Employees have an incentive to pursue a *High Risk* strategy that increases the likelihood of higher compensation, at points C and F. Doing so, however, also increases the likelihood and expense of greater bank losses over the long-term.⁸⁸

The upshot is that growing competition for financial talent has distorted the relationship between compensation and performance. For long-term employees, incentives to incur excessive risk in the short-term are balanced by the risk of loss in the long-term. Outside job options, however, provide non-executives with the means to take on greater risk without facing the consequences—first, by improving short-term performance and, in turn, increasing compensation (either by current or future employers) and, second, by permitting them to bypass the long-term losses that result from excessive risk-taking. As a result, pay is no longer an internally set feature of employment. Instead, as we show empirically in the next Part, it is determined by market demands for new talent—in many cases based on short-term, high-risk results that cause an upward pressure on the amounts to be paid.

II. BANK COMPENSATION AND RISK-TAKING: EMPIRICAL ANALYSIS

In the preceding Part, we provided a theoretical explanation of the relationship between bank employee compensation and bank risk-taking. Banks, in a competitive labor market, are limited to short-term results in assessing a prospective hire's

⁸⁷ See Bannier et al., *supra* note 10, at 665–70 (showing that bonuses are increasing with competition for bank employees).

⁸⁸ See *supra* notes 73, 77 and accompanying text.

performance—without the ability to assess an employee’s level of risk-taking or its long-term effects.⁸⁹ The employee, in turn, has an incentive to maximize risk and enhance performance, so long as the full effects of the risk-taking do not materialize until later. The result is an industry-wide increase in compensation that fails to fully reflect an employee’s contribution to bank value. It encourages risk-taking by non-executives without incorporating the costs in what they are paid.⁹⁰

In this Part, we offer an empirical analysis of the effects of bank employee compensation on risk-taking and value.⁹¹ The empirical analysis below delivers two major results in support of our theoretical claims. First, it shows that bank non-executive compensation before the financial crisis (2003–2006) was linked to short-term performance, and this contributed to increased bank risk and reduced bank value during the financial crisis (2007–2009). Second, it highlights the effect of market factors, rather than individual bank factors, on non-executive incentives and, in turn, on bank risk-taking and bank values. We turn to those findings next.

A. Data

We collected information from several sources. Information regarding the balance sheets and income statements of bank holding companies was collected from the Bank Regulatory database of the Federal Reserve Bank of Chicago, which provides quarterly data. Data on executive compensation (salary, bonus, and stock) and executive incentives (*CEO Delta* and *CEO Vega*⁹²) were collected from the ExecuComp database. The measure of bank risk was retrieved from the Center for Research in Security Prices (University of Chicago) database. Additional information on control variables, not included in the Bank Regulatory database, was collected from the Compustat database.

Our sample, consisting of 77 banks, includes all U.S. bank holding companies for which information from the above databases was available from 2003 to 2009.⁹³

B. Variables

1. Independent Variables: Compensation Policies

The variables that affect compensation are determined by computing, for each bank, the average quarterly variation in non-executive employee bank compensation

⁸⁹ See *supra* notes 71–74 and accompanying text.

⁹⁰ See *supra* notes 75–79 and accompanying text.

⁹¹ The analysis in this Part is a reduced and modified version of the empirical analysis developed elsewhere, with one of us as co-author. See Acharya et al., *supra* note 10. One key difference is that this Article uses net income as a measure to estimate bank performance. Compare Acharya et al., *supra* note 10, at 8–9 (acknowledging the focus on total interest income in the main specifications) with *infra* note 94 and accompanying text.

⁹² These terms are defined *infra* at note 102.

⁹³ The complete list of bank holding companies constituting the sample used in the empirical analysis is available in Table 1 of Acharya et al., *supra* note 10.

relative to the quarter's variation in bank profits (as measured by net income).⁹⁴ This measure—computed on a quarterly basis during 2003–2006—captures the sensitivity of non-executive compensation to short-term bank performance.⁹⁵ More specifically, for each bank we estimated the following measures of compensation: (i) CASH COMP. INCENT.—computed as the quarterly variation of total salary, bonus, and net benefits compensation relative to the quarter's variation in bank profits; (ii) STOCK COMP. INCENT.—computed as the quarterly variation of the total payments in stock relative to the quarter's variation in bank profits; and (iii) TOTAL COMP. INCENT.—computed as the quarterly variation of total salary, bonus, net benefits, and total payments in stock relative to the quarter's variation in bank profits.⁹⁶

In order to verify our claim that bank compensation is driven by the competition for talent,⁹⁷ we divided CASH COMP. INCENT. into two components: CASH COMP. INCENT. (MARKET) and CASH COMP. INCENT. (FIRM).⁹⁸ The first component measures the quarterly cash compensation variation for each bank relative to the quarter's variation in *market* profits. Market profits indicate the ability of competitors, based on their returns, to compete for employees. For each bank holding company, the “market” corresponds to a reference peer group comprised of five other banks whose headquarters are located in the same state or neighboring states.⁹⁹ The second component measures the quarterly cash compensation variation for each bank relative to the quarter's variation in the *individual bank's* profits after market effects are taken into account.

As set out below, we find that, on average, changes in the level of bank employee compensation reflected changes in market-wide profits rather than an individual bank's profits. This suggests that how much a bank paid its employees was more closely tied to how well the market performed—and presumably what other banks could pay as compensation—rather than on an individual bank's earnings.

⁹⁴ Our reliance on net income is consistent with how bank bonuses are set. The shift in bank compensation, away from largely fixed to contingent (bonus) payments, replicated the use of bonuses within the investment banking world. See Rajan, *supra* note 73, at 315–17; Murphy, *supra* note 71, at 3. That reliance on bonuses continues today, with base salaries constituting only a small portion of total pay for professional employees and year-end bonuses set on the basis of individual, group, and firm performance. See Bannier et al., *supra* note 10, at 654; Murphy, *supra*, at 4.

⁹⁵ In this way, we can determine whether the incentive structure that banks designed for non-executive employees—the banks' compensation policy, based on short-term performance—promoted excessive risk-taking.

⁹⁶ The technical specification of these measures is included in equation (1) of Acharya et al., *supra* note 10, at 9.

Note that stock compensation for non-executive bank employees is, on average, only two percent of total compensation. This is likely to be the result of the competition for talent, which favors cash pay over compensation whose value may not be realized until the future. See *infra* note 160 and accompanying text.

⁹⁷ See *supra* notes 74–88 and accompanying text.

⁹⁸ A more detailed discussion of the econometric technique employed to separate market effect and firm specific effect is included in equation (2) of Acharya et al., *supra* note 10, at 10.

⁹⁹ For each bank holding company, the market corresponds to a reference peer group comprised of five other banks whose headquarters are located in the same state or neighboring states. See Acharya et al., *supra* note 10, at 11–12, for details on the construction of this correspondence.

2. *Dependent Variables: Bank Risk and Bank Value*

In order to test our claim that the competition for talent distorts the compensation incentives that banks pay non-executives, which results in inefficient risk-taking, we measure *Bank Risk* as aggregate risk, defined as the standard deviation of the bank's weekly excess return (the weekly return of the bank's stock, less the weekly return of the S&P 500) over the calendar year during 2007–2009, and *Bank Value* as the bank's average *Tobin's Q* (the ratio of the bank's market value of assets over the bank's book value of assets) during 2007–2009.¹⁰⁰

¹⁰⁰ Tobin's Q is the ratio of a firm's market value (defined as the firm's total liabilities, minus its balance sheet deferred taxes and investment tax credits, plus the value of its preferred stock and the market value of its common stock) divided by the replacement cost of its assets. See Eugene F. Fama & Kenneth R. French, *Testing Trade-off and Pecking Order Predictions About Dividends and Debt*, 15 REV. FIN. STUD. 1, 8 (2002). The measure was introduced by James Tobin in *A General Equilibrium Approach to Monetary Theory*, 1 J. MONEY, CREDIT & BANKING 15 (1969). Tobin's Q has become a commonly recognized proxy for market valuation. See, e.g., Philip G. Berger & Eli Ofek, *Diversification's Effect on Firm Value*, 37 J. FIN. ECON. 39, 40, 47 (1995); Larry H. P. Lang & René Stulz, *Tobin's Q, Corporate Diversification, and Firm Performance*, 102 J. POL. ECON. 1248, 1249–50 (1994); Randal Morck et al., *Management Ownership and Market Valuation: An Empirical Analysis*, 20 J. FIN. ECON. 293, 294 (1988); David Yermack, *Higher Market Valuation of Companies with a Small Board of Directors*, 40 J. FIN. ECON. 185, 186 (1996). Market prices ostensibly reflect the marginal cost of capital, which is reflected in the Tobin's Q measure. One major advantage of Tobin's Q is its computational simplicity. All of its determinants are retrievable from existing data sources such as, for example, the Compustat database. Tobin's Q, however, is not without its critics. First, market prices may not reflect the marginal cost of capital, but instead may reflect the average cost of capital. In that case, firm value may not be properly captured by Tobin's Q. See Joao Gomes, *Financing Investment*, 91 AM. ECON. REV. 1263, 1264–65 (2001); see also Eric B. Lindenberg & Stephen A. Ross, *Tobin's q Ratio and Industrial Organization*, 54 J. BUS. 1, 8–9 (1981). Second, Tobin's Q may not reflect an accurate valuation of the firm due to market irrationality. Irrationality could be significant if investor sentiment drives valuations in the stock market. See Malcolm Baker et al., *When Does the Market Matter? Stock Prices and the Investment of Equity-Dependent Firms*, 23 Q. J. ECON. 969, 969–70 (2003). With those caveats in mind, Tobin's Q is still a commonly accepted measure of firm valuation, including within the scholarship on corporate governance. See, e.g., Paul Gompers et al., *Corporate Governance and Equity Prices*, 118 Q. J. ECON. 107, 126 (2003) (“Our valuation measure is Tobin's Q, which has been used for this purpose in corporate-governance studies . . .”).

In Table 1 below, we report descriptive statistics for the independent and dependent variables.

Table 1. Descriptive Statistics for the Main Variables

| | <u>Mean</u> | <u>Median</u> | <u>St. Dev.</u> | <u>P-10</u> | <u>P-90</u> |
|-----------------------------|-------------|---------------|-----------------|-------------|-------------|
| <u>Variables</u> | | | | | |
| CASH COMP. INCENT. | 0.98 | 0.99 | 0.075 | 0.90 | 1.03 |
| STOCK COMP. INCENT. | 0.89 | 0.85 | 1.103 | -0.69 | 2.68 |
| TOTAL COMP. INCENT. | 0.97 | 0.99 | 0.072 | 0.89 | 1.06 |
| CASH COMP. INCENT. (MARKET) | 1.00 | 1.00 | 0.090 | 0.92 | 1.17 |
| CASH COMP. INCENT. (FIRM) | 0.07 | 0.88 | 4.455 | 0.06 | 1.05 |
| Bank Risk | 0.071 | 0.058 | 0.044 | 0.032 | 0.131 |
| Bank Value | 1.049 | 1.023 | 0.171 | 0.964 | 1.111 |

As Table 1 highlights, bank employee compensation was mainly driven by short-term bank profits. A \$1.00 quarterly increase (decrease) in bank profits corresponded, on average, to a 98¢ increase (decrease) in bank employee cash compensation in the next quarter, and a \$1.00 quarterly increase (decrease) in market profits corresponded, on average, to a \$1.00 increase (decrease) in bank employee cash compensation in the next quarter.

However, once the market effect was taken into account, a \$1.00 quarterly increase (decrease) in bank profits corresponded, on average, to only a 7¢ increase (decrease) in bank employee cash compensation. The bulk of the effect on employee compensation was tied to changes in market profits, rather than to individual bank earnings. That suggests that the compensation for non-executive employees was essentially driven, on average, by market-wide results rather than on how well an individual bank performed.

3. Control Variables

Earlier we set out the theoretical basis for finding that non-executive compensation is driven by the market's demand for talent and, in turn, affects bank risk-taking without regard to changes in executive compensation.¹⁰¹ To assess that hypothesis, we controlled all of our regressions for executive incentives. As proxies for executive incentives, we used CEO Delta, which estimates the sensitivity of CEO compensation to stock price, and CEO Vega, which estimates the sensitivity of CEO compensation to stock return volatility, with both proxies being calculated as averages during 2003–2006, before the financial crisis.¹⁰²

¹⁰¹ See *supra* notes 74–88 and accompanying text.

¹⁰² *CEO Delta* is the percent change in the value of the CEO option portfolio for a one percent increase in stock price. *CEO Vega* is the percent change in the value of the CEO option portfolio for a one percent increase in the volatility of the returns on the underlying stock. Both variables are computed following the

We also employed several additional control variables (estimated during 2003–2006) that were likely to have an impact on Bank Risk and Bank Value, including (i) bank size; (ii) past bank profitability (ROA); (iii) total deposits to total assets; (iv) Tier-1 capital to total assets; (v) total loans to total assets; (vi) past bad loans to total assets; (vii) ratio of underwriter assets to total bank assets; (viii) ratio of insurance assets to total bank assets; (ix) ratio of derivative products trading to total assets; and (x) ratio of derivative hedging to total assets.¹⁰³

By controlling our analyses against the above variables, we were able to confirm (as described below) that changes in non-executive compensation had a causal effect on Bank Risk and Bank Value.

C. Results

1. Compensation and Risk

In Table 2 below, we report the effect of bank employee compensation during 2003–2006 on average Bank Risk during the 2007–2009 financial crisis. As the table sets out, the more a bank’s cash compensation was sensitive to its profits in 2003–2006, the greater the Bank Risk in 2007–2009. This is consistent with a bank’s reliance on near-term (2003–2006) performance in setting employee compensation, but without reflecting in what an employee was paid the resulting long-term (2007–2009) increase in risk-taking that materialized during the financial crisis.

methodology in John Core & Wayne Guay, *Estimating the Value of Employee Stock Option Portfolios and Their Sensitivities to Price and Volatility*, 40 J. ACCT. RES. 613, 629 (2002).

¹⁰³ Those controls are similar to controls used elsewhere. See Acharya et al., *supra* note 10, at 16–17; Andrew Ellul & Vijay Yerramilli, *Stronger Risk Controls, Lower Risk: Evidence from U.S. Bank Holding Companies* J. FIN. (forthcoming 2013) (manuscript at 43–44), available at http://www.afajof.org/details/journalArticle/4744241/Stronger-Risk-Controls-Lower-Risk-Evidence-from-U_S_-Bank-Holding-Companies.html. Control (i) is included because large banks are more likely to benefit from various forms of governmental support and, therefore, they may have greater incentives to engage in excessive risk-taking. Control (ii) reflects the possibility that banks that have previously failed to achieve expected returns may be more inclined to undertake riskier investments. Control (iii) is included, because deposits are a financial source that is largely insensitive to risk (due to FDIC insurance) and, therefore, banks with more deposit-funding may be more prone to taking excessive risk. Control (iv) is included since banks that are less well-capitalized tend to be more exposed to insolvency and, therefore, more sensitive to changes in risk. Finally, controls (v)–(x) are included since the indicated lines of business may directly impact future bank risk and value.

Table 2. Regressions of Bank Risk on Cash Compensation Incentives, Stock Compensation Incentives, and Total Compensation Incentives. All control variables are calculated as averages over the period 2003–2006. To save space, control variables are not shown in the table. The dependent variable is measured within the financial crisis period, 2007–2009. We use robust standard errors, cluster adjusted at the year level. Also included but not reported are year fixed effects. P-values are indicated below the estimates. The ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.¹⁰⁴ We also show the percent economic effect (percentage effect) of the independent variables that are statistically significant at least at the 10% level.

| Independent Variables | Bank Risk | | |
|---|-----------|----------|----------|
| | (1) | (2) | (3) |
| CASH COMP. INCENT. | 0.0516*** | | |
| <i>t-stat</i> | (3.98) | | |
| STOCK COMP. INCENT. | | -0.0005* | |
| <i>t-stat</i> | | (1.75) | |
| TOTAL COMP. INCENT. | | | 0.066*** |
| <i>t-stat</i> | | | (3.03) |
| <i>Percentage Effect</i> ¹⁰⁵ | 30.5% | -4.3% | 37.7% |
| Observations | 231 | 231 | 231 |
| Adjusted R-squared | 41% | 40% | 41% |

As Table 2 shows, all of the independent variables had an impact on Bank Risk that was statistically significant, although the direction varied.

As reported in column 1, CASH COMP. INCENT. had an upward effect on Bank Risk—meaning that the more sensitive cash compensation was to a bank’s profits in 2003–2006, the greater the Bank Risk in 2007–2009. The economic significance of this effect is notable, with CASH COMP. INCENT. being responsible, on average, for a 30.5 percent increase in Bank Risk during the financial crisis.

By contrast, as reported in column 2, the effect of STOCK COMP. INCENT. was to lower Bank Risk—meaning that the more sensitive stock compensation was to a bank’s profits in 2003–2006, the lower the Bank Risk in 2007–2009.

¹⁰⁴ The significance levels at the 1%, 5%, and 10% levels mean that the null hypothesis (the hypothesis that an independent variable has no impact on a dependent variable) cannot be rejected with a probability of 1%, 5%, and 10%, respectively. In statistics, when the significance level is above 10%, it is standard to consider the result to be statistically insignificant or uninformative.

¹⁰⁵ The percentage effect corresponds to one standard deviation in the measure of interest. The effects are calculated as follows. For CASH COMP. INCENT.: $30.5\% = 0.0516 * 0.075 * \sqrt{12}/0.044$. For STOCK COMP. INCENT.: $-4.3\% = -0.0005 * 1.103 * \sqrt{12}/0.044$. For TOTAL COMP. INCENT.: $37.7\% = 0.066 * 0.072 * \sqrt{12}/0.044$. Note that 0.044 is the standard deviation of Bank Risk.

Both results are consistent with our theoretical claims about the effect of competition on compensation. With growth in the competition for talent, and a reliance on near-term performance to set compensation, short-term cash compensation failed to reflect the resulting increase in risk-taking.¹⁰⁶ Stock compensation, however, involves different dynamics. Short-term stock compensation is more likely to internalize the costs that arise from bank risk-taking, because risk-taking is likely to be correlated with future stock value. Consequently, the increase in stock compensation lowered Bank Risk.¹⁰⁷

2. *Firm Effect vs. Market Effect*

Table 2 described the effect on 2007–2009 risk of the sensitivity of a bank’s compensation to its profits during 2003–2006. In Table 3, we show the effect on Bank Risk of the sensitivity of a bank’s cash compensation to (i) market-wide profits and (ii) individual bank profits. We do that by reporting the effect on Bank Risk during 2007–2009 of a bank’s 2003–2006 cash compensation sensitivity to market profits (CASH COMP. INCENT. (MARKET)) and, after taking account of market profits, individual bank profits (CASH COMP. INCENT. (FIRM)).

¹⁰⁶ See *supra* notes 74–88 and accompanying text.

¹⁰⁷ Those results contrast with the analysis of executive compensation in Bebchuk & Spamann, *supra* note 10, at 275–76 (“restricted stock could tie executive payoffs to an even more highly levered bet on the value of the assets of the bank, and thus, give executives highly distorted incentives” to engage in excessive risk-taking), but support the compensation proposal made in Bhagat & Romano, *supra* note 10, at 11–27.

Table 3. Regressions of Bank Risk on Cash Compensation Incentives (Market) and Cash Compensation Incentives (Firm). All control variables are calculated as averages over 2003–2006. To save space, control variables are not shown in the table. We use robust standard errors, cluster adjusted at the year level. Included but not reported are year fixed effects. P-values are indicated below the estimates. The ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. We also show the percent economic effect (percentage effect) of the independent variables that are statistically significant at least at the 10% level.

| Independent Variables | Bank Risk |
|---|-----------|
| CASH COMP. INCENT. (MARKET) | 0.0635*** |
| <i>t-stat</i> | (4.99) |
| CASH COMP. INCENT. (FIRM) | -0.00031 |
| <i>t-stat</i> | (1.19) |
| <i>Percentage Effect</i> ¹⁰⁸ | 40.0% |
| | -10.9% |
| Observations | 231 |
| Adjusted R-squared | 43.3% |

As Table 3 shows, the effect of CASH COMP. INCENT. (MARKET) is statistically significant and had a positive economic effect on Bank Risk during the financial crisis. On average, we observed a forty percent increase. The effect of CASH COMP. INCENT. (FIRM) on Bank Risk is statistically insignificant. Those outcomes are consistent with our claim that bank risk-taking is largely influenced by short-term non-executive compensation, and that the level of compensation is mainly driven on a market-wide basis by the competition for talented employees.¹⁰⁹

3. Compensation and Bank Value

So far we have considered the impact of a bank's employee compensation on risk-taking. That analysis, however, does not reveal whether bank compensation is efficient or inefficient.¹¹⁰ In order to address this question, Table 4 considers the effect of bank

¹⁰⁸ The percentage effect corresponds to one standard deviation in the measure of interest. The effects are calculated as follows. For CASH COMP. INCENT. (MARKET): $40\% = 0.0635 * 0.08 * \sqrt{12}/0.044$. For CASH COMP. INCENT. (FIRM): $-10.9\% = -0.00031 * 4.455 * \sqrt{12}/0.044$. Note that 0.044 is the standard deviation of Bank Risk.

¹⁰⁹ See *supra* notes 74–88 and accompanying text.

¹¹⁰ Bank compensation that promotes high risk-taking is not necessarily inefficient. For example, if high risk is associated with a high (long-term) expected return, there would be no efficiency concern. Within modern scholarship, the link between risk and expected return was first studied in the seminal work of William F. Sharpe. See William F. Sharpe, *Capital Asset Prices: A Theory of Market Equilibrium Under Conditions of Risk*, 19 J. FIN. 425 (1964).

employee compensation on Bank Value, as measured by Tobin's Q. Overall, we found that bank employee compensation had a negative effect on Bank Value, suggesting that the risk-taking that results from a bank's compensation practices is inefficient.

Table 4. Regressions of Bank Value on Cash Compensation Incentives, Stock Compensation Incentives, Total Compensation Incentives, Cash Compensation Incentives (Market), and Cash Compensation Incentives (Firm). All control variables are calculated as averages over 2003–2006. To save space, control variables are not shown in the table. The dependent variable is measured within the financial crisis period, 2007–2009. We use robust standard errors, cluster adjusted at the year level. Included but not reported are year fixed effects. P-values are indicated below the estimates. The ^{***}, ^{**}, and ^{*} indicate significance at the 1%, 5%, and 10% levels, respectively. We also show the percent economic effect (percentage effect) of the independent variables that are statistically significant at least at the 10% level.

| Independent Variables | Bank Value | | |
|---|-----------------------|------------------------|-----------------------|
| | (1) | (2) | (3) |
| CASH COMP. INCENT. | -0.095 ^{***} | | |
| <i>t-stat</i> | (4.52) | | |
| STOCK COMP. INCENT. | 0.0036 ^{***} | | |
| <i>t-stat</i> | (3.46) | | |
| TOTAL COMP. INCENT. | | -0.0873 ^{***} | |
| <i>t-stat</i> | | (10.91) | |
| CASH COMP. INCENT. (MARKET) | | | -0.1024 ^{**} |
| <i>t-stat</i> | | | (3.37) |
| CASH COMP. INCENT. (FIRM) | | | 0.0008 |
| <i>t-stat</i> | | | (0.69) |
| <i>Percentage Effect</i> ¹¹¹ | -14.4% | -12.8% | -16.6% |
| | 8.0% | | 7.2% |
| Observations | 231 | 231 | 231 |
| Adjusted R-squared | 57.3% | 57.0% | 58.0% |

Column 1 shows that CASH COMP. INCENT. had a statistically significant negative effect on Bank Value, accounting for an average reduction in value of 14.4 percent during the financial crisis. This is consistent with our claim that compensation driven by short-term performance may be inefficient in the long-term. By contrast, STOCK COMP. INCENT. had a statistically significant positive impact on Bank Value, accounting for an average increase in value of eight percent during the financial crisis. This result is also

¹¹¹ The percentage effect corresponds to one standard deviation in the measure of interest. The effects are calculated as follows. For CASH COMP. INCENT.: $-14.4\% = -0.095 * 0.075 * \sqrt{12}/0.171$. For STOCK COMP. INCENT.: $8\% = 0.0036 * 1.103 * \sqrt{12}/0.171$. For TOTAL COMP. INCENT.: $-12.8\% = -0.0873 * 0.0724 * \sqrt{12}/0.171$. For CASH COMP. INCENT. (MARKET): $-16.6\% = -0.1024 * 0.075 * \sqrt{12}/0.171$. Note that 0.171 is the standard deviation of Bank Value.

consistent with our claim, in this case, that stock compensation is more likely to internalize the negative effect of excessive risk-taking.

As column 2 shows, TOTAL COMP. INCENT. had a statistically significant negative effect on Bank Value, accounting for a reduction in average value of 12.8 percent during the financial crisis. The lower percentage effect of TOTAL COMP. INCENT. (when compared with CASH COMP. INCENT.) is due to the marginal effect of stock compensation which, on average, accounted for only two percent of total compensation. The overall negative effect of total compensation on Bank Value was driven by the relatively large portion of it made up of cash compensation.

Finally, in column 3 we show the effect of cash compensation on Bank Value as driven by market and individual bank profits. Similar to the prior regressions on Bank Risk, we found that CASH COMP. INCENT. (MARKET) had a statistically significant negative effect on Bank Value, which was responsible, on average, for a drop in value of 16.6 percent during the financial crisis. As a result, banks whose cash compensation was more sensitive to short-term market performance in 2003–2006 had a drop in value in 2007–2009 that was greater than for less-sensitive banks. The residual contribution of CASH COMP. INCENT. (FIRM) on Bank Value was statistically insignificant.

* * *

Our empirical results demonstrate the effect of (i) market performance on bank employee compensation and (ii) cash compensation on bank risk-taking and value. Non-executive incentives during 2003–2006 were influenced by how well the market performed and, in turn, how much competing banks could pay new employees. Higher levels of cash compensation had a significant (and sub-optimal) effect on risk-taking, as evidenced by the Bank Risk that appeared during the 2007 financial crisis and the decline in Bank Value.¹¹²

Those results confirm our claim that information and coordination problems in a naturally competitive labor market dilute the ability of bank managers to use compensation to manage risk-taking.¹¹³ Banks are limited to short-term results in assessing a prospective hire's performance—without the ability to assess an employee's level of risk-taking or its long-term effects.¹¹⁴ The employee, in turn, has an incentive to maximize risk and enhance performance, so long as the full effects of the risk-taking do not materialize until later. Competitive payoffs that arise as each bank seeks to hire talent reinforce an industry-wide increase in compensation that fails to fully reflect long-term performance, in particular, the losses that greater risk-taking can create. The result is a negative externality, because competition encourages risk-taking by non-executives without incorporating its costs in what they are paid.¹¹⁵ In the next Part, we outline three

¹¹² See *supra* Tables 2–4, notes 105–111 and accompanying text.

¹¹³ See *supra* notes 19–20 and accompanying text.

¹¹⁴ See *supra* notes 71–74 and accompanying text.

¹¹⁵ See *supra* notes 75–79 and accompanying text.

regulatory changes that would help address the problems that result from competition's effect on compensation.

III. REGULATING THE COMPETITION FOR TALENT

The prudential regulation of banks reflects their importance as financial intermediaries and the economic costs of a banking crisis—particularly the negative externalities that can arise from bank risk-taking—some of which are borne by others.¹¹⁶ Financial regulation induces banks to internalize those costs, reducing externalities by restricting the amounts and types of risk a bank can bear.¹¹⁷ It does so directly by circumscribing a bank's investment assets and capital structure,¹¹⁸ and indirectly through rules regarding net worth, capital, and surplus that effectively cap risk-taking activities.¹¹⁹ Together, those rules moderate risk by regulating the asset and liability sides of a bank's balance sheet.¹²⁰

What regulation, to date, has largely failed to address is the effect of non-executive compensation on risk-taking and how that compensation is set.¹²¹ As we showed, non-executive incentives during 2003–2006 significantly affected bank risk-taking, and the level of those incentives was determined largely by the market demand for talent, independent of executive pay¹²²—notwithstanding current regulation and proposals that focus on executives, as decision-makers, rather than on the non-executives who actually incur risk.¹²³

¹¹⁶ A standard example of a negative externality in the banking industry is a bank run that arises from a bank's decision to assume a risky loan portfolio. Concerns over the bank's financial stability may become substantial, causing depositors to run on the bank in order to withdraw funds. In addition to affecting the bank, and its managers, shareholders, and customers, other banks may experience a decline in business, or even a run, as concerns over financial stability spread across the financial markets. Borrowers, as a result, may not be able to obtain funding at the same cost, restricting their ability to invest in new, value-enhancing projects and causing a slowdown in the general economy. See Ben S. Bernanke, *Nonmonetary Effects of the Financial Crisis in the Propagation of the Great Depression*, 73 AM. ECON. REV. 257, 264–65 (1983); Charles W. Calomiris, *Is Deposit Insurance Necessary? A Historical Perspective*, 50 J. ECON. HIST. 283, 284 (1990).

¹¹⁷ See Robert Charles Clark, *The Soundness of Financial Intermediaries*, 86 YALE L.J. 1, 15–18, 23–24 (1976); Jackson, *supra* note 48, at 352–59; Jonathan R. Macey & Geoffrey P. Miller, *Bank Failures, Risk Monitoring, and the Market for Bank Control*, 88 COLUM. L. REV. 1153, 1155, 1165 (1988).

¹¹⁸ See Charles K. Whitehead, *Reframing Financial Regulation*, 90 B.U. L. REV. 1, 47–48 (2010) (providing examples of regulatory limits on investment assets and capital structure).

¹¹⁹ See *id.* at 49–50; see also Charles K. Whitehead, *What's Your Sign?—International Norms, Signals, and Compliance*, 27 MICH. J. INT'L L. 695, 721–25 (2006) (detailing international efforts).

¹²⁰ See Clark, *supra* note 117, at 47.

¹²¹ Changes in capital adequacy requirements, by restricting a bank's risky activities, may lower an employee's total compensation. See Thanassoulis, *supra* note 13, at 853. Doing so, however, does not address the effect on compensation and risk-taking of the banks' competition for talent. An employee still has an incentive to pursue a high-risk strategy if it improves her performance and her chances to move to a new employer (perhaps with fewer restrictions) at higher pay.

¹²² See *supra* notes 105–109 and accompanying text.

¹²³ See *supra* notes 7–11 and accompanying text.

The presumption that non-executive pay is internally determined is consistent with an approach to regulation that focuses on individual firms, each considered on its own.¹²⁴ To date, regulators have opted to direct each bank individually in how it sets compensation in order to minimize the likelihood of excessive risk-taking.¹²⁵ One of us has questioned whether a firm-by-firm approach to regulating banks has become outdated in light of growing convergence in the financial markets.¹²⁶ The problem is no less apparent in setting non-executive pay. At odds with regulation focused on individual banks is the market-wide competition among banks and other financial firms to hire the best employees. The prospect of greater compensation—if not from a current employer, then from someone else—may still encourage non-executives to pursue tail risk strategies that enhance short-term performance.¹²⁷ In other words, the incentive to incur risk may result, not from how an *existing* employer sets pay, but from the prospect of *future* compensation by someone else.¹²⁸ Existing employers, in turn, must take that competition into account when they first set compensation. The result is upward pressure and, potentially, an upward spiral in pay—no longer determined by individual firms but, instead, subject to the external influence of an increasingly homogeneous labor market.¹²⁹

Of course, regulating executive pay can increase an executive's interest in monitoring (and controlling) non-executive risk-taking. Doing so, however, may be difficult

¹²⁴ See MARKUS K. BRUNNERMEIER ET AL., *THE FUNDAMENTAL PRINCIPLES OF FINANCIAL REGULATION* 2–4, 14–15 (2009); ANDREW CROCKETT, *BANK FOR INT'L SETTLEMENTS, MARRYING THE MICRO- AND MACRO-PRUDENTIAL DIMENSIONS OF FINANCIAL STABILITY* 3 (2000), <http://www.bis.org/review/rr000921b.pdf> (“The quintessential micro-prudential dictum is that ‘financial stability is ensured as long as each and every institution is sound.’”).

¹²⁵ See Compensation Guidance, *supra* note 7. Rules for other financial firms are pending finalization. See Jointly Proposed Incentive Rules, *supra* note 7.

¹²⁶ See generally Charles K. Whitehead, *Destructive Coordination*, 96 CORNELL L. REV. 323 (2011); Whitehead, *supra* note 118.

¹²⁷ Although banks are subject to the Compensation Guidance, other prospective employers—including securities firms and hedge funds—are not. See Compensation Guidance, *supra* note 7, at 36,396. The prospect of enhanced future compensation from an unregulated competitor may encourage short-term risk-taking. See *supra* note 72. Recall, from Figure 2, that a *High Risk* Employee who has performed well is interested in moving firms before losses from her *High Risk* strategy materialize. The new employer may pay no more in the short-term than the existing employer, but changing jobs permits the *High Risk* Employee to avoid the long-term effects of her strategy and enhance total compensation. See *supra* notes 87–88 and accompanying text.

¹²⁸ See Milton Harris & Bengt Holmstrom, *A Theory of Wage Dynamics*, 49 REV. ECON. STUD. 315, 316 (1982) (noting that compensation is influenced by what competing employers are willing to pay).

¹²⁹ This externality is similar to the effect on corporate governance of the competition for managerial talent. See Viral V. Acharya & Paolo F. Volpin, *Corporate Governance Externalities*, 14 REV. FIN. 1, 2–3 (2010); David L. Dicks, *Executive Compensation and the Role for Corporate Governance Regulation*, 25 REV. FIN. STUDIES 1971, 1971–72 (2012); Viral Acharya et al., *Competition for Managers, Corporate Governance and Incentive Compensation* 1–2 (Oct. 2010) (unpublished manuscript), available at <http://faculty.london.edu/pvolpin/compensation.pdf>. Those papers posit that, when there is an active labor market for scarce managerial talent, firms may choose to underinvest in corporate governance (providing higher levels of compensation and lower levels of discipline for managers) in order to remain competitive. See also Ing-Haw Cheng, *Corporate Governance Spillovers* 1–5 (Apr. 10, 2011) (unpublished manuscript), available at <http://ssrn.com/abstract=1299652> (describing the spillover effects of poor corporate governance on peer firms in a competitive labor market).

for supervisors to do in real time as new risks are incurred. Leeson, Tourre, and Iksil each alleged they were supervised by managers who knew (or should have known) about the risks they took.¹³⁰ Executives may also be concerned that limits on risk-taking are too tight—restricting an employee’s ability to enhance short-term compensation and potentially causing profitable performers to move elsewhere. Supervisors themselves may have an interest in incurring greater risk to the extent a subordinate’s better performance enhances their own compensation.¹³¹

New regulation that fails to take account of the effects of a competitive talent market is incomplete. We, therefore, argue for three regulatory changes to plug the gap in regulating bank risk—first, directing regulators to consider the effect of competition on market-wide levels of compensation; second, limiting the ability of non-executives to move from a bank to another financial firm; and third, requiring some portion of a non-executive’s compensation to be tied to long-term performance and restricting a new employer’s ability to offset any losses.

A. Assessing Competition and Compensation

Reflecting change in the financial markets,¹³² regulators should expand their assessment of compensation beyond individual banks to include the effect of competition on market-wide levels of pay, including the broader range of participants who now compete with banks for talent. That approach differs from the Compensation Guidance adopted by U.S. bank regulators.¹³³ The Compensation Guidance requires each bank to ensure its incentives appropriately balance risk and financial results in order not to encourage employees to take imprudent risks.¹³⁴ A full assessment, however, must also take account of the potential effect of the industry-wide competition for talent on short-term incentives at banks. Incentives that are too high may encourage excessive risk-taking as employees seek to maximize their short-term performance. Yet, incentives that are too low may also increase risk-taking as employees seek to maximize short-term performance in order to become more attractive to new, higher-paying employers.¹³⁵

¹³⁰ See JOHN E. MARTHINSEN, RISK TAKERS: USES AND ABUSES OF FINANCIAL DERIVATIVES 219–22 (Denise Clinton et al. eds., 2nd ed. 2009); U.S. SENATE REPORT, *supra* note 3, at 14, 52, 66–67 (explaining Bruno Iksil’s role in JPMorgan trades). Compare Complaint at para. 4, SEC v. Goldman Sachs & Co, No. 1:10-cv-03229 (S.D.N.Y. filed Apr. 16, 2010) (accusing Tourre of being “principally responsible for ABACUS”) with Answer of Defendant at para. 4, SEC v. Goldman Sachs & Co, No. 1:10-cv-03229 (S.D.N.Y. filed July 19, 2010) (denying allegations except admitting Tourre “was one of many” employees involved in the transaction).

¹³¹ The potential for a supervisor to prefer that subordinates adopt high-risk strategies is consistent with concerns over moral hazard that can arise within partnerships when performance is measured jointly on the basis of team (rather than individual) productivity. See Bengt Holmstrom, *Moral Hazard in Teams*, 13 BELL J. ECON. 324, 325, 327 (1982).

¹³² See *supra* notes 48–72 and accompanying text.

¹³³ See Compensation Guidance, *supra* note 7.

¹³⁴ See *id.* at 36,398.

¹³⁵ See *supra* notes 87–88, 127–129 and accompanying text; see also Eric Dash, *Effort to Rein in Pay on Wall St. Hits New Hurdle*, N.Y. TIMES LATE EDITION, Aug. 10, 2009, at A1 (describing competition for talent among firms subject to “pay czar” oversight and those that are not).

Thus, in order to determine whether a bank's incentives properly balance risk and results, the bank (and its regulators) must consider the effect on risk-taking of incentives that other employers may offer. Those employers are not limited to banks.¹³⁶ In a converging world, the competition for talent extends beyond banks to others who offer similar products and services, including insurance companies, broker-dealers, and hedge funds.

The need to match what others pay is well-known to bank executives.¹³⁷ It may, however, be difficult for banks to fully assess the compensation arrangements of others. Likewise, it may be difficult for regulators who review a bank's compensation structure in isolation to fully assess its risk-taking effects. For that reason, consistent with the Compensation Guidance, bank and other financial market regulators, should be directed to coordinate their oversight of compensation.¹³⁸ Analyzing compensation in a vacuum will fail to reflect the competitive labor market within which incentives are assessed by employees.¹³⁹

Compensation caps¹⁴⁰ are intended to minimize risk-taking by limiting the incentives to pursue a high-risk business strategy. They are, however, only a partial response,

¹³⁶ Our proposal differs from others who argue that regulating compensation can be limited to banks. *See, e.g.,* Bebchuk & Spamann, *supra* note 10, at 285 (“Because regulating executive pay can improve the effectiveness of banking regulation in achieving its widely accepted goals, it could be appropriate to constrain banks’ freedom to set pay structures while not imposing such constraints outside the banking sector.”).

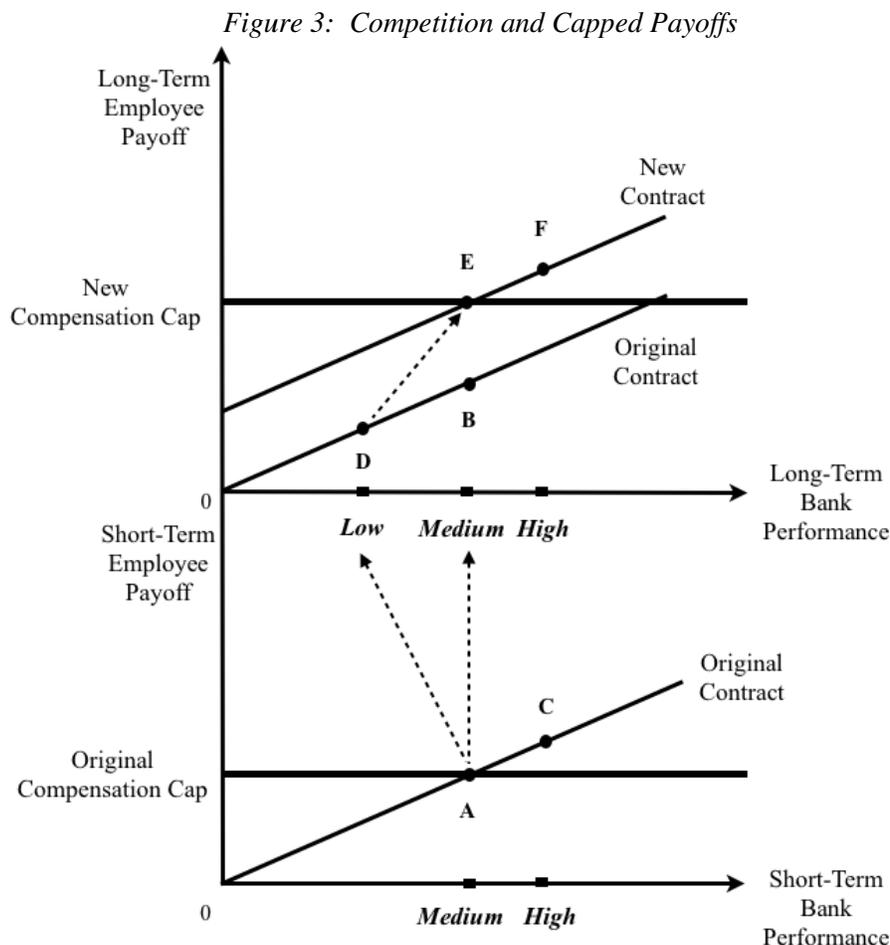
¹³⁷ *See supra* note 72 and accompanying text.

¹³⁸ Coordination among regulators may be facilitated by adoption of the Jointly Proposed Incentive Rules, which are described *supra* at note 7. Note, however, that those proposed rules would not extend to all financial regulators, including the Commodity Futures Trading Commission or state insurance regulators.

¹³⁹ Among its tasks, the Financial Stability Oversight Council (FSOC) is charged with identifying risks to U.S. financial stability arising from activities in or outside the financial markets. *See* Dodd-Frank Wall Street Reform and Consumer Protection Act § 112, 12 U.S.C. § 5322 (Supp. V 2012). The FSOC must “identify gaps in regulation that could pose risks to” U.S. financial stability, § 5322(a)(2)(G), as well as make recommendations to primary regulators to “apply new or heightened standards and safeguards for financial activities or practices that could create or increase risks” among financial firms and markets, § 5322(a)(2)(K). In addition to the Jointly Proposed Incentive Rules, *see supra* note 7, this broad grant of authority offers one basis for financial regulators, under the FSOC’s guidance, to begin assessing the effect of greater competition for talent on compensation and risk-taking incentives.

¹⁴⁰ Here we refer to limits on total compensation, not caps on bonuses or other incentive pay. A cap on incentive pay is likely to only result in the deck chairs being re-arranged, from bonuses to increased salary. *See* Daniel Schäfer & Tom Braithwaite, *Bankers Look for Ways Round Bonus Caps*, FIN TIMES (Feb. 28, 2013), <http://www.ft.com/intl/cms/s/0/9b8d8f48-81cb-11e2-b050-00144feabdc0.html#axzz2WD359gql>. Competition’s effect on compensation and risk-taking, described in this Article, would be largely unchanged, although the resulting rise in fixed expense could create greater bank instability. *See* Thanassoulis, *supra* note 13, at 849–50 (claiming that competition for bank employees generates a negative externality by increasing compensation and rival banks’ default risk); Murphy, *supra* note 71, at 14–15. Professor Thanassoulis demonstrates how a modest cap on bonuses set by reference to a bank’s balance sheet can lower default risk among larger banks as well as lessen competition to hire employees. *See* Thanassoulis, *supra* note 13, at 868–69. His model, however, differs from this Article’s analysis through its premise on (i) a population of bankers with publicly observable skills and (ii) bank remuneration and risk being internally decided. *See id.* at 850. The model also contemplates continued differences in

since they also do not fully account for the fluid market for bank talent. Consider again competition's effects on risk-taking and compensation, originally diagrammed in Figure 2, but now illustrated in Figure 3 below with a compensation cap.



For simplicity's sake, we assume in Figure 3 that the *Compensation Cap* is the same for all firms.¹⁴¹ The *Compensation Cap* is not a static number. Instead, it is set in each period to correspond to medium *Bank Performance*—with the result that, as a dollar amount, it is higher in the long-term than in the short-term due to the market-wide increase in compensation that arises from the competition for talent (as evidenced by the *New Contract*).¹⁴² Like Figure 2, we assume the banks cooperate in the short-term, but

compensation levels among banks, but does not address the effect of those differences on the risk-taking incentives of non-executives.

¹⁴¹ This simplifying assumption differs from proposals to impose a modest cap on compensation based on the size of a bank's balance sheet. See *id.* at 851–52. Varying bonus size can still provide employees with an incentive to incur risk if the resulting improvement in short-term performance enhances their ability to move to a larger bank with a higher bonus cap. See *supra* notes 87–88, 127–129 and accompanying text.

¹⁴² Adjusting the *Compensation Cap* from the *Original Contract* to the *New Contract*, rather than setting it at a fixed amount during the short-term and long-term, is consistent with the EU's proposed regulation that ties bonuses to base salary. In February 2013, the EU provisionally agreed to limit bankers'

each competes with the other for talent in the long-term.¹⁴³ Unlike Figure 2, however, neither a *High Risk* nor a talented *Low Risk* Employee can receive the *Employee Payoff* at point C. Both are capped at point A in the short-term and, in a competitive market, at point E in the long-term, regardless of their contribution to *Bank Performance*.

The *Compensation Cap* may result in a decline in risk-taking under some circumstances. Certainly, a talented Employee who achieves medium-level *Bank Performance* without a *High Risk* strategy has little incentive to switch strategies if her *Employee Payoff* remains unchanged. All other Employees, however, continue to be interested in a *High Risk* strategy so long as a *Low Risk* strategy is more likely to result in *Bank Performance* and compensation below the *Compensation Cap*. Like in Figure 2, a *High Risk* Employee is more likely to realize lower long-term compensation as the consequences of her *High Risk* strategy materialize at point D. Due to her improved short-term *Bank Performance*, however, she can more easily switch jobs in order to avoid the resulting losses. If she adopts the same *High Risk* strategy at her new employer, with the same short-term *Bank Performance*, the result will be an increase in total pay from point D to E.¹⁴⁴ The *Compensation Cap*, therefore, reduces the incentive of a talented *Low Risk* Employee to adopt a *High Risk* strategy, but not others, who may continue to prefer the greater likelihood of short-term gains from a *High Risk* approach. Those Employees, nevertheless, may choose a relatively lower level of risk-taking in light of the limit on *Employee Payoff* created by the *Compensation Cap*. Depending on where the *Compensation Cap* is set, maximizing compensation may be possible with fewer risky transactions or an overall decline in the level of risk-taking.¹⁴⁵

incentive compensation to an amount equal to their fixed salary (a one-to-one ratio) that could be increased to twice their fixed salary (a two-to-one ratio) with the approval of a supermajority of shareholders. Increases in base salary, therefore, would raise the total compensation that can be paid in line with the competition for talent. The new limit was to be finalized by June 2013. See Murphy, *supra* note 71, at 1. Now a robust cap, or the adoption of any cap, may be in doubt. See Baptiste Aboulian, *EU Bonus Cap Could Be Scrapped*, FIN. TIMES (London), June 10, 2013, at 13, available at <http://www.ft.com/intl/cms/s/0/d983fb2e-cf6f-11e2-be7b-00144feab7de.html#axzz2WD359gql>.

¹⁴³ See *supra* notes 80–81 and accompanying text.

¹⁴⁴ If compensation is capped, a talented *Low Risk* Employee has no economic incentive to switch jobs. Her compensation will remain the same, regardless of employer. Only *High Risk* Employees, faced with the prospect of a decline in long-term performance, have an interest in switching jobs. On that basis, the new employer should be able to separate *Low* and *High Risk* hires, taking the Employee's *High Risk* strategy into account when deciding whether to hire her and the terms of her *New Contract*. In practice, an Employee can point to a number of non-economic reasons for choosing to find a new job. They include personal factors, work satisfaction, satisfaction with supervision, co-workers, promotional opportunities, and organizational commitment. See John L. Cotton & Jeffrey M. Tuttle, *Employee Turnover: A Meta-Analysis and Review with Implications for Research*, 11 ACAD. MGMT. REV. 55, 57 (1986); W.H. Mobley et al., *Review and Conceptual Analysis of the Employee Turnover Process*, 86 PSYCHOL. BULL. 493, 496–512 (1979). As a result, the signal that arises from an Employee's departure is likely to be noisy. A mandatory garden leave period would help employers identify whether a prospective employee's previous performance was due to excessive risk-taking. See *infra* part III.B.

¹⁴⁵ The long-term *Compensation Cap* could be set at a level lower than depicted in Figure 3, for example, at a fixed dollar amount corresponding to the *Short-Term Compensation Cap* during both the short-term and long-term periods. Doing so is likely to depress mobility—causing most Employees to remain with their original employer over the long-term, since transferring to a new employer would be less likely to increase total compensation. The result would be a decline in risk-taking, since Employees would

The *Compensation Cap*, however, may also be an over-deterrent—limiting risk-taking strategies that are valuable to the bank. Assume, for example, that the Employee’s contribution to *Bank Performance* has reached the medium-level (and so her pay is also at the *Compensation Cap*), and she discovers an opportunity to enhance *Bank Performance* further. Assume also that the opportunity has a fifty percent chance of yielding an additional \$10 million for the bank and a fifty percent chance of losing \$5 million. Notwithstanding the risk of loss, the expected value of the opportunity is positive, \$2.5 million ((50% x \$10 million) – (50% x \$5 million)). Without the *Compensation Cap*, pursuing the opportunity would be valuable for both the Employee and the bank. With the *Compensation Cap*, however, although the opportunity remains valuable to the bank, the Employee has no incentive to pursue it. Any value that results will accrue to the bank, but any loss will reduce the Employee’s compensation.¹⁴⁶

The question, then, is whether the potential cost of a *Compensation Cap*—by inducing the Employee to forego valuable opportunities—outweighs the benefits of a potential decline in risk-taking.¹⁴⁷ We suspect the answer will vary by bank and from year-to-year. For some banks, the *Compensation Cap* may result in a decline in risk-taking. For others, however, it has the potential to increase instability by limiting valuable opportunities that could offset those losses that the bank (in the ordinary course of business) is likely to incur.

B. Limiting Mobility

At its heart, the tension between competition and compensation arises from the ability of non-executives to move to a new employer. In a competitive market, an employee can incur significant risk in order to enhance short-term performance, but then change jobs in order to avoid the consequences of that high-risk strategy. The ability of a non-executive to switch employers weakens the risk-reducing effect of compensation tied to long-term performance.

In response, new regulation should limit the ability of a bank’s non-executives to move to another financial employer (including other banks, insurance companies, broker-dealers, and hedge funds) for a period of time after leaving the bank, subject to defined

realize the negative effects of a *High Risk* strategy. Nevertheless, a less-talented Employee could still adopt a short-term *High Risk* strategy if it was necessary in order to reach a medium-level of performance, hoping to then move to a new employer in order to avoid the resulting consequences.

¹⁴⁶ Although a drop in the *Compensation Cap* may result in a decline in risk-taking, *see supra* note 145, the potential effect on risk-taking that is valuable to the bank is likely to be greater as well.

¹⁴⁷ Risk-taking incentives may also increase, depending on the effect of the *Compensation Cap* on what Employees are paid. For example, a cap on bonus compensation may result in an increase in fixed salary. *See supra* note 140. Since a higher fixed salary increases the amount the Employee will earn, without regard to the results of her risk-taking strategy, she may incur greater risks in light of the potential increase in bonus (subject to the *Compensation Cap*), but without being fully exposed to the potential loss in light of the higher fixed salary. *See Murphy, supra* note 71, at 15–16.

exceptions. A mandatory garden leave¹⁴⁸ will increase the cost of an employee's departure and, by lengthening the time before she starts her new job, permit successor employers to better assess her prior performance.¹⁴⁹

The proposal is not as novel as it may first seem. Garden leave policies already are in place at some banks, often to discourage employees from departing or to limit their use of company information at a competitor.¹⁵⁰ In addition, conventional restricted stock and time-vested stock options can be used as tools to retain employees, making it more

¹⁴⁸ See *supra* note 22 and accompanying text.

¹⁴⁹ We believe a garden leave requirement is more likely to deter an employee from switching jobs than, for example, a tax on the compensation she receives from her new employer. To date, efforts to manage executive conduct and compensation through direct taxation have met with limited success. For example, a result of the takeover wave of the 1980s was the creation of golden parachute arrangements that awarded substantial payments to incumbent managers following a change in control of the company. By enacting sections 280(G) and 4999 of the Internal Revenue Code, Congress intended to discourage golden parachutes by disallowing corporate deductions and imposing a twenty percent tax on executives for payments exceeding three times the applicable "base amount" (typically the executive's average annualized taxable compensation for the last five years or, if shorter, however long she worked for the company). See Deficit Reduction Act of 1984, Pub. L. No. 98-369, § 280G, 98 Stat. 494, 585–87; § 4999, 98 Stat. at 587. Among other effects, sections 280(G) and 4999 prompted companies to add a tax "gross up" to the golden parachute payments made to executives, covering the incremental tax required by the new legislation (as well as taxes on the gross-up payment). See, e.g., Joy Sabino Mullane, *Incidence and Accidents: Regulation of Executive Compensation through the Tax Code*, 13 LEWIS & CLARK L. REV. 485, 512–19 & n.117 (2009). Similar problems arose with Internal Revenue Code section 162(m), which provided that annual compensation in excess of \$1 million paid to the CEO and the four other highest paid officers of a public company could not be deducted by the company as an ordinary business expense. See Omnibus Budget Reconciliation Act of 1993, Pub. L. No. 103-66, sec. 13211, § 162, 107 Stat. 312, 469–471. The new provision had limited effect on total compensation—many firms continued to pay compensation in excess of \$1 million—and, in fact, increased the use of performance-based pay (such as stock options) which was exempt from section 162(m)'s limit on deductibility. See Meredith R. Conway, *Money for Nothing and the Stocks for Free: Taxing Executive Compensation*, 17 CORNELL J.L. & PUB. POL'Y 383, 396–414 (2008); see also David Schizer, *Executives and Hedging: The Fragile Legal Foundation of Incentive Compatibility*, 100 COLUM. L. REV. 440, 468 (2000) (noting 162(m) may have been a means to encourage performance compensation rather than a way to limit total compensation); Nancy L. Rose & Catherine Wolfram, *Regulating Executive Pay: Using the Tax Code to Influence CEO Compensation* 23 (Nat'l Bureau of Econ. Research, Working Paper No. 7842, 2000), available at <http://www.nber.org/papers/w7842> (suggesting firms near cap may have restrained salary increases). In each case, the imposition of a new tax resulted in changes in how compensation was structured, but generally did not reduce the amount of compensation as originally intended. Like with a tax, some portion of the cost of a garden leave can be reimbursed by the new employer, but we believe there is also a real, unreimbursable cost associated with being "out of the business" for a significant period of time.

¹⁵⁰ See Howard J. Rubin & Gregg A. Gilman, *Will Garden Leaves Blossom in the States?*, 33 EMP. REL. L. J. 3, 3–4 (2007). Bank of America, for example, instituted a garden leave requirement for financial advisors within one of its banking businesses, US Trust, but not within Merrill Lynch, although similar requirements have been introduced in other investment banks. See John Aidan Byrne, *No Hardball Garden Leave at Merrill, Krawcheck Tells Advisors*, WEALTH MGMT.COM (Mar. 7, 2011), <http://wealthmanagement.com/practice-management/no-hardball-garden-leave-merrill-krawcheck-tells-advisors>; Joe Rauch, *BofA's US Trust Adding "Garden Leave" for Some*, REUTERS (Feb. 18, 2011), <http://www.reuters.com/article/2011/02/18/us-bankofamerica-ustrust-idUSTRE71H4OZ20110218>.

costly for them to depart a firm that is doing well.¹⁵¹ Stock options, however, can increase a non-executive's interest in risk-taking due to their asymmetric returns. An option-holder receives the full benefit of an increase in stock price, but does not bear the full cost of a loss.¹⁵² Restricted compensation also permits an employee—in part, based on her assessment of future compensation—to calculate the cost of departing the bank against the cost of remaining. In a competitive market, an employee is likely to discount the value of long-term compensation at her current employer if she adopted a high-risk strategy to enhance her short-term performance.¹⁵³ Our proposal has the same effect as restricted stock, options, and long-term compensation—but takes the calculus away from employees, who have an incentive to incur risk and then switch employers. A garden leave would not be an absolute restriction on changing jobs, but it would increase the cost of departure as one means to balance against the risk-taking incentives promoted by the competition for talent.

A garden leave requirement, however, should only be as broad as necessary to address the effects of competition on bank risk. It should extend to senior executives and others who are responsible for overseeing firm-wide activities or a material business line and to employees (including non-executives) whose activities may expose the bank to material amounts of risk.¹⁵⁴ Exceptions should be made for executives or employees who are involuntarily terminated or who leave the bank due to an unexpected change of circumstances, including for personal reasons—with specific exceptions, reflecting the particular circumstances of the bank, to be developed by the bank and its regulators. Our goal is to limit an employee's incentive to incur risk in the short-term, with the expectation of transferring to a new employer. Relaxing the garden leave requirement when the change in job is unanticipated is consistent with that goal.

The new regulation should also apply only to employees who depart a bank for another financial firm, since our focus is on bank risk. It should not extend to employees who move from one non-bank employer to another, from a non-bank to a bank, or from a bank to a non-financial firm. Banks will still be required to offer market-level compensation in order to attract new talent, offsetting any incentive to unfairly pay “captive” employees. Under this new regime, however, employees will be less likely to pursue high-risk strategies, because lengthened employment makes it more likely they will need to face the consequences of their risk-taking.¹⁵⁵

¹⁵¹ See Paul Oyer & Scott Schaefer, *Why Do Some Firms Give Stock Options to All Employees?: An Empirical Examination of Alternative Theories*, 76 J. FIN. ECON. 99, 110 (2005); David I. Walker, *Evolving Executive Equity Compensation and the Limits of Optimal Contracting*, 64 VAND. L. REV. 611, 651 (2011).

¹⁵² See Bebchuk & Spamann, *supra* note 10, at 263.

¹⁵³ See *supra* note 87 and accompanying text.

¹⁵⁴ That limitation is consistent with the Compensation Guidance, except that the Compensation Guidance extends to groups of employees subject to similar incentive compensation arrangements who, in aggregate, may expose the bank to material amounts of risk. See Compensation Guidance, *supra* note 7, at 36,413. This Article's focus has been on individual employees and, while employee groups may raise similar issues, those issues may be more diffuse when no individual is likely to expose the bank to material risk. Absent evidence to the contrary, we would limit the new regulation to individuals.

¹⁵⁵ See *supra* note 75 and accompanying text.

C. Long-Term Compensation and Cash-Outs

We are not alone in proposing that some portion of a bank's compensation should be tied to long-term performance.¹⁵⁶ Incorporating a long-term component can help minimize excessive risk-taking in the short-term at the expense of long-term results.¹⁵⁷ Our concern is that, in a competitive market, a bank employee may still choose to increase short-term risk-taking if the pay package she receives from a new employer offsets the long-term compensation she foregoes, either by paying cash for the restricted compensation "left behind" or by substituting the new employer's own long-term pay package (a "golden handshake").¹⁵⁸ A non-executive will continue to have an incentive

¹⁵⁶ See, e.g., Bhagat & Romano, *supra* note 10, at 11–27 (recommending that incentive compensation plans for employees "whose decisions may substantially impact a firm" consist only of restricted stock and restricted stock options that cannot be sold or exercised for two to four years after an employee leaves the bank); see also Richard A. Posner, *Are American CEOs Overpaid, and, if So, What If Anything Should Be Done About It?*, 58 DUKE L.J. 1013, 1045–46 (2009) (recommending that a percentage of CEO pay be in the form of restricted stock that is held for some years). The Compensation Guidance also directs banks to "consider the full range of risks associated with an employee's activities, as well as the time horizon over which those risks may be realized, in assessing whether incentive compensation arrangements are balanced." Compensation Guidance, *supra* note 7, at 36,408. Nevertheless, equity based pay, on average, comprised only two percent of non-executive compensation during 2003–2006, see *supra* note 96, even though it has been increasingly central to CEO compensation, see Bengt Holmstrom & Steven N. Kaplan, *Corporate Governance and Merger Activity in the United States: Making Sense of the 1980s and 1990s*, 15 J. ECON. PERSP. 121, 133 (2001); Bengt Holmstrom & Steven N. Kaplan, *The State of U.S. Corporate Governance: What's Right and What's Wrong?*, 15 J. APPLIED CORP. FIN. 8, 12–13 (2003).

¹⁵⁷ Of course, the composition of a long-term compensation package must also be considered. For example, an excessive reliance on equity-based compensation, such as restricted stock options, may provide bank managers with an incentive to prefer riskier projects at the expense of creditors, including depositors. See Bebhuck & Spamann, *supra* note 10, at 253, 283–84 (arguing that bank executive compensation should be tied to a security basket representing "a set percentage of the aggregate value of common shares, preferred shares, and all outstanding bonds"); Richard A. DeFusco et al., *The Effect of Executive Stock Option Plans on Stockholders and Bondholders*, 45 J. FIN. 617, 618 (1990) ("The asymmetric payoffs of call options make it more attractive for managers to undertake risky projects."). In addition, employers who choose to reflect long-term performance in what they pay may need to increase the value the employee can realize over time in order to remain competitive. See Michael C. Jensen & Kevin J. Murphy, *CEO Incentives—It's Not How Much You Pay, But How*, HARV. BUS. REV., May–June 1990, at 138, 149. For example, if a bank continues to do well over the long-term, the amount the employee gains on her restricted stock or stock options should be greater than what she would have received up front in cash. This may partly account for the eight percent drop in Wall Street cash bonuses in 2010, but overall increase in pay—largely comprised of deferred compensation—by six percent during the same year. See Brett Philbin, *Wall Street Bonuses Head South*, WALL ST. J., Feb. 24, 2011, at C3, available at <http://online.wsj.com/article/SB10001424052748703775704576162731016064512.html>. Even then, compensation is unlikely to be effective in managing risk if existing employers are forced by market competition to guarantee a minimum bonus. See Smith, *supra* note 17 ("At most firms, much or most of the bonus is paid in stock, which vests over several years, to reward long-term performance. But the market for talent is competitive and many firms have been compelled to offer guaranteed or minimum bonuses to recruit people . . .").

¹⁵⁸ See Compensation Guidance, *supra* note 7, at 36,401, 36,410.

to incur risk if, by doing so, she increases the likelihood of a job offer from someone else.¹⁵⁹

In addition, as it becomes more common to reward short-term performance, compensation tied to longer-term results becomes less attractive. For example, a cash bonus is likely to be more desirable than equal compensation whose full value—such as with restricted stock or stock options—cannot be realized until later. Consequently, due to the competition for talent, non-executive compensation is likely to become less sensitive over time to the longer-term effects of risk-taking. This is consistent with our empirical results, which found that stock compensation for non-executive bank employees, on average, was only two percent of total compensation.¹⁶⁰

Some portion of our concern is addressed by our earlier proposal to limit a bank employee's mobility.¹⁶¹ Raising the cost of switching jobs is more likely to result in employees remaining with the bank, and the long-term consequences of excessive risk-taking are likely to balance incentives to pursue a short-term, high-risk strategy. Our addition is to propose that new employers be restricted from "cashing out" the long-term portion of a new hire's prior compensation when setting a new pay package. The Compensation Guidance directs banks to assess whether golden handshake arrangements materially weaken efforts to constrain risk-taking.¹⁶² Since non-bank employers may offer them, it notes that bank supervisors should continue efforts to coordinate with other financial regulators.¹⁶³ We believe that new regulation must go further and apply equally to non-bank financial firms. Restricting a new employer—whether a bank or a non-bank—from offsetting the costs of risk-taking will reinforce the benefits of compensation that is tied to long-term performance.¹⁶⁴

¹⁵⁹ See *supra* notes 74–88 and accompanying text.

¹⁶⁰ See *supra* notes 96, 156 and accompanying text.

¹⁶¹ See *supra* notes 148–155 and accompanying text.

¹⁶² Compensation Guidance, *supra* note 7, at 36,410.

¹⁶³ As the Compensation Guidance states:

Provisions that require a departing employee to forfeit deferred incentive compensation payments may . . . weaken the effectiveness of a deferral arrangement if the departing employee is able to negotiate a "golden handshake" arrangement with the employee's new organization. Golden handshake provisions present special issues for banking organizations and supervisors . . . because it is the action of the employee's new employer—which may not be a regulated institution—that can affect the current employer's ability to properly align the employee's interest with the organization's long-term health. . . . The Agencies will continue to work with banking organizations and others to develop appropriate methods for addressing any effect that such arrangements may have. . . .

Compensation Guidance, *supra* note 7, at 36,401.

¹⁶⁴ As noted earlier, one means to coordinate efforts among bank and non-bank financial regulators is to use the FSOC's authority to identify financial market risks and recommend new regulation. See *supra* note 139.

CONCLUSION

Efforts to date to control bank risk-taking by regulating executive pay have rested on two faulty premises—first, that executive pay was the principal driver of bank risk-taking prior to the 2007 financial crisis, and second, that a bank’s managers can bring non-executives into line, using incentives to manage risk-taking, once executive pay is regulated. What they miss is the effect on compensation of the competition among financial firms to hire non-executives—resulting in changes in pay that responded to the market demand for talent and, in turn, created incentives for non-executives to incur greater risk.¹⁶⁵ Non-executive pay significantly affected risk-taking prior to the financial crisis, and the level of that pay was determined independently of what executives received.¹⁶⁶

In effect, the greater competition for products and services, which benefited consumers by enhancing financial market efficiency,¹⁶⁷ also increased the cost of maintaining financial market stability. The question is whether the trade-off has been a positive one. The answer is unlikely to come from the financial firms themselves. The greater competition created a negative externality: Each bank’s effort to hire new talent rewarded greater risk-taking without accounting for the longer-term losses that could result.¹⁶⁸ In this Article, we proposed three ways in which regulation could step in—greater coordination across bank and non-bank regulators, a garden leave requirement, and restricting golden handshakes. Those new requirements could be introduced together with, or in lieu of, a compensation cap.¹⁶⁹

One regulatory solution, which we have not explored, is to force financial firms back into the traditional business categories in which they operated.¹⁷⁰ Doing so would limit the competition for products and services and, in turn, lower the competition for staff. We are wary, however, of such an approach, since it swims against the general trend toward greater convergence in the financial markets over the last five decades.¹⁷¹ New regulation should reflect the benefits of that convergence, but it must also take account of the costs. Regulating compensation is one way to manage those costs, but doing so effectively will require the new rules to also take account of the resulting competition.

¹⁶⁵ See *supra* notes 75–79, Figure 2, and accompanying text.

¹⁶⁶ See *supra* notes 105–109 and accompanying text.

¹⁶⁷ See Whitehead, *supra* note 118, at 37–39.

¹⁶⁸ See *supra* note 79 and accompanying text.

¹⁶⁹ See *supra* notes 132–164 and accompanying text.

¹⁷⁰ See *supra* notes 48–52 and accompanying text.

¹⁷¹ See *supra* notes 48–70 and accompanying text.