

Size Matters: Commercial Banks and the Capital Markets

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The conventional story is that the Gramm–Leach–Bliley Act broke down the Glass–Steagall Act’s wall separating commercial and investment banking in 1999, increasing risky business activities by commercial banks and precipitating the 2007 financial crisis. But the conventional story is only one-half complete. What it omits is the effect of change in commercial bank regulation on financial firms other than the commercial banks. After all, it was the failure of Lehman Brothers—an investment bank, not a commercial bank—that sparked the meltdown.

This Article provides the rest of the story. The basic premise is straightforward: By 1999, the Glass–Steagall Act’s original purpose—to protect commercial banks from the capital markets—had reversed. Instead, its main function had become protecting the capital markets from new competition by commercial banks. Once the wall came down, commercial banks gained a sizeable share of the investment banking business. To offset lost revenues, investment banks pursued riskier businesses, growing their principal investments and increasing the amounts they borrowed to finance them. In effect, they assumed the features of commercial banks—a reliance on short-term borrowing to finance longer-term (and riskier) investments. For the investment banks, combining the two was lethal and eventually triggered the financial meltdown.

The divide between two sets of regulators, those regulating commercial banks and those regulating investment banks, enabled the change. The need for greater regulatory coordination has grown with convergence in the financial markets. Although new regulation has addressed some of the concern, the gap between regulators continues today—raising the risk of repeating mistakes from the past. Acknowledging the role of bank regulation (and deregulation) in reshaping the capital markets is a key step in the right direction.

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I. INTRODUCTION

For decades, the Glass–Steagall Act¹ erected a wall between commercial and investment banks,² largely by restricting a commercial bank’s (or its affiliate’s) ability to underwrite, trade, and sell securities.³ The separation was intended as a shield: To protect commercial banks and their depositors against risks that would arise if a bank or bank affiliate began to do business in the capital markets.⁴ It was no surprise, then, that when the Gramm–Leach–Bliley

¹ Banking Act of 1933, Pub. L. No. 73-66, 48 Stat. 162 (codified as amended in scattered sections of 12, 15 and 39 U.S.C.).

² This Article’s focus is on the relationship between investment banks and the largest commercial banks. References to “banks” or “commercial banks” are to the largest U.S. deposit-taking institutions, including the U.S. operations of non-U.S. institutions. References to “investment banks” are to broker-dealers whose core business has traditionally been securities underwriting, securities trading (as principal and for customers), investment advice, and strategic (mergers and acquisitions) advice.

³ See Banking Act § 16, 48 Stat. at 184–85 (restricting underwriting and proprietary trading by banks) (current version at 12 U.S.C. § 24 (2012)); *id.* § 20, 48 Stat. at 188–89 (restricting affiliation) (repealed 1999); *id.* § 21, 48 Stat. at 189 (prohibiting deposit-taking by investment banks) (current version at 12 U.S.C. § 378 (2012)); *see also id.* § 32, 48 Stat. at 194 (prohibiting common management) (repealed 1999).

⁴ See *Operation of the National and Federal Reserve Banking Systems: Hearing on S. Res. 71 Before the Subcomm. of the S. Comm. on Banking & Currency, 71st Cong.* 480 (1931) (statement of W. Z. Ripley, Professor, Harvard University) (noting conflicts of interest in trading that resulted from having a commercial bank and investment bank as affiliates); *id.* at 1063–64 (summarizing responses to a subcommittee questionnaire relating to conflicts); S. REP. NO. 73-77, at 6–8 (1933) (blaming loose bank credit policies for fueling speculative investment and inflating securities prices); *see also* Bd. of Governors of Fed. Reserve Sys. v. Inv. Co. Inst., 450 U.S. 46, 61 (1981) (“Congress was persuaded that speculative activities, partially attributable to the connection between commercial banking and investment banking, had contributed to the rash of bank failures.”); Inv. Co. Inst. v. Camp, 401 U.S. 617, 630 (1971) (noting that “[t]he Glass–Steagall Act reflected a determination that policies of competition, convenience, or expertise which might otherwise support the entry of commercial banks into the investment banking business were outweighed by the ‘hazards’ and ‘financial dangers’ that arise when commercial banks engage in” investment banking). That purpose has been echoed in scholarship

Act⁵ took down the final bricks in the wall in 1999,⁶ the principal concern was whether commercial banks would increase financial risk-taking⁷ and, later,

regarding the Glass–Steagall Act. *See, e.g.*, Viral V. Acharya et al., *International Alignment of Financial Sector Regulation*, in *RESTORING FINANCIAL STABILITY* 365, 368 (Viral V. Acharya & Matthew Richardson eds., 2009) [hereinafter *RESTORING*] (“The investment banking activities were . . . deemed too risky to be put under the same functional umbrella as a commercial bank”); Steven L. Schwarcz, *Ring-Fencing*, 87 S. CAL. L. REV. 69, 98 (2013) (“By legally isolating deposit-taking banks from liabilities associated with riskier banking activities, the Glass–Steagall Act helped to safeguard deposits.”); *see also* Jeff Merkley & Carl Levin, *The Dodd–Frank Act Restrictions on Proprietary Trading and Conflicts of Interest: New Tools to Address Evolving Threats*, 48 HARV. J. ON LEGIS. 515, 517 (2011) (“[I]mposing restrictions on bank activities was thought to be essential because commercial bank participation in investment banking and securities trading was deemed a major cause of the financial collapse.”); *cf.* GEORGE J. BENSTON, *THE SEPARATION OF COMMERCIAL AND INVESTMENT BANKING* 13–14 (1990) (listing reasons for the Glass–Steagall Act, including protecting the commercial banks but also the interest of the securities industry in “bar[ring] those banks that would offer securities and underwriting services from entering their markets,” as well as the commercial banks’ competitive advantage that could result in their “domination or takeover” of the investment banks). *But see* Jonathan R. Macey, *Promoting Public-Regarding Legislation Through Statutory Interpretation: An Interest Group Model*, 86 COLUM. L. REV. 223, 237 (1986) (arguing that the Glass–Steagall Act reflected lobbying by investment banks interested in limiting commercial bank competition, although “one cannot reach this conclusion by examining either the statute itself or its legislative history” (footnote omitted)).

⁵ Gramm–Leach–Bliley Act of 1999, Pub. L. No. 106-102, § 101, 113 Stat. 1338, 1341 (codified as amended in scattered sections of 12 and 15 U.S.C.). The Gramm–Leach–Bliley Act brought down the wall between commercial and investment banks principally by permitting those businesses, housed in separate entities, to have a common parent. *See e.g.*, RICHARD SCOTT CARNELL ET AL., *THE LAW OF FINANCIAL INSTITUTIONS* 69 (5th ed. 2013) (“The Glass–Steagall Act, once likened to a high stone wall, had become more akin to a screen door.”). Thus, direct securities activities by commercial banks—the underwriting of most securities and trading in equities and certain debt securities for their own account—continue to be restricted, although the Glass–Steagall Act was amended to permit certain well-capitalized banks to underwrite, deal, and purchase municipal revenue bonds. *See* Gramm–Leach–Bliley Act § 151 (amending Glass–Steagall Act § 16, 12 U.S.C. § 24 (2012)). Similarly, securities affiliates and unaffiliated securities firms that are “engaged in the business of issuing, underwriting, selling, or distributing . . . stocks, bonds, debentures, notes, or other securities” may not accept deposits. 12 U.S.C. § 378(a)(1) (2012). Thus, national banks and state member banks may not underwrite most types of securities, including through a separate non-bank affiliate or subsidiary, and securities underwriters may not take deposits. *See id.*

⁶ The wall eroded prior to passage of the Gramm–Leach–Bliley Act, partly in response to change in the financial markets that weakened the banks’ competitive position and caused them to pursue new businesses. *See* Jonathan R. Macey, *The Business of Banking: Before and After Gramm–Leach–Bliley*, 25 J. CORP. L. 691, 691–92 (2000) (“[O]ver time, banks and investment banks had conspired with compliant regulators to punch giant holes in the statutory restrictions on combining commercial banking and investment banking. In other words, the Glass–Steagall Act was already a dead letter when Gramm–Leach–Bliley was passed.”).

whether that risk-taking precipitated the 2007 financial crisis.⁸ No doubt, the banks' (and their affiliates') ability to enter the capital markets changed the nature and extent of the risks they incurred,⁹ and greater risk-taking contributed to losses that arose during the financial crisis.¹⁰ What the conventional story omits, however, is the effect of the Gramm–Leach–Bliley Act on financial firms *other* than commercial banks. That failure has resulted in a gap in our understanding of what led to the financial crisis. After all, it was Lehman Brothers—an *investment bank*, not a commercial bank—that

⁷ See, e.g., Kevin J. Stiroh & Adrienne Rumble, *The Dark Side of Diversification: The Case of US Financial Holding Companies*, 30 J. BANKING & FIN. 2131, 2133–34 (2006) (reporting that, for financial holding companies dependent on high volatility revenues, the benefits of diversification from the weak correlation across different income sources were more than offset by the risks); Michelle Heller, *'03 Regulatory Outlook Suddenly Unsettled*, AM. BANKER, Nov. 11, 2002, at 1 (“Sen. Shelby [senior member of the Senate Banking Committee] . . . said he was considering [committee] hearings as a way to determine whether mixing the [commercial and investment banking] businesses was jeopardizing the safety and soundness of the banking system.”).

⁸ See, e.g., LAWRENCE G. McDONALD & PATRICK ROBINSON, *A COLOSSAL FAILURE OF COMMON SENSE: THE INSIDE STORY OF THE COLLAPSE OF LEHMAN BROTHERS* 7 (2009) (stating that the Gramm–Leach–Bliley Act was “directly responsible for bringing the entire world to the brink of financial ruin”); Julie A.D. Manasfi, *Systemic Risk and Dodd–Frank’s Volcker Rule*, 4 WM. & MARY BUS. L. REV. 181, 182 (2013) (“[T]his Article asks the important question of whether the blending of commercial banking and investment banking produces the alleged harm: increased systemic risk.”).

⁹ See, e.g., Anthony Saunders et al., *Enhanced Regulation of Large, Complex Financial Institutions*, in RESTORING, *supra* note 4, at 139–40, 143 (noting that competition for investment bank mandates was “increasingly aggressive . . . greatly increasing the risk exposures that banks were willing to take on their own books” and that, like investment banks, “the banks increasingly relied on proprietary trading revenues as competitive pressure eroded intermediation margins”); Arthur E. Wilmarth Jr., *How Should We Respond to the Growing Risks of Financial Conglomerates?*, in FINANCIAL MODERNIZATION AFTER GRAMM–LEACH–BLILEY 65, 77 (Patricia A. McCoy ed., 2002) (“[The Gramm–Leach–Bliley] Act will promote a greater consolidation of risk within the financial sector, because it has removed the structural separations that (i) previously shielded commercial and investment banks from problems occurring in the other sector, and (ii) enabled each sector to serve as an independent source of financing during financial disruptions.”).

¹⁰ See, e.g., Carmen M. Reinhart & Kenneth S. Rogoff, *Is the 2007 US Sub-Prime Financial Crisis So Different? An International Historical Comparison*, 98 AM. ECON. REV. (PAPERS & PROC.) 339, 340 (2008) (“The impact of [sub-prime] defaults on the financial sector has been greatly magnified due to the complex bundling of obligations that was thought to spread risk efficiently.”); Wilmarth, *supra* note 9, at 71 (noting that the growth, over the preceding two decades, of aggressive syndicated lending and securitization, as well as speculative underwriting and investment activities, “have made large financial institutions vulnerable to serious losses during disruptions in the capital markets”).

sparked the meltdown leading to the crisis.¹¹ And, not having learned from our mistakes, we risk repeating them.¹²

This Article provides the rest of the story—a facet of bank regulatory reform and its effect on the capital markets that legal scholarship has largely overlooked. The basic premise is straightforward: By the time the Gramm–Leach–Bliley Act passed in 1999, the Glass–Steagall Act’s principal original purpose—to protect commercial banks from the capital markets—had reversed. Instead, its main function had become protecting the capital markets from new competition by the commercial banks.

Once the Glass–Steagall Act’s wall came down, commercial banks gained a sizeable share of business in the capital markets, displacing the role of investment banks. The size of a bank’s balance sheet—its ability to extend credit through traditional lending—became a decisive factor for borrowers in determining who would win capital markets mandates.¹³ Commercial banks offered a package of products and services that competed with those traditionally provided by investment banks.¹⁴ To offset lost revenues, investment banks grew their principal investments¹⁵ and the amounts they borrowed to finance them.¹⁶ In effect, as commercial banks entered the investment banking business, investment banks began to assume the features of commercial banks—in particular, a reliance on short-term borrowing in order to finance longer-term (and riskier) investments.¹⁷ For investment banks, combining the two—greater risk-taking and leverage—was lethal¹⁸ and eventually triggered the financial meltdown.¹⁹

¹¹ See, e.g., Peter Thal Larsen, *Collapse of the House of Lehman Was Trigger Point*, FIN. TIMES, Oct. 29, 2008, at 6 (“The starting point for the most recent meltdown was the decision by the US authorities to allow Lehman Brothers to fail. . . . At the time, some observers saw the Lehman bankruptcy as a cathartic moment. In fact, it was the trigger for a wave of failures and near-failures of banking institutions across the developed world.”). Interestingly, when assessing the Gramm–Leach–Bliley Act, its immediate effect on the investment banks—such as Lehman Brothers’ failure—is sometimes held out as evidence that repeal of the Glass–Steagall Act had limited impact on financial market instability because commercial banks were not directly affected. See, e.g., Andrew Ross Sorkin, *Reinstating an Old Rule Is Not a Cure for Crisis*, N.Y. TIMES (May 21, 2012), <http://dealbook.nytimes.com/2012/05/21/reinstating-an-old-rule-is-not-a-cure-for-crisis/> [<http://perma.cc/ZQ32-5TQ6>]. What that analysis fails to consider is the impact of the Gramm–Leach–Bliley Act on the capital markets and, in turn, the impact of investment bank failures on commercial banks.

¹² See *infra* notes 246–56 and accompanying text.

¹³ See *infra* notes 59–67 and accompanying text.

¹⁴ See *infra* notes 69–75 and accompanying text.

¹⁵ See *infra* Figures 1 & 2, notes 93–125 and accompanying text.

¹⁶ See *infra* Figure 3, notes 131–41 and accompanying text.

¹⁷ This mismatch between assets and liabilities is a standard feature of commercial banks. See *infra* notes 49, 189 and accompanying text.

¹⁸ See RAGHURAM G. RAJAN, FAULT LINES: HOW HIDDEN FRACTURES STILL THREATEN THE WORLD ECONOMY 17 (2010) (“[T]he central cause for the financial panic was not so much that the banks packaged and distributed low-quality subprime mortgage-

To illustrate, consider what occurred around Lucent Technologies' decision to spin-off its optical network subsidiary, Agere Systems, in 2001. Goldman Sachs and Credit Suisse First Boston (CSFB), both investment banks, were originally tapped to lead Agere's initial public offering (IPO) before Lucent found itself in need of \$6.5 billion in short-term credit.²⁰ In order to procure the additional funding, JPMorgan and Citigroup, two commercial banks, each committed \$1.25 billion to Lucent and arranged for others to make up the shortfall.²¹ Goldman Sachs and CSFB declined to join the lending group and were dropped as co-managers of the IPO,²² positions that were picked up by the investment bank affiliates of Lucent's new principal creditors, JPMorgan and Citigroup.²³

Morgan Stanley was also a co-lead manager of the Agere IPO.²⁴ To be selected, Morgan Stanley agreed to purchase up to \$2.6 billion in Lucent debt,²⁵ a portion of which it exchanged with Lucent for up to 90 million Agere shares.²⁶ For Morgan Stanley, the risks were significant. Prior to the IPO, Lucent's credit rating dropped to one notch above "junk" (below investment-grade) status.²⁷ When the deal became public, Morgan Stanley's stock price plummeted by over twenty percent,²⁸ principally due to concerns over the risk Morgan Stanley had assumed—the possibility of Lucent's credit rating dropping further or the value of the Agere shares being less than the Lucent

backed securities but that they held on to substantial quantities themselves, either on or off their balance sheets, financing these holdings with short-term debt."); Viral Acharya et al., *The Financial Crisis of 2007–2009: Causes and Remedies*, 18 FIN. MKTS. INSTITUTIONS & INSTRUMENTS 89, 108 (2009) ("Whatever the reasons, and they may have differed across firms, we believe that the combination of leverage and the fact that financial firms chose *not* to transfer the credit risk (even though they pretended to do so) is the root cause of the financial crisis.").

¹⁹ See ROGER LOWENSTEIN, *THE END OF WALL STREET* 287 (2010) ("Rampant speculation (and abuse) in mortgages was surely the primary cause of the bubble, which was greatly inflated by leverage in the banking system, in particular on Wall Street.").

²⁰ See Justin Schack, *The New Battle for the Bulge*, INSTITUTIONAL INV., Aug. 2001, at 35, 37; Randall Smith, *Lucent Deal Shows Wall Street Takes on Greater Risk*, WALL STREET J., Feb. 23, 2001, at C1.

²¹ See Schack, *supra* note 20, at 37.

²² See *id.* Goldman Sachs and CSFB may have learned from the Agere IPO. They later bought \$1 billion of AT&T debt as part of their participation in AT&T's spin-off of AT&T Wireless Group. See Emily Thornton, *Commentary: To Snare IPOs, Wall Street May Be Risking Too Much*, BLOOMBERG (July 8, 2001), <http://www.bloomberg.com/bw/stories/2001-07-08/commentary-to-snare-ipos-wall-street-may-be-risking-too-much> [<http://perma.cc/9EQR-EBVK>].

²³ See Agere Sys. Inc., Prospectus (Form 424B4), at cover (Mar. 27, 2001); Schack, *supra* note 20, at 37.

²⁴ See AGERE, *supra* note 23, at cover.

²⁵ See Schack, *supra* note 20, at 37.

²⁶ See AGERE, *supra* note 23, at 141. The arrangement permitted Lucent to retire a portion of its debt in a tax-efficient manner. See *id.*

²⁷ See Smith, *supra* note 20, at C1.

²⁸ See Thornton, *supra* note 22.

debt Morgan Stanley had agreed to exchange.²⁹ In the end, Morgan Stanley earned roughly \$75 million in fees, but only following billions of dollars in lost market capitalization and at the risk of incurring significant loan-related losses.³⁰

What the Lucent/Agere financing illustrates is the commercial banks' use of their sizeable balance sheets to enter the traditional investment banking business. Investment banks, in response, assumed greater risk and leverage in order to remain competitive. To be sure, passage of the Gramm–Leach–Bliley Act was not the only reason for the change. Investment banks sought new ways to make up for the drop in profitability³¹ caused by a number of factors, including a general slowdown in the investment banking business³² and the rise of low-cost online and electronic trading.³³ As Part II describes, however, what makes the effect of the Gramm–Leach–Bliley Act exceptional was the divide between two sets of regulators, those regulating commercial banks and those regulating investment banks, that resulted in a lapse in regulation as the investment banks changed how they conducted business. Rather than one or another regulator dropping the ball,³⁴ problems leading up to the financial crisis arose due to a structure in which siloed regulators, for legitimate reasons, pursued policy initiatives that spilled over to other parts of the financial markets.³⁵ As Part III describes, although new federal law has addressed some

²⁹ *See id.*

³⁰ *See id.*

³¹ *See infra* notes 87–91, 115–24 and accompanying text.

³² *See, e.g.,* Patrick McGeehan, *Lehman Profit Drops 67%, Hammered by Sept. 11 Disruption*, N.Y. TIMES (Dec. 21, 2001), <http://www.nytimes.com/2001/12/21/business/lehman-profit-drops-67-hammered-by-sept-11-disruption.html> [<http://perma.cc/6L5H-FMZU>]; Landon Thomas Jr., *Lower Profits at 2 Big Firms in a Year of Weak Markets*, N.Y. TIMES (Dec. 20, 2002), <http://www.nytimes.com/2002/12/20/business/corporate-conduct-financial-results-lower-profits-2-big-firms-year-weak-markets.html> [<http://perma.cc/7K5V-398G>].

³³ *See, e.g.,* The Goldman Sachs Grp., Annual Report (Form 10-K) 20 (Feb. 7, 2006) [hereinafter Goldman Sachs 2006]; Morgan Stanley, Annual Report (Form 10-K) 46 (Feb. 13, 2006) [hereinafter Morgan Stanley 2006].

³⁴ None of this is to suggest that regulatory oversight could not have been improved. *See, e.g.,* Theo Francis, *SEC's Cox Catches Blame for Financial Crisis*, BLOOMBERG (Sept. 19, 2008), <http://www.bloomberg.com/bw/stories/2008-09-19/secs-cox-catches-blame-for-financial-crisisbusinessweek-business-news-stock-market-and-financial-advice> [<http://perma.cc/TGT9-6AH2>] (“[C]ritics argue that the agency has leaned toward a hands-off regulatory approach in recent years that has left it unprepared or unwilling to use the powers it has and slow to step in as trouble brewed.”). My point is that, even with improvements in oversight, the problems described in this Article would have existed.

³⁵ There is also the question of whether commercial or investment banks “captured” their regulators, influencing the degree to which they oversaw and supervised entities under their charge. *See, e.g.,* Norman S. Poser, *Why the SEC Failed: Regulators Against Regulation*, 3 BROOK. J. CORP. FIN. & COM. L. 289, 317 (2009) (“The SEC’s main focus has changed from protecting investors to protecting the companies and investment firms that the SEC is required to regulate.”); Luigi Zingales, *The New York Fed: A “Captured” Regulator*, IL SOLE 24 ORE (It.) (Oct. 9, 2014), <http://www.ilsole24ore.com/art/english-version/2014-09-30/the-new-york-fed-captured-regulator-053840.shtml?uuiid=ABCwCUyB>

of the coordination concerns, the gap between regulators exists today. The need for greater regulatory coordination continues in light of convergence in the financial markets. And a better understanding of the problems leading up to the financial crisis is important in helping address this need.

II. RAZING THE WALL: RISK-TAKING AND LEVERAGE

In this Part, I describe changes in the financial industry that led to the commercial banks' entry into the capital markets and changes in the capital markets that resulted. Over time, bank regulators relaxed commercial bank restrictions in an effort to enhance financial market stability. Greater competition in the capital markets caused investment banks to seek new ways to enhance revenues by increasing the risks they incurred. Investment banks also borrowed in order to finance their entry into new business lines. The greater risk-taking and leverage, in turn, sparked the failures by Bear Stearns and Lehman Brothers, which were a principal catalyst of the 2007 financial crisis.

A. *Never the Twain*

The Glass–Steagall Act's regulatory wall held in place for decades.³⁶ Between commercial and investment banks, never the twain would meet, primarily due to concern over the risks commercial banks would face if they entered the investment banking business.³⁷ Bank regulation, however, began to evolve,³⁸ partly in response to change in the financial markets as new products and services appeared³⁹ and banks began to lose competitive ground to non-banks.⁴⁰ That change accelerated in the 1970s and 1980s⁴¹ with a rise in

[<http://perma.cc/6JTN-LZ4P>] (describing concerns over recent evidence of bank capture of the New York Federal Reserve). This Article highlights a more basic problem—a structural divide, causing commercial bank policies to work against stability in the capital markets—without regard to whether the regulators were captured.

³⁶ See Merkley & Levin, *supra* note 4, at 518.

³⁷ See *supra* note 5 and accompanying text.

³⁸ See RESTORING, *supra* note 4, at 369.

³⁹ 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) (describing the effect on banks of developments in technology and lending practices).

⁴⁰ See Franklin Allen & Anthony M. Santomero, *The Theory of Financial Intermediation*, 21 J. BANKING & FIN. 1461, 1464–74 (1998) (summarizing the significant “increase in the breadth and depth of financial markets”); Franklin R. Edwards & Frederic S. Mishkin, *The Decline of Traditional Banking: Implications for Financial Stability and Regulatory Policy*, FRBNY ECON. POL'Y REV., July 1995, at 27, 28–32; Alan E. Sorcher & Satish M. Kini, *Does the Term “Bank Broker-Dealer” Still Have Meaning?*, 6 N.C. BANKING INST. 227, 232–33 (2002) (“[B]anks’ [ability to] earn[] a good and relatively risk-free living off the spread between those [relatively cheap] deposits and [low-risk, marketable] assets . . . began to change gradually commencing in the 1950s.” (footnote

competition between banks and non-banks,⁴² as well as a shift in capital-raising from traditional intermediation (such as lending by commercial banks) to less-regulated alternatives,⁴³ as the capital markets became a lower-cost source of capital and risk-taking (such as through commercial paper and bonds).⁴⁴

A classic example is the combination of money market funds (MMFs) and finance companies. For commercial banks, new regulatory capital requirements made it more costly to continue the lending business as they had before.⁴⁵ MMFs and finance companies offered products and services that were similar to what banks offered, but at competitive prices. MMFs are required by the federal securities laws to invest in short-term, liquid, high-quality debt instruments, such as Treasury bills and commercial paper.⁴⁶ They offer investors the convenience of a bank account, including checking

omitted)); Richard J. Herring & Anthony M. Santomero, *What Is Optimal Financial Regulation?* 27–35 (Wharton Fin. Insts. Ctr., Working Paper No. 00-34, 1999), <http://fic.wharton.upenn.edu/fic/papers/00/0034.pdf> [<http://perma.cc/Z9XU-CL77>] (arguing that banks became “less special” during this time period).

⁴¹ See KERRY COOPER & DONALD R. FRASER, *BANKING DEREGULATION AND THE NEW COMPETITION IN FINANCIAL SERVICES* 195–217 (1984); ROBERT E. LITAN, *WHAT SHOULD BANKS DO?* 33–59 (1987); Allen N. Berger et al., *The Transformation of the U.S. Banking Industry: What a Long, Strange Trip It's Been*, 2 BROOKINGS PAPERS ON ECON. ACTIVITY 55, 55, 127 (1995).

⁴² See LOWELL L. BRYAN, *BREAKING UP THE BANK: RETHINKING AN INDUSTRY UNDER SIEGE* 22–28 (1988); COOPER & FRASER, *supra* note 41, at 2–17; Franklin Allen & Anthony M. Santomero, *What Do Financial Intermediaries Do?*, 25 J. BANKING & FIN. 271, 274–82 (2001); Michael C. Keeley, *Deposit Insurance, Risk, and Market Power in Banking*, 80 AM. ECON. REV. 1183, 1184–86 (1990); Sorcher & Kini, *supra* note 40, at 232–34.

⁴³ See Allen & Santomero, *supra* note 40, at 1466–74; Herring & Santomero, *supra* note 40, at 27–30.

⁴⁴ See Berger et al., *supra* note 41, at 68–70; Ronald J. Gilson & Charles K. Whitehead, *Deconstructing Equity: Public Ownership, Agency Costs, and Complete Capital Markets*, 108 COLUM. L. REV. 231, 244–47 (2008); Merton H. Miller, *Financial Innovation: The Last Twenty Years and the Next*, 21 J. FIN. & QUANTITATIVE ANALYSIS 459, 459–60 (1986); Peter Tufano, *Financial Innovation*, in 1A HANDBOOK OF THE ECONOMICS OF FINANCE: CORPORATE FINANCE 307, 311–12 (George M. Constantinides et al. eds., 2003).

⁴⁵ See James R. Smoot, *Bank Operating Subsidiaries: Free at Last or More of Same?*, 46 DEPAUL L. REV. 651, 654–60 (1997); Kevin J. Stiroh, *Diversification in Banking: Is Noninterest Income the Answer?*, 36 J. MONEY, CREDIT & BANKING 853, 853–55 (2004); Robert DeYoung et al., *Executive Compensation and Business Policy Choices at U.S. Commercial Banks* 8–11 (Fed. Reserve Bank of Kan. City Econ. Research Dep't, Research Working Paper No. 10-02, 2010), <https://www.kansascityfed.org/PUBLICAT/RESWK/PAP/PDF/rwp10-02.pdf> [<https://perma.cc/NGC8-9FQE>].

⁴⁶ See 17 C.F.R. § 270.2a-7 (2011); *see also* INV. CO. INST. MONEY MKT. WORKING GRP., *REPORT OF THE MONEY MARKET WORKING GROUP* 31–39 (2009), http://www.ici.org/pdf/ppr_09_mmwg.pdf [<http://perma.cc/2Q5Q-F3XZ>] (describing the regulation of MMFs).

services, toll-free telephone numbers, record-keeping, and wire transfers, but with nominally higher returns than bank deposits.⁴⁷ 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.⁴⁸ Together, the relationship between MMFs and finance companies mirrors the traditional balance between depositors and borrowers within a bank. After MMFs were introduced, a substantial number of customers and billions of dollars in liquid assets shifted from commercial banks to the capital markets.⁴⁹

In response to greater competition, commercial banks began to offer new and more-profitable products and services,⁵⁰ turning to the regulators to expand what was permissible under the Glass–Steagall Act.⁵¹ Regulators were concerned with the financial impact of a weakened banking sector, reasoning therefore that commercial banks should be permitted to diversify their income sources.⁵² To permit banks to do so, they began to whittle away at regulations that restricted the banks’ business activities.⁵³ Subsequent passage of the

⁴⁷ See FRANKLIN R. EDWARDS, *THE NEW FINANCE: REGULATION & FINANCIAL STABILITY* 73–74 (1996).

⁴⁸ See JANE W. D’ARISTA & TOM SCHLESINGER, *ECON. POLICY INST., THE PARALLEL BANKING SYSTEM* 3–4, 7–14 (1993).

⁴⁹ See D’ARISTA & SCHLESINGER, *supra* note 48, at 3–4, 7–14; EDWARDS, *supra* note 47, at 73–74.

⁵⁰ See Helen A. Garten, *Regulatory Growing Pains: A Perspective on Bank Regulation in a Deregulatory Age*, 57 *FORDHAM L. REV.* 501, 524–25 (1989) (noting that the result of greater competition was “a gradual decline in [bank] profitability”). In general, investment bank services were more profitable than commercial bank services. See Alastair J. Cairns et al., *The Limits of Bank Convergence*, 2002 *MCKINSEY Q.*, no. 2, at 41, 41–42.

⁵¹ 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 40, at 233–34.

⁵² See Garten, *supra* note 50, at 530–31 (“The regulators’ recognition that improved safety and soundness in the banking industry will come from product diversification represents a revolution in bank regulatory strategy.”). For example, Alan Greenspan, Chairman of the Federal Reserve Board, was alarmed by the declining role of banks in the U.S. economy, arguing that “[p]ublic policy should be concerned with the decline in the importance of banking. The issues are too important for the future growth of our economy and the welfare of our citizens.” See Kenneth H. Bacon, *Losing Ground: Banks’ Declining Role in Economy Worries Fed, May Hurt Firms—It Could Weaken Usefulness of Monetary Policy, Cut Funds for Small Business—Depositors Run Higher Risks*, *WALL STREET J.*, July 9, 1993, at A1.

⁵³ See Arthur E. Wilmarth, Jr., *The Dark Side of Universal Banking: Financial Conglomerates and the Origins of the Subprime Financial Crisis*, 41 *CONN. L. REV.* 963, 972 (2009) (“During the 1980s and 1990s, federal regulators opened loopholes in the Glass–Steagall wall in response to growing competitive pressures in the financial marketplace. In 1987 and 1989, the Federal Reserve Board (FRB) allowed bank holding companies to underwrite debt and equity securities to a limited extent by establishing ‘Section 20 subsidiaries.’ During the 1990s, the FRB progressively relaxed its restrictions on Section 20 subsidiaries. By 1997, those subsidiaries could compete effectively with securities firms for underwriting mandates.” (footnote omitted)).

Gramm–Leach–Bliley Act enabled banks and their affiliates to fully participate in new business lines, including investment banking.⁵⁴ Combining banks and non-banks was intended, among other things, to make U.S. financial intermediaries more competitive, particularly in the global markets where universal banks—offering both commercial and investment bank products and services—already existed.⁵⁵

B. Commercial Bank Competition

Investment banks were wary of the commercial banks' new-found ability to compete in the capital markets.⁵⁶ They were particularly concerned with growing consolidation in the financial services industry.⁵⁷ The result, in many

⁵⁴ See Macey, *supra* note 6, at 692 (“[T]he Gramm–Leach–Bliley Act was, at its core, ostensibly a bailout bill for the banking industry. The justification for the statute was that it was needed to rescue a commercial banking industry that was thought to be obsolete. Banks were thought to be in a ‘long downward spiral’ caused by ‘deep structural problems’ that threatened the existence of federally insured depository institutions and raised ‘the specter of ongoing deposit-insurance cases.’” (footnote omitted) (quoting Jonathan R. Macey & Geoffrey P. Miller, *Bank Failures, Risk Monitoring and the Market for Bank Control*, 88 COLUM. L. REV. 1153, 1155 n.9 (1988))); Merkley & Levin, *supra* note 4, at 518 (“The rise of competition from investment banking and other ‘shadow banking’ firms put pressure on commercial bankers, who responded by seeking to engage in activities that had long been walled off.” (footnote omitted)).

⁵⁵ Laurence H. Meyer, a member of the Board of Governors of the Federal Reserve, noted, “Part of the motivation for the [Gramm–Leach–Bliley Act] was to put U.S. banking organizations in a more competitive position. To the extent that securities and banking are increasingly interconnected activities with power synergies, U.S. banking organizations are better able to play in the global arena than they were before.” James Smalhout, *US Bank Regulation—Winners and Losers of New Finance Law*, EUROMONEY, Dec. 1999, at 16.

⁵⁶ See, e.g., The Goldman Sachs Grp., Annual Report (Form 10-K) 12–13 (Feb. 11, 2000) [hereinafter Goldman Sachs 2000]; Lehman Brothers Holdings Inc., Annual Report (Form 10-K) 8 (Feb. 28, 2000) [hereinafter Lehman 2000]; Merrill Lynch & Co., Annual Report (Form 10-K) 2 (Mar. 9, 2000) (noting that the Gramm–Leach–Bliley Act, among other factors, increased the number of companies competing for a similar customer base); Morgan Stanley Dean Witter & Co., Annual Report (Form 10-K) 9 (Feb. 25, 2000) [hereinafter Morgan Stanley Dean Witter 2000]. Note that, in 1996, the Federal Reserve raised the cap on revenues that commercial banks could earn through the underwriting activities of their non-bank (“Section 20”) subsidiaries, easing the banks’ entry into the investment bank business, even before repeal of the Glass–Steagall Act, although commercial bank activity was still limited. See Revenue Limit on Bank-Ineligible Activities of Subsidiaries of Bank Holding Companies Engaged in Underwriting and Dealing in Securities, 61 Fed. Reg. 68,750 (Dec. 30, 1996).

⁵⁷ See Goldman Sachs 2000, *supra* note 56, at 12 (noting possible acceleration of consolidation and bank competition resulting from recently enacted federal financial legislation); Morgan Stanley Dean Witter 2000, *supra* note 56, at 9 (noting that passage of the Gramm–Leach–Bliley Act may accelerate consolidation); see also Christian A. Johnson, *Holding Credit Hostage for Underwriting Ransom: Rethinking Bank Antitying Rules*, 64 U. PITT. L. REV. 157, 174–75 (2002) (describing bank industry consolidation); Randall Smith & Charles Gasparino, *Lehman Tries to Thrive as a Solo Player as Mergers*

cases, was larger and better-capitalized firms that offered a wider range of products and services than traditionally provided by investment banks alone.⁵⁸

The investment banks had reason to worry. Commercial banks began to compete head-to-head with investment banks, using lending relationships⁵⁹ and their ability to access and commit capital⁶⁰ at relatively low cost⁶¹ within a contracting credit market⁶² to gain substantial market share in traditional investment bank businesses, including equity and debt underwriting.⁶³ They

Turn Its Rivals into Goliaths, WALL STREET J., Oct. 27, 2000, at C1 (“Lehman typifies the handful of midsize securities firms that remain independent as the industry consolidates around them.”).

⁵⁸ See, e.g., Goldman Sachs 2000, *supra* note 56, at 12–13; Lehman 2000, *supra* note 56, at 8 (noting, in particular, higher capital resources); Morgan Stanley Dean Witter 2000, *supra* note 56, at 9; see also Susan Chaplinsky & Gayle R. Erwin, *Great Expectations: Banks as Equity Underwriters*, 33 J. BANKING & FIN. 380, 389 (2009) (noting the growth of the underwriting business through acquisition); Smith & Gasparino, *supra* note 57, at C1 (“With more companies pressuring financial-services firms to make capital commitments to win roles in financing assignments, some say size matters.”).

⁵⁹ See Suzanne McGee, *Deals & Deal Makers: Chase Uses Its Lending Clout to Land Underwriting Work*, WALL STREET J., Dec. 23, 1999, at C20 (noting that Chase Manhattan Bank was “willing to use its extensive lending relationships to muscle its way into stock-underwriting mandates”); Smith, *supra* note 20, at C1 (“[C]ommercial banks both domestic and foreign, including Citigroup, have pressed their lending customers to include them in more lucrative equity deals . . .”).

⁶⁰ See Smith, *supra* note 20, at C1 (noting that commercial banks “will use their balance sheets” to win investment bank mandates, “and clearly this is an issue at the fore because Citigroup has made a lot of progress and kind of pushed the issue”).

⁶¹ Commercial bank deposits, for example, are a relatively inexpensive and risk-free source of funds, primarily due to insurance provided by the Federal Deposit Insurance Corporation (FDIC) (in general, up to \$250,000 per depositor, per bank, in accounts that meet FDIC requirements), which essentially makes those deposits risk free. See Garten, *supra* note 50, at 516 (“The power to take deposits, particularly given the protection afforded by deposit insurance and interest rate ceilings, not only provided banks with a cheap source of funding, but also enabled banks to build relationships with potential customers for other bank products, such as lines of credit, mortgages or credit cards.”); Maretno Harjoto et al., *A Comparison of Syndicated Loan Pricing at Investment and Commercial Banks*, FIN. MGMT., Winter 2006, at 49, 66 (finding investment banks lend to less profitable, more leveraged firms, price more aggressively and offer longer-term credits than commercial banks in syndicated loans).

⁶² See Johnson, *supra* note 57, at 173–75.

⁶³ See Steven Drucker & Manju Puri, *On the Benefits of Concurrent Lending and Underwriting*, 60 J. FIN. 2763, 2764–65 (2005) (finding that, for highly-leveraged and below-investment-grade issuers, lending at the time of a seasoned equity offering significantly increases the probability of current and future underwriting business); Alexander Ljungqvist et al., *Competing for Securities Underwriting Mandates: Banking Relationships and Analyst Recommendations*, 61 J. FIN. 301, 302 (2006) (“By most accounts, commercial banks exploited their larger capital accounts to win underwriting mandates.”); see also Morgan Stanley, Annual Report (Form 10-K) 28 (Feb. 25, 2004) [hereinafter Morgan Stanley 2004] (pointing, in particular, to greater competition from “firms that have commercial banking capabilities”).

also began to acquire investment banks in order to capitalize on pre-existing reputations in the capital markets,⁶⁴ merging their bank and capital markets businesses in order to offer clients a one-stop source of credit.⁶⁵ As a result, investment banks increasingly were pressured to lend to corporate clients⁶⁶ who used the lure of lucrative investment bank mandates to enhance their borrowing capability.⁶⁷ The earlier Lucent/Agere example is just one illustration of how this occurred.⁶⁸

The effects were significant. Before the Glass–Steagall Act was repealed, the commercial banks' share of the bond underwriting market was approximately ten percent,⁶⁹ climbing to fifty-six percent by the end of the 1990s.⁷⁰ Likewise, commercial banks made significant inroads into the

⁶⁴ See George J. Papaioannou, *Commercial Banks in Underwriters and the Decline of the Independent Investment Bank Model*, 9 J. INT'L BUS. & L. 79, 80–84 (2010) (noting that the commercial banks acquired investment banks as an efficient means of developing reputational and relationship capital quickly).

⁶⁵ See Jennifer Morris, *The Great League Table Debate*, EUROMONEY, June 2001, at 116 (commenting that “the lending and securities businesses of most major institutions are no longer separate and distinct divisions”); Christopher O’Leary, *Solly’s Big Climb*, INV. DEALERS’ DIG., Apr. 30, 2001, at 16, 17, 20 (describing the merger of Salomon Brothers’ debt underwriting group and Citibank’s lending group, both subsidiaries of Citigroup). Note that, while significant, lending alone was not the only factor that a prospective issuer took into account in deciding which underwriter to select. Other factors, such as research analyst coverage of the company, were also important. See Papaioannou, *supra* note 64, at 87–88.

⁶⁶ See Jane Croft, *Putting More Value on Credit Facilities*, FIN. TIMES, Jan. 27, 2005, at 5 (“[A]n investment bank is seen to have a huge advantage over rivals if it can offer clients vast loans or complex financial deals together with its M&A services.”); Patrick McGeehan, *Showdown on Wall Street; Banks Are Getting Business at the Expense of Elite Firms*, N.Y. TIMES (June 15, 2001), <http://www.nytimes.com/2001/06/15/business/showdown-on-wall-street-banks-are-getting-business-at-the-expense-of-elite-firms.html> [<http://perma.cc/ZA67-9HDZ>] (“Increasingly, companies . . . are demanding that Wall Street firms extend big, barely profitable loans if they want to have a shot at the highly profitable assignments of managing offerings of stock and bonds or advising on mergers.”); see also The Goldman Sachs Grp., Annual Report (Form 10-K), 15 (Feb. 5, 2007) [hereinafter Goldman Sachs 2007] (“[W]e have faced, and expect to continue to face, pressure to retain market share by committing capital to business or transactions on terms that offer returns that may not be commensurate with their risks.” (emphasis added)). Some investment banks sought to manage the incremental credit risk through loan syndication and derivatives. See, e.g., Morgan Stanley 2004, *supra* note 63, at 28.

⁶⁷ See, e.g., Smith, *supra* note 20, at C1 (“[F]inancial-services firms [participating in a new loan facility] will get priority in more lucrative assignments such as merger advice and securities underwriting.”); Gregg Wirth & Michelle Celarier, *Into the Crucible*, INV. DEALERS’ DIG., June 11, 2001, at 32 (“First Ford Motor Co., then Deutsche Telekom AG and Vodafone Group Plc demanded that investment bankers looking for underwriting mandates put their money on the table—or risk being left out of the deal flow.”).

⁶⁸ See *supra* notes 20–30 and accompanying text.

⁶⁹ See Anil Shivdasani & Wei-Ling Song, *Breaking Down the Barriers: Competition, Syndicate Structure, and Underwriting Incentives*, 99 J. FIN. ECON. 581, 582 (2011).

⁷⁰ See *id.*

equities business, raising their share of equity underwriting from less than five percent in 1995 to twenty-six percent in 2000.⁷¹ Overall, the likelihood of having the same financial firm act as lender and underwriter increased substantially, from only one percent of seasoned equity issuers in 1994 to over twenty percent by 2001.⁷² The rise of commercial banks also contributed to the use of more than one manager in a securities underwriting, further eroding the revenues on which investment banks traditionally relied.⁷³ Growing competition squeezed the amounts that banks and non-banks could charge for underwritings,⁷⁴ placing even greater pressure on investment bank profitability.⁷⁵

⁷¹ See Chaplinsky & Erwin, *supra* note 58, at 382–83. Part of the increase resulted from banks acquiring investment banks that had an existing underwriting business, even though market share may have declined after the acquisition. *Id.* at 389.

⁷² See Drucker & Puri, *supra* note 63, at 2763.

⁷³ See Robin Sidel et al., *Investment Banks See Fees Shrink in Battle With New Rules, Rivals*, WALL STREET J. (May 18, 2004), <http://www.wsj.com/articles/SB108482963092613803> [<http://perma.cc/AV96-ZPQS>] (describing the decline in revenues for traditional investment bank services); see also Goldman Sachs 2007, *supra* note 66, at 53 (noting that the trend toward multiple book-runners and co-managers reduced the firm's revenues). Multiple-lead bond underwriting was nearly non-existent before 1995, but comprised ninety-six percent of bond issues by 2008. See Shivdasani & Song, *supra* note 69, at 582–83 (arguing that commercial banks' entry into bond underwriting spurred the co-led underwriting structure and lowered screening incentives of underwriters). On the equity side, IPO syndicate sizes decreased from 1997 to 2002, while the mean number of co-managers rose. See Shane A. Corwin & Paul Schultz, *The Role of IPO Underwriting Syndicates: Pricing, Information Production, and Underwriter Competition*, 60 J. FIN. 443, 445 (2005).

⁷⁴ See Amar Gande et al., *Bank Entry, Competition, and the Market for Corporate Securities Underwriting*, 54 J. FIN. ECON. 165, 167 (1999) (finding that bank entry into the corporate debt market substantially reduced the amounts underwriters could charge); Dongcheol Kim et al., *The Impact of Commercial Banks on Underwriting Spreads: Evidence from Three Decades*, 43 J. FIN. & QUANTITATIVE ANALYSIS 975, 989 (2008) (finding a decline in average underwriting spreads from 1975 to 2004); see also Goldman Sachs 2007, *supra* note 66, at 16 (reporting that equity and debt underwriting discounts, as well as trading spreads, had been under pressure for a number of years); Merrill Lynch & Co., Annual Report (Form 10-K) 24 (Feb. 27, 2006) (noting diminishing margins in standard products as a result of intensifying competition).

⁷⁵ See David Wells, *Mergers Are Unpalatable but Necessary*, FIN. TIMES, June 26, 2004, at M20 (“When bankers compete for mandates from clients, they face a scrum of like-minded and similarly equipped rivals that includes more than a dozen names. . . . This mass of competition squeezes margins and reduces profitability.”); Gregory Zuckerman et al., *Investors Hear a Takeover Wave*, WALL STREET J. (Jan. 16, 2004), <http://www.wsj.com/articles/SB107420645593293700> [<http://perma.cc/6QKE-N5UM>] (noting that investment bank profits were booming, due to cost reductions and greater proprietary trading, even though there was a decline in stock and underwriting business by investment banks); Sidel et al., *supra* note 73 (“Total revenue at securities firms dropped nearly 3% . . . despite a 25.3% gain in the Dow Jones Industrial Average. Fees for traditional services such as underwriting and merger advice are falling.”).

On its face, the commercial banks' ability to leverage lending into investment banking was limited by federal anti-tying laws. The Bank Holding Company Act generally prohibits a commercial bank from requiring a prospective borrower to purchase another product or service from the bank or refrain from purchasing a product or service from the bank's competitors as a condition to obtaining a loan.⁷⁶ For example, a bank cannot condition a loan on the borrower selecting it to be an underwriter or refraining from selecting a competitor. The Act does, however, permit a bank to tie loans to "traditional bank products," such as deposits and trust services,⁷⁷ an exception to the anti-tying rule that grew over time.⁷⁸ Bank regulators historically construed the tying prohibition narrowly, consistent with the limited scope of a bank's business activities under the Glass-Steagall Act. Following passage of the Gramm-Leach-Bliley Act, however, lending relationships grew in importance as a means to secure other (principally, investment banking) business.⁷⁹ For tying to occur, the regulators required some form of actual coercion by a commercial bank, such as forcing a client to purchase the tied product in order to obtain credit.⁸⁰ None of this prohibited a *customer's* actions in dealing with a bank, such as demanding that the bank provide one product (a loan) in order to receive other business (an underwriting), or a bank responding to a customer's request to bid on a package of bank and non-bank products and services (including loans, strategic advisory services, and underwriting).⁸¹ Moreover, even though a bank could not condition a loan on the award of investment banking business, it was permitted to offer more credit at lower cost in order to attract additional business.⁸² Finally, so long as they were not

⁷⁶ See 12 U.S.C. § 1972 (2012).

⁷⁷ See *id.* § 1972(1)(A).

⁷⁸ See Revisions Regarding Tying Provisions, 59 Fed. Reg. 65,473, 65,473–474 (Dec. 20, 1994) (current version at 12 C.F.R. § 225.7 (2014)); see also Felix B. Chang, *Death to Credit As Leverage: Using the Bank Anti-Tying Provision to Curb Financial Risk*, 9 N.Y.U. J.L. & BUS. 851, 859–65 (2013) (describing the expansion of the bank products exception).

⁷⁹ See, e.g., Shane A. Corwin & Mike Stegemoller, *The Changing Nature of Investment Banking Relationships* 26 (Apr. 2014) (unpublished manuscript) (finding that "the presence of a lending relationship [led] to a much stronger cross-over in [other business] relationships, especially during [2003–2009]"), <http://ssrn.com/abstract=2354565>.

⁸⁰ See Anti-Tying Restrictions of Section 106 of the Bank Holding Company Act Amendments of 1970, 68 Fed. Reg. 52,024, 52,028–029 (Aug. 29, 2003) [hereinafter Fed Tying]; OFFICE OF THE COMPTROLLER OF THE CURRENCY, *TODAY'S CREDIT MARKETS, RELATIONSHIP BANKING, AND TYING* 18–21 (2003) [hereinafter OCC TYING], <http://www.occ.gov/topics/laws-regulations/TyingWhitePaper.pdf> [<http://perma.cc/GST4-PJ2V>]. Courts, however, have split on whether coercion is a required element of tying. See Chang, *supra* note 78, at 882–84.

⁸¹ See Fed Tying, *supra* note 80, at 52,029.

⁸² See Drucker & Puri, *supra* note 63, at 2765–66 (finding that commercial banks are more likely to lower the cost of a loan in order to gain underwriting business, but that investment banks are more likely to discount underwriting fees); Karthik Krishnan,

coercive, banks could still consider the profitability of their total relationship with a customer when deciding whether or not, and on what terms, to extend or renew credit.⁸³ Doing so was not considered to be tying so long as the customer had the option to purchase traditional (with or without non-traditional) bank products.⁸⁴ Consequently, bank regulators found little or no evidence of illegal tying during the period,⁸⁵ notwithstanding a chorus of

Commercial Banks Getting Underwriting Business: Tying or Business Building?, 66 J. ECON. & BUS. 47, 50 (2013) (“[B]anks with underwriting ability engage in business building activities using their lending as a means to attract underwriting business [rather than tying].”). *But see* Charles W. Calomiris & Thanavut Pornrojnkool, *Relationship Banking and the Pricing of Financial Services*, 35 J. FIN. SERV. RES. 189, 221 (2009) (“Our results on loan pricing provide evidence against the prevalence of [tying], since matched loans that precede underwritings are charged a premium.”). Note that Sections 23A and 23B of the Federal Reserve Act prohibit national banks from charging below-market rates on credit and other products in order to benefit non-bank affiliates. Those practices are unsafe and unsound and contravene Sections 23A and 23B of the Federal Reserve Act. *See* 12 U.S.C. §§ 371c, 371c-1 (2012). In general, Section 23A restricts a bank’s financial transactions with its affiliates and specifies certain collateral requirements relating to borrowings and other covered transactions. Section 23B also restricts transactions with affiliates, in particular, by prohibiting a bank from extending credit to a borrower on below-market terms where an affiliate participates in the transaction or otherwise benefits from the extension of credit. The extension of credit must be on terms and conditions that are substantially the same, or at least as favorable to the bank, as those for comparable transactions not involving an affiliate and on terms and conditions that in good faith would be offered to the borrower. *See* OCC TYING, *supra* note 80, at 30.

⁸³ *See* Fed Tying, *supra* note 80, at 52,029; OCC TYING, *supra* note 80, at 5; *see also* Gyöngyi Lóránth & Alan D. Morrison, *Tying in Universal Banks*, 16 REV. FIN. 481, 484 (2012) (“In centralized authority structures, lending decisions are made by a headquarters that accounts for the combined value of lending and investment banking deals and hence elects to tie the two whenever it is profitable to do so.”).

⁸⁴ *See* Fed Tying, *supra* note 80, at 52,030. Since no single bank had the market power to force borrowers to do business with it, customers could choose to borrow from a different lender or in the public capital markets. *See* OCC TYING, *supra* note 80, at 8; *see also* Letter from R. Hewitt Pate, Assistant Attorney Gen., U.S. Dep’t of Justice, to Jennifer J. Johnson, Sec’y, Bd. of Governors of the Fed. Reserve Sys. 6–8 (Nov. 7, 2003), http://www.federalreserve.gov/SECRS/2005/January/20050104/OP-1158/OP-1158_50_1.pdf [<http://perma.cc/JF93-NDJA>] (noting that the anti-tying prohibition relates to the market power of banks, and arguing that large borrowers who are able to access the syndicated loan market, including a substantial number of bank and non-bank lenders, “are much less likely to be victims of anti-competitive ties than small business customers or individual consumers”).

⁸⁵ *See* OCC TYING, *supra* note 80, at 30. The U.S. General Accounting Office found limited evidence of tying in a 1997 report, *see* U.S. GEN. ACCOUNTING OFFICE, GAO/GGD-97-58, BANK OVERSIGHT: FEW CASES OF TYING HAVE BEEN DETECTED 5 (1997), <http://www.gao.gov/assets/230/224118.pdf> [<http://perma.cc/JB4F-NVWD>], although a 2003 report, following repeal of the Glass–Steagall Act, suggested that one reason for the limited evidence of tying could be the borrowers’ reluctance to formally complain to bank regulators, partly due to fear of the adverse consequences of doing so, *see* U.S. GEN. ACCOUNTING OFFICE, GAO-04-3, BANK TYING: ADDITIONAL STEPS NEEDED TO ENSURE EFFECTIVE ENFORCEMENT OF TYING PROHIBITIONS 4 (2003),

complaints by borrowers that they were forced to direct additional business, beyond traditional bank products, to the commercial banks.⁸⁶

C. Changes in Investment Banking—Risk-Taking and Leverage

Investment banks responded quickly to the greater competition. And they did so principally in three ways: reallocating resources to more profitable businesses; taking greater risks; and increasing their borrowing.

The investment banks reallocated resources to products and services for which they had a special reputation or expertise. For example, investment banks had developed expertise in financial advisory work⁸⁷ and in providing clients with investment opportunities through new financial instruments⁸⁸ and internal hedge funds.⁸⁹ In much the same way, they expanded their M&A

<http://www.gpo.gov/fdsys/pkg/GAOREPORTS-GAO-04-3/pdf/GAOREPORTS-GAO-04-3.pdf> [<http://perma.cc/HPG4-H6BR>].

⁸⁶ See ASS'N FOR FIN. PROF'LS, 2004 CREDIT ACCESS SURVEY: LINKING CORPORATE CREDIT TO THE AWARDING OF OTHER FINANCIAL SERVICES 2 (2004), http://www.afponline.org/pub/pdf/2004_06_09_pr_creditaccess_pdf.pdf [<http://perma.cc/YUH2-XX69>] (“Nearly two-thirds of financial professionals from large companies report that their commercial bank credit providers denied credit or changed the terms of credit after the company did not award other financial business. . . . One out of seven large companies report that in the past five years they have been explicitly required by a commercial bank to obtain . . . underwriting services from an affiliate of the bank in order to obtain a loan from the bank.”); see also Chang, *supra* note 78, at 873 (criticizing the regulators’ reliance on bank examination results as “a bank-oriented perspective that does little to factor in the input of borrowers”).

⁸⁷ See Croft, *supra* note 66, at 5 (“There is no shortage of capital in the world but there is a shortage of good ideas—and if you have a good idea, finding the capital to support it is not a problem.”); Zuckerman et al., *supra* note 75 (“While banking rivals continue to encroach on their turf by offering loans to clients as a way to sell clients more services, Wall Street firms have largely maintained their hold on the most profitable segments of their business. Advisory work on mergers and acquisitions, for example, still is dominated by firms like Goldman Sachs Group Inc.”); see also Goldman Sachs 2007, *supra* note 66, at 49 (noting emphasis on growth opportunities in advising middle-market firms, as well as advising governments and investors on the sale and purchase of public infrastructure assets).

⁸⁸ See Morgan Stanley Research, Brokers and Asset Managers: Europe “*en Fuego*”—An Update on the US Brokers in Europe 4 (Apr. 2, 2006) (noting that U.S. investment banks were more profitable in Europe than J.P. Morgan Chase and Citigroup, “primarily because their focus is on the higher margin/less commoditized products such as derivatives, securitization and structured products”); see also Lehman Brothers Holdings Inc., Annual Report (Form 10-K) 43 (Feb. 28, 2002) [hereinafter Lehman 2002]. Merrill Lynch also expanded its derivatives business in 2004, which to that point had been an underdeveloped area for the firm. See Merrill Lynch & Co., Annual Report (Form 10-K) 14–15 (Mar. 15, 2005) [hereinafter Merrill Lynch 2005].

⁸⁹ Investment banks created internal hedge funds partly in order to provide investment vehicles to clients who were closed out of existing funds. See Ann Davis, *Wall Street Builds The “Bionic” Hedge Fund*, WALL STREET J. (Oct. 25, 2004), <http://www.wsj.com/articles/SB109865904955354142> [<http://perma.cc/FZ9N-WDML>]

advisory, underwriting, trading, and asset management businesses by leveraging existing client relationships,⁹⁰ as well as finding other ways to forge closer, more-rounded relationships with the same client base.⁹¹

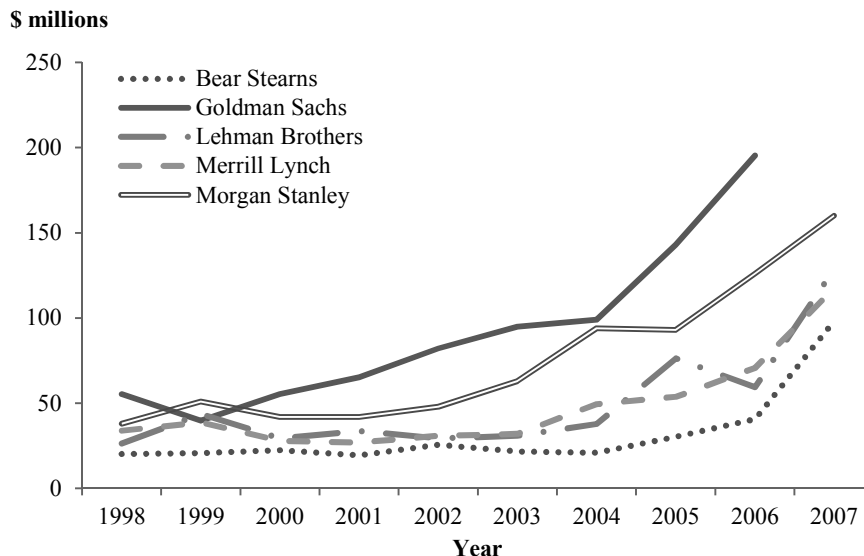
The investment banks also began to incur greater risk as one means to compensate for the loss in traditional business. As Figure 1 shows, following repeal of the Glass–Steagall Act, the investment banks’ aggregate risks—as measured by each firm’s Value at Risk (VaR)—grew substantially.⁹²

(“[Internal hedge funds] give options to clients whom the firms are having trouble placing in sought-after, independent funds closed to new investors.”). Assets under management grew significantly within those funds. *See id.* (stating that assets under management for five internal hedge funds at Goldman Sachs had grown to \$9 billion). Firms also increased assets under management by acquiring asset management companies. For example, Morgan Stanley acquired Quilter Holdings Limited, a U.K.-based private client investment management business, in 2001, *see* Morgan Stanley Dean Witter & Co., Annual Report (Form 10-K) 25 (Feb. 14, 2002) [hereinafter Morgan Stanley Dean Witter 2002]; FrontPoint Partners, a provider of absolute return investment strategies, in 2006; and a minority interest in Avenue Capital Group, a New York-based investment manager with sizable assets under management, in 2006, *see* Morgan Stanley, Annual Report (Form 10-K) 65–66 (Feb. 12, 2007) [hereinafter Morgan Stanley 2007]. Lehman Brothers acquired Lincoln Capital Management’s fixed income asset management business in 2003, *see* Lehman Brothers Holdings Inc., Annual Report (Feb. 26, Form 10-K) 9 (2004) [hereinafter Lehman 2004], and Neuberger Berman Inc., another asset management company, in 2003, *see id.* at 8. Greater asset management capability strengthened fee-based revenues and broadened the products and services that could be offered to Lehman and Neuberger’s clients. *Id.* Lehman Brothers also acquired assets from The Crossroads Group, a diversified private equity fund manager. *See id.* at 9. In addition to growth through acquisition, investment banks expanded their existing asset management businesses. *See, e.g.,* Morgan Stanley, Annual Report (Form 10-K) 33–34 (Feb. 10, 2005) [hereinafter Morgan Stanley 2005] (planning to grow “separately managed accounts, multi-discipline accounts and alternative investment products”).

⁹⁰*See, e.g.,* Lehman Brothers Holdings Inc., Annual Report (Form 10-K) 5 (Feb. 28, 2003) [hereinafter Lehman 2003] (emphasizing a “customer flow” model tied to cross-selling the company’s advisory, market-making, and underwriting businesses); Morgan Stanley 2005, *supra* note 89, at 33 (stating that the focus of the Institutional Securities segment for 2005 was, among other things, to enhance client relationships and increase market share).

⁹¹*See* Sidel et al., *supra* note 73 (noting that, in order to develop relationships, investment banks provide cheap loans and an array of other services including “act[ing] as liaisons between companies and bond-rating agencies, arrang[ing] seminars and conferences, ferry[ing] top executives around the world to meet institutional investors and devot[ing] countless hours to crunching numbers and pulling together reams of market-related data for demanding clients”).

⁹²*See Enhancing Investor Protection and the Regulation of Securities Markets: Hearing Before the S. Comm. on Banking, Hous. and Urban Affairs, 111th Cong. 59 (2009) [hereinafter Coffee Testimony]* (written statement of John C. Coffee, Jr., Adolf A. Berle Professor of Law, Columbia University Law School) (showing a similar rise in VaR for major underwriters from 2004 to 2007).

Figure 1: *Value at Risk of Investment Banks, 1998–2007*⁹³

⁹³ The VaR data in Figure 1 is the daily average VaR for each annual period, in each case calculated at a ninety-nine percent confidence level. VaR data were collected from public filings by each investment bank and, if not already calculated at a ninety-nine percent confidence level on a daily average basis, were converted to that confidence level. In order to do so, VaR at a ninety-five percent confidence level was multiplied by 1.416 and, in order to adjust weekly or bi-weekly averages to daily averages (where applicable), the product was then divided by the square root of 7 or 14 (depending on whether the reported VaR data were weekly or bi-weekly). This approach to converting VaR is consistent with financial industry standards. See Alexander Campbell, *The Year of Living Riskily*, RISK, July 2008, at 28 (2008), http://www.risk.net/data/risk/pdf/articles/2008/028-032_Risk_0708.pdf [<http://perma.cc/MEU9-4Q99>]. For Bear Stearns' data, see The Bear Stearns Cos., Annual Report (Form 10-K) exhibit 13, at 51 (Sept. 28, 1999) [hereinafter Bear Stearns 1999]; The Bear Stearns Cos., Annual Report (Form 10-K) exhibit 13, at 58 (Feb. 28, 2001) [hereinafter Bear Stearns 2001]; The Bear Stearns Cos., Annual Report (Form 10-K) exhibit 13, at 47 (Feb. 28, 2003) [hereinafter Bear Stearns 2003]; The Bear Stearns Cos., Annual Report (Form 10-K) exhibit 13, at 55 (Feb. 14, 2005) [hereinafter Bear Stearns 2005]; The Bear Stearns Cos., Annual Report (Form 10-K) exhibit 13, at 70 (Feb. 13, 2007) [hereinafter Bear Stearns 2007]; and The Bear Stearns Cos., Annual Report (Form 10-K) exhibit 13, at 72 (Jan. 29, 2008) [hereinafter Bear Stearns 2008]. Data for Goldman Sachs were not publicly available before 1999. For Goldman Sachs, data were drawn from reports to shareholders. See The Goldman Sachs Grp., Annual Report (Form 10-K) 41 (Feb. 16, 2001) [hereinafter Goldman Sachs 2001]; The Goldman Sachs Grp., Annual Report (Form 10-K) 41 (Feb. 22, 2002) [hereinafter Goldman Sachs 2002]; The Goldman Sachs Grp., Annual Report (Form 10-K) 57 (Feb. 24, 2004) [hereinafter Goldman Sachs 2004]; Goldman Sachs 2006, *supra* note 33, at 86; The Goldman Sachs Grp., Annual Report (Form 10-K) 89 (Jan. 29, 2008) [hereinafter Goldman Sachs 2008]. For Lehman Brothers, see Lehman 2000, *supra* note 56, exhibit 13, at 56; Lehman 2002, *supra* note 88, exhibit 13, at 55; Lehman 2004, *supra* note 89, exhibit 13.01, at 60; Lehman Brothers Holdings Inc., Annual Report (Form 10-K) 57 (Feb. 13, 2006) [hereinafter

VaR estimates the maximum potential loss a portfolio can suffer over x period of time at y probability (“confidence level”) under normal circumstances.⁹⁴ To calculate VaR, a risk manager typically considers the types of risks that are likely to affect a portfolio’s value, including historical changes in market rates and prices.⁹⁵ She then generates *pro forma* estimates of value under those conditions and uses them to gauge the likelihood and magnitude of future losses.⁹⁶ To the extent VaR is consistently applied, it

Lehman 2006]; and Lehman Brothers Holdings Inc., Annual Report (Form 10-K) 71 (Jan. 29, 2008) [hereinafter Lehman 2008]. For Merrill Lynch, see Merrill Lynch & Co., Annual Report (Form 10-K) exhibit 13, at 51 (Mar. 5, 1999) [hereinafter Merrill Lynch 1999]; Merrill Lynch & Co., Annual Report (Form 10-K) exhibit 13, at 50 (Mar. 16, 2001) [hereinafter Merrill Lynch 2001]; Merrill Lynch & Co., Annual Report (Form 10-K) exhibit 13, at 34 (Mar. 14, 2003) [hereinafter Merrill Lynch 2003]; Merrill Lynch 2005, *supra* note 88, exhibit 13, at 39; Merrill Lynch & Co., Annual Report (Form 10-K) 52 (Feb. 26, 2007) [hereinafter Merrill Lynch 2007]; and Merrill Lynch & Co., Annual Report (Form 10-K) 47 (Feb. 24, 2009). For Morgan Stanley, see Morgan Stanley 2000, *supra* note 56, exhibit 13.4, at 50; Morgan Stanley Dean Witter 2002, *supra* note 89, at 57; Morgan Stanley 2004, *supra* note 63, at 73; Morgan Stanley 2006, *supra* note 33, at 95; and Morgan Stanley, Annual Report (Form 10-K) 89 (Feb. 25, 2008) [hereinafter Morgan Stanley 2008].

⁹⁴ See KEVIN DOWD, BEYOND VALUE AT RISK: THE NEW SCIENCE OF RISK MANAGEMENT 38–39 (1998). To use a simple illustration, suppose a risk manager is asked to estimate VaR for a \$100 million portfolio of high investment-grade five-year corporate bonds over a one-month time horizon and with a ninety-nine percent confidence level. In plain English, she would be asked to determine the maximum loss the portfolio could suffer during 99 out of 100 months. To do so, she would need to first simulate prospective returns on the portfolio, typically using historical data. If data on the bonds were unavailable or insufficient, she would rely instead on data from a comparable security, such as five-year U.S. Treasury notes (for which there is a substantial history). A 50-year period would yield 600 one-month observations of when the Treasuries rose in value, declined, or stayed the same, and the magnitude of any change. For simplicity, assume that (i) the changes in monthly value ranged between minus and plus 4.2%, (ii) the two highest loss rates were 4.0% and 4.2%, and (iii) there were three separate, one-month periods when losses were 4.0% and three other one-month periods when losses were 4.2%. At a ninety-nine percent confidence level, the risk manager would need to determine the worst one percent of possible losses—which, extrapolating from the Treasury observations, would be the six occurrences ($6 \div 600 = 1\%$) when losses were four percent or worse. The risk manager could then conclude that, at a ninety-nine percent confidence level, the \$100 million bond portfolio would lose no more than 4.0% of its value, resulting in a VaR of \$4 million ($4\% \times \100 million). Stated differently, a VaR of \$4 million would mean that the portfolio’s maximum loss was projected to exceed \$4 million during only one out of 100 one-month periods. See PHILIPPE JORION, VALUE AT RISK: THE NEW BENCHMARK FOR MANAGING FINANCIAL RISK 17–20 (3d ed. 2006); see also Darrell Duffie & Jun Pan, *An Overview of Value at Risk*, 4 J. DERIVATIVES 7, 8–9 (1997); Markus Leippold, *Don’t Rely on VaR*, EUROMONEY, Nov. 2004, at 46 (“[V]aR as a risk measure fails theoretically; in practice it gives rise to nonsensical results; and it is against our intuition of what we would perceive as risk.”).

⁹⁵ See Duffie & Pan, *supra* note 94, at 9–10.

⁹⁶ See 3 OESTERREICHISCHE NATIONALBANK, GUIDELINES ON MARKET RISK—EVALUATION OF VALUE AT RISK-MODELS 10 (Wolfdietrich Grau ed., 1999) [hereinafter

provides a measure of a firm's relative risk over time, even though there are many versions of VaR and how VaR is calculated varies from firm to firm.⁹⁷

VaR's special attraction is its ability to sum up a firm's market risk—its risk of loss based on changes in the market value of its investments—in a single number.⁹⁸ Nevertheless, VaR has a number of weaknesses as a risk management tool.⁹⁹ For example, VaR is calculated using simplifying assumptions that can distort results.¹⁰⁰ Chief among them, VaR assumes that market factors and portfolio returns fall along a normal distribution.¹⁰¹ Actual returns, however, typically do not, particularly if the market is volatile or correlations increase across a portfolio's assets.¹⁰² VaR's reliance on historical

GRAU, VAR-MODELS], <http://www.oenb.at/en/Publications/Financial-Market/Publications-of-Banking-Supervision.html> [<http://perma.cc/2TRU-AM2V>] (describing three methods of calculating VaR); Thomas J. Linsmeier & Neil D. Pearson, *Value at Risk*, 56 FIN. ANALYSTS J. 47, 59 (2000) (noting that all methods rely on historical data).

⁹⁷ See INT'L MONETARY FUND, FINANCIAL MARKET TURBULENCE: CAUSES, CONSEQUENCES, AND POLICIES 69 (2007), <http://www.imf.org/External/Pubs/FT/GFSR/2007/02/pdf/text.pdf> [<http://perma.cc/UYC7-AXEW>].

⁹⁸ See GLYN A. HOLTON, VALUE-AT-RISK: THEORY AND PRACTICE 22–24 (2003); Linsmeier & Pearson, *supra* note 96, at 47–48.

⁹⁹ See *infra* text accompanying notes 100–07. VaR, nevertheless, has been a cornerstone of global financial regulation. See Jón Danielsson & Jean-Pierre Zigrand, *Equilibrium Asset Pricing with Systemic Risk*, 35 ECON. THEORY 293, 294 (2008) (noting that statistical risk models used to determine bank capital and risk are the “cornerstone” of financial regulation); Jón Danielsson et al., *Incentives for Effective Risk Management*, 26 J. BANKING & FIN. 1407, 1407–08 (2002). Its endorsement by regulators reflected its growing use and sophistication, see JORION, *supra* note 94, at 61; Markus Leippold et al., *Equilibrium Impact of Value-At-Risk Regulation*, 30 J. ECON. DYNAMICS & CONTROL 1277, 1278 (2006) (“In 1996 VaR-based risk management had already emerged as common market practice.”); David Mengle, *Regulatory Origins of Risk Management*, in MODERN RISK MANAGEMENT: A HISTORY 417, 423–24 (Sarah Jenkins & Tamsin Kennedy eds., 2003), in part, the result of declining costs to develop new VaR systems, see DOWD, *supra* note 94, at 20. VaR also permitted regulators to assess market risk for individual firms over time, see Darryll Hendricks & Beverly Hirtle, *Bank Capital Requirements for Market Risk: The Internal Models Approach*, 3 FED. RES. BANK N.Y. ECON. POL'Y REV. 1, 8 (1997); Jose A. Lopez, *Regulatory Evaluation of Value-at-Risk Models*, in THE VALUE-AT-RISK REFERENCE 455, 458–59 (Jón Danielsson ed., 2007), and to tie regulation to internal measures rather than standards set by less well-informed outsiders, see, e.g., Risk-Based Capital Standards: Market Risk, 64 Fed. Reg. 19,034, 19,035 (Apr. 19, 1999); DOWD, *supra* note 94, at 222.

¹⁰⁰ A list of VaR's limitations appears in JORION, *supra* note 94, at 542–51, and BENOIT B. MANDELBROT & RICHARD L. HUDSON, THE (MIS)BEHAVIOR OF MARKETS: A FRACTAL VIEW OF RISK, RUIN, AND REWARD 272–74 (2004).

¹⁰¹ See 5 GRAU, VAR-MODELS, *supra* note 96, at 4.

¹⁰² See LINDA ALLEN ET AL., UNDERSTANDING MARKET, CREDIT, AND OPERATIONAL RISK: THE VALUE AT RISK APPROACH 9–10 (2004); Tanya Styblo Beder, *VAR: Seductive but Dangerous*, 51 FIN. ANALYSTS J. 12, 20 (1995); Szilárd Pafka & Imre Kondor, *Evaluating the RiskMetrics Methodology in Measuring Volatility and Value-at-Risk in Financial Markets*, 299 PHYSICA A 305, 309 (2001).

data can also impair its accuracy.¹⁰³ For instance, understating risk is particularly likely when VaR is based on data from a period when market volatility was unusually low¹⁰⁴ or when it is calculated at higher confidence intervals.¹⁰⁵ In addition, VaR can understate risk if market conditions have changed or the portfolio's assets have only a limited performance history.¹⁰⁶ Extreme events—like the 2007 financial crisis—are sufficiently rare that they are unlikely to be reflected in historical data or a normal distribution.¹⁰⁷ Finally, VaR fails to predict the magnitude of likely losses that can occur outside the specified confidence level, known as the “tail” of the distribution. For example, at a ninety-nine percent confidence level, VaR predicts the likely maximum loss a firm will sustain ninety-nine percent of the time. It does not predict loss levels during the remaining one percent, and those losses could be considerably higher.

Still, on the whole, the firm-by-firm increase in VaR during 1998–2007, as illustrated by Figure 1, reflects a rise in aggregate risk over the period. This would make sense if each firm's balance sheet was also growing. An increase in assets implies a greater risk of loss if those assets decline in value (assuming, for the moment, there are no benefits from diversification),¹⁰⁸ but not necessarily an increase in the riskiness of the investments the firm has made. To illustrate, suppose a firm holds one asset valued at \$100,000 with a

¹⁰³ See DOWD, *supra* note 94, at 22.

¹⁰⁴ See Linsmeier & Pearson, *supra* note 96, at 59–60. UBS (a large, multinational financial services firm) relied on VaR to manage its structured investments, including instruments tied to the subprime mortgage market. Following substantial losses, its investigation revealed that VaR had been based on data during a period of positive growth that did not adequately reflect its portfolio's risks. See UBS AG, SHAREHOLDER REPORT ON UBS'S WRITE-DOWNS 38 (2008), <http://www.ubs.com/1/e/investors/releases?newsId=140339> [<http://perma.cc/NTJ7-8LRR>].

¹⁰⁵ See Pafka & Kondor, *supra* note 102, at 309 (“[F]or higher significance levels fat tails in the distribution of returns will make the simple RiskMetrics rule of calculating VaR to underestimate risk.”).

¹⁰⁶ See SENIOR SUPERVISORS GRP., OBSERVATIONS ON RISK MANAGEMENT PRACTICES DURING THE RECENT MARKET TURBULENCE 15 (2008), http://www.newyorkfed.org/newsevents/news/banking/2008/SSG_Risk_Mgt_doc_final.pdf [<http://perma.cc/XX78-BTPS>] (noting that consistent updates to volatility estimates made VaR more sensitive to changing risks and that firms underestimated correlated risks between bonds and credit default swaps during the crisis); Mico Loretan & William B. English, *Evaluating “Correlation Breakdowns” During Periods of Market Volatility* 15–17 (Bd. of Governors of the Fed. Reserve Sys. Int'l Fin. Discussion Papers, Working Paper No. 658, 2000), <http://www.federalreserve.gov/pubs/ifdp/2000/658/ifdp658.pdf> [<http://perma.cc/JR3Q-TTZG>].

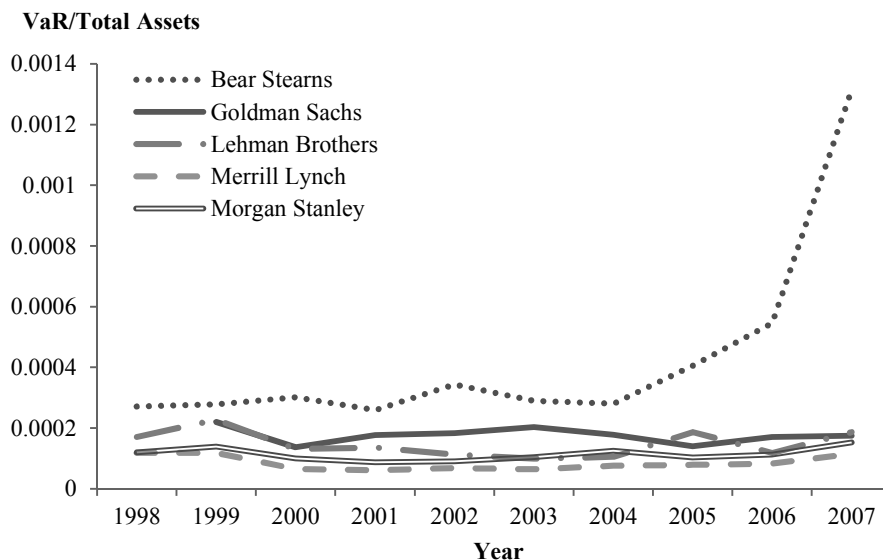
¹⁰⁷ See *The Risks of Financial Modeling: VaR and the Economic Meltdown: Hearing Before the Subcomm. on Investigations and Oversight, H. Comm. on Sci. & Tech.*, 111th Cong. 56 (2009) (statement of Richard Bookstaber) (“[W]hich is to say that VaR is a good measure of risk except when it really matters.”); Beder, *supra* note 102, at 20; Henry T. C. Hu, *The New Portfolio Society, SEC Mutual Fund Disclosure, and the Public Corporation Model*, 60 BUS. LAW. 1303, 1347 (2005).

¹⁰⁸ See Wilmarth, *supra* note 9, at 73 (questioning the value of diversification in consolidated financial firms, in particular, in light of the new risks that may be incurred).

daily average VaR of \$5,000 calculated at a ninety-nine percent confidence level. If that firm doubled its investment in the same asset—purchasing another asset also valued at \$100,000—its total VaR would increase to \$10,000 (\$5,000 for the first asset and \$5,000 for the second). VaR, however, would remain the same in relation to the firm's total assets. That is because the riskiness of the firm's investments would not have increased. If riskiness had increased—for example, if the second asset had a daily average VaR of \$10,000—then VaR relative to assets would have risen as well.

Figure 2 below sets out each firm's VaR relative to assets during 1998–2007. What is particularly interesting is that, except for Bear Stearns, VaR relative to assets remained largely constant over the period.

Figure 2: *Value at Risk Relative to Total Assets of Investment Banks, 1998–2007*¹⁰⁹



For Bear Stearns, aggregate VaR¹¹⁰ and, more importantly, VaR/total assets (reflecting the riskiness of Bear Stearns' investments on a per-dollar-of-assets basis) increased significantly after 2004. Based on the rapid rise in VaR/total assets, it is unsurprising that Bear Stearns was the first investment bank to fall into trouble.¹¹¹

¹⁰⁹ The VaR data in Figure 2 are derived from the VaR data in Figure 1. *See supra* note 93. Data on total assets are drawn from the same sources as the data in Figure 3. *See infra* note 141.

¹¹⁰ *See supra* Figure 1.

¹¹¹ *See, e.g.,* Michael D. Bordo, *An Historical Perspective on the Crisis of 2007–2008* 3–4 (Nat'l Bureau of Econ. Research, Working Paper No. 14569, 2008), <http://www.nber.org/papers/w14569.pdf> [<http://perma.cc/BU6D-BRGX>].

For the remaining investment banks, VaR/total assets remained largely constant, indicating that on average the riskiness of the firms' businesses remained unchanged on a per-dollar-of-assets basis.¹¹² The increase would still represent an overall rise in risk—a greater likelihood of bankruptcy—to the extent there was a growth in leverage relative to equity capital in order to fund the larger balance sheet. That risk is discussed in more detail below.¹¹³

More likely, however, the investment banks were less familiar with the nature of the new risks they assumed, resulting in VaR being understated.¹¹⁴ For example, declines in the equity markets and a slowdown in M&A activity caused firms to begin to focus on other, higher-margin activities.¹¹⁵ When the markets recovered in 2003, firms increased trading—in many cases, using their own capital—in order to take advantage of improving conditions.¹¹⁶ For

¹¹² Cf. TOBIAS ADRIAN & HYUN SONG SHIN, FED. RESERVE BANK OF N.Y., PROCYCLICAL LEVERAGE AND VALUE-AT-RISK 10, 12 (2008), http://www.newyorkfed.org/research/staff_reports/sr338.pdf [<http://perma.cc/786X-EQ8E>] (noting that unit VaR, VaR per dollar of assets, for eight large commercial and investment banks “fluctuat[ed] sharply”). Part of the difference may reflect the addition of J.P. Morgan Chase, Citibank, and Bank of America to the group of five investment banks reflected in Figure 2. See *id.* at 10 n.5. Part of it may also reflect differences in time periods. The Adrian and Shin calculations extended beyond 2007, when the most significant fluctuations occurred. See *id.* at 10 fig.4. From December 2001 to December 2007, the VaR/total assets fluctuations are noticeably less significant. See *id.*

¹¹³ See *infra* notes 139–74 and accompanying text.

¹¹⁴ See *supra* notes 106–07 and *infra* notes 157–64 and accompanying text.

¹¹⁵ See *supra* note 32 and accompanying text. For example, Merrill Lynch explored growth opportunities in derivatives, portfolio trading, secured financing, municipal bond trading, foreign exchange, and prime brokerage. See Merrill Lynch & Co., Annual Report (Form 10-K) 4 (Mar. 9, 2004) [hereinafter Merrill Lynch 2004].

¹¹⁶ See Susanne Craig & Gregory Zuckerman, *Risky Business: Brokerage Firms Place More Bets*, WALL STREET J. (Mar. 24, 2004), <http://www.wsj.com/articles/SB108008117588063350> [<http://perma.cc/VCM9-KBA2>] (“Wall Street’s biggest investment banks, riding a wave of strong stock markets and low interest rates, are taking increasing risks with their own cash to boost profits. . . . The appetite for more risk is one popular strategy aimed at lifting profits as other businesses face stiff competition and thinning margins.”). For example, Goldman Sachs increased market risk from 2003 to 2005 in order to capitalize on trading and investment opportunities. See The Goldman Sachs Grp., Annual Report (Form 10-K) 78 (Feb. 8, 2005) [hereinafter Goldman Sachs 2005]; Goldman Sachs 2006, *supra* note 33, at 86; Goldman Sachs 2007, *supra* note 66, at 91; see also Lynn Cowan, *Goldman Sachs Net Jumps 23% on Strength in Trading Profits*, WALL STREET J. (June 26, 2003), <http://www.wsj.com/articles/SB105654416276319300> [<http://perma.cc/7R7Z-M62U>] (noting that “[t]he company’s trading revenue was the sole driver of its earnings” and that it “took on more trading risk during the quarter than at any time since it first went public in 1999”); Jason Singer & Mitchell Pacelle, *Citigroup to Bet Its Own Chips*, WALL STREET J. (Nov. 19, 2003), <http://www.wsj.com/articles/SB106919889771407600> [<http://perma.cc/4JJ3-FL42>] (noting that Goldman Sachs, Lehman, and Morgan Stanley were among the firms that notched significant profits from proprietary trading in stocks, bonds, derivatives, and currencies). Morgan Stanley increased its allocation of economic capital to the Institutional Securities business, from \$18 billion in 2006 to \$23.9 billion in 2007, in order to support the greater risks incurred in trading and

many firms, non-investment-grade and highly-leveraged positions remained steady or had only moderate growth from 1999 to 2002, but spiked upward from 2003 to 2007,¹¹⁷ including greater participation in syndicated loan facilities that financed highly-leveraged (and risky) private equity deals.¹¹⁸ At the extreme, Lehman Brothers' non-investment-grade positions grew almost ten-fold from 2003 to 2007.¹¹⁹

In addition, virtually all investment banks increased their principal investment and private equity activities.¹²⁰ Some also expanded their block-

investment, *see* Morgan Stanley 2008, *supra* note 93, at 73, and Merrill Lynch increased risk-taking in growth areas such as proprietary trading and certain lending activities, *see* Merrill Lynch 2004, *supra* note 115, at 4.

¹¹⁷ Bear Stearns' net high yield positions grew steadily from \$1.1 billion in 1999 to \$6 billion in 2004, and to \$10.1 billion by 2006 (all at year end). *See* Bear Stearns 2001, *supra* note 93, exhibit 13, at 53; Bear Stearns 2005, *supra* note 93, exhibit 13, at 44; Bear Stearns 2007, *supra* note 93, exhibit 13, at 56. Merrill Lynch's trading exposure to non-investment-grade and highly-leveraged issuers shrank between 1998 and 2001, *see* Merrill Lynch 1999, *supra* note 93, exhibit 13, at 53; Merrill Lynch 2001, *supra* note 93, exhibit 13, at 51, but grew over six-fold from \$4.6 billion in 2001, *see* Merrill Lynch & Co., Annual Report (Form 10-K) exhibit 13, at 38 (Mar. 14, 2002), to over \$29 billion in 2006, *see* Merrill Lynch 2007, *supra* note 93, at 60.

¹¹⁸ *See* David Wighton, *Bank Lending on Buy-Outs Soars*, FIN. TIMES (July 17, 2006), <http://www.ft.com/cms/s/0/27a2bbda-1530-11db-b391-0000779e2340.html> [<http://perma.cc/5V9Q-DRFT>] (describing the dramatic expansion of investment bank lending to leveraged buy-outs, including non-investment grade companies); David Wighton, *The Great Big Balance Sheet Debate*, FIN. TIMES (Feb. 19, 2005), <http://www.ft.com/cms/s/0/7e134f7a-821a-11d9-9e19-00000e2511c8.html#axzz3qHQOBoEn> [<http://perma.cc/XMV8-QFVL>] (noting that Goldman Sachs, Morgan Stanley, Merrill Lynch, and Lehman increased their participation in U.S. syndicated bank facilities by eighty-five percent between 2001 and 2002, twenty-nine percent in 2003, and twenty-seven percent in 2004).

¹¹⁹ The size of Lehman's high-yield positions (excluding hedges) ranged between \$3 billion to \$12.8 billion from 1999 and 2006, jumping to \$30.4 billion in 2007 (including hedges). *See* Lehman 2000, *supra* note 56, exhibit 13, at 45; Lehman 2002, *supra* note 88, exhibit 13, at 49; Lehman 2003, *supra* note 90, at 7; Lehman 2004, *supra* note 89, exhibit 13.01, at 63; Lehman 2006, *supra* note 93, at 63; Lehman 2008, *supra* note 93, at 62.

¹²⁰ For example, Goldman Sachs showed strong growth in principal investment from 2003 to 2007. *See* The Goldman Sachs Grp., Annual Report (Form 10-K) exhibit 13.1, at 34 (Feb. 27, 2003); Goldman Sachs 2005, *supra* note 120, at 49; Goldman Sachs 2006, *supra* note 33, at 53; The Goldman Sachs Grp., Annual Report (Form 10-K) 67 (Jan. 27, 2009). In 2006, Morgan Stanley announced plans to double the size of its principal investment activity in order to improve financial performance, from \$1.2 billion in 2005 to approximately \$2.5 billion. *See* Morgan Stanley 2006, *supra* note 33, at 88. Merrill Lynch's substantial increase in earnings from asset-based lending and principal investment activities in 2003 led the firm to increase its risk profile the next year. *See* Merrill Lynch 2005, *supra* note 88, exhibit 13, at 23, 39. Merrill Lynch also had a large and increasing amount of proprietary trading and investment positions, which included proprietary trading positions in fixed income, currency, commodities, and equity securities, as well as in real estate, private equity, and other investments. *See* Merrill Lynch 2007, *supra* note 93, exhibit 13, at 16. Bear Stearns' merchant bank and private equity investments fluctuated from 1999 to 2003, but grew significantly between 2003 and 2006. *See* Bear Stearns 1999,

trading business—buying a large amount of stock from a single seller and then re-selling the shares, often in the public market—taking on greater concentrations of risk around the positions they held.¹²¹ Moreover, as investment banks grew their mortgage securitization businesses, some also acquired residential mortgage loan originators and servicers. By doing so, they could source loan products at a lower cost, but at the risk of a drop in the value of those assets before they were repackaged as part of a securitization and sold to investors.¹²²

Credit risk also increased. Firms entered into swap and loan agreements for longer periods with lower-credit firms, accepted less liquid collateral, and realized lower profits relative to the credit risk they assumed.¹²³ Some also expanded their universe of counterparties to include lower-credit, middle-market firms.¹²⁴

Each of the new business lines involved new or different risks, which may not have been properly considered in calculating each bank's VaR.¹²⁵ Of course, one cannot rule out the possibility that the firms or their employees

supra note 93, exhibit 13, at 43; Bear Stearns 2001, *supra* note 93, exhibit 13, at 52; The Bear Stearns Cos., Annual Report (Form 10-K) 35 (Feb. 28, 2002); Bear Stearns 2003, *supra* note 93, exhibit 13, at 38–39; The Bear Stearns Cos., Annual Report (Form 10-K) exhibit 13, at 38 (Feb. 27, 2004); Bear Stearns 2005, *supra* note 93, exhibit 13, at 43–45; The Bear Stearns Cos., Annual Report (Form 10-K) exhibit 13, at 54, 56 (Feb. 22, 2006); Bear Stearns 2007, *supra* note 93, at 55, 57.

¹²¹ See THE BUCKINGHAM RESEARCH GRP., BROKERS, MONEY CENTER AND TRUST BANKS 15 (2003) (noting the increased use of “bought” deals to enhance equity underwriting profits, where the investment bank buys stock from a client as principal, with a view to reselling it in the public markets at a higher price); Sidel et al., *supra* note 73 (noting investment banks’ “aggressive” move into block trades, leaving some banks “nursing substantial losses when a sudden stock-price decline left them holding large blocks of stock purchased at above-market levels”); see also Goldman Sachs 2007, *supra* note 66, at 53; Morgan Stanley 2007, *supra* note 89, at 16.

¹²² In 2003, Lehman Brothers acquired several mortgage loan companies, including Aurora Loan Services. See Lehman 2004, *supra* note 89, exhibit 13, at 39. Morgan Stanley acquired portions of the U.S. real estate equity advisory businesses of Lend Lease Corporation in 2003. See Morgan Stanley 2004, *supra* note 63, at 52. It also acquired Saxon Capital, Inc., a residential mortgage loan and service provider, in 2006. See Morgan Stanley 2007, *supra* note 89, at 65.

¹²³ See, e.g., Lehman 2008, *supra* note 93, at 37 (stating that the firm may transact with new clients, deal in new asset classes, and enter new markets, even in the face of possible credit concerns); Morgan Stanley 2006, *supra* note 33, at 18–19 (acknowledging that the amount, duration, and range of credit risks had been increasing and could continue to do so).

¹²⁴ See Goldman Sachs 2007, *supra* note 66, at 49 (stating the firm’s intention to provide services to middle-market companies). Merrill Lynch increased its middle-market exposure in 2004, see Merrill Lynch 2005, *supra* note 88, exhibit 13, at 19, but sold its wholly-owned middle-market commercial financing business in 2007 when the firm decided to slash its non-core assets, see Merrill Lynch & Co., Annual Report (Form 10-K) 23 (Feb. 25, 2008).

¹²⁵ See *supra* notes 102–07 and accompanying text.

manipulated VaR in order to understate the amount of risk they actually incurred. J.P. Morgan provides a recent, well-known example of the ability of an inaccurate VaR model to mask risk-taking. Bruno Iksil, nicknamed the “London Whale” for the size of his trading portfolio, was a proprietary trader in J.P. Morgan’s chief investment office (CIO) who realized losses of up to \$6.2 billion in 2012.¹²⁶ J.P. Morgan had implemented a new VaR model that failed to properly reflect the risks the CIO incurred. After returning to the old model, average daily VaR almost doubled, from \$67 million during the first quarter of 2011 to \$129 million during the first quarter of 2012 (rising to \$186 million by the end of the quarter).¹²⁷ The decision to adopt an alternative VaR model had been motivated by the CIO’s interest in manipulating VaR in order to continue trading without exceeding J.P. Morgan’s internal risk limits.¹²⁸

Finally, investment banks responded to the greater competition from commercial banks by increasing their borrowings, as illustrated in Figure 3 below. Greater leverage enabled investment banks to enhance profitability by investing in and trading more assets.¹²⁹ Leverage among investment banks generally was on the decline until 2004, when the Securities and Exchange Commission (SEC) amended the net capital requirements¹³⁰ applicable to

¹²⁶ See 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> [<http://perma.cc/HMN2-L2FA>]; 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/?_r=0 [<http://perma.cc/8X2J-38DF>].

¹²⁷ See Christopher Whittall, *Value-at-Risk Model Masked JP Morgan \$2 Bln Loss*, REUTERS (May 11, 2012), <http://www.reuters.com/article/2012/05/11/jpmorgan-var-idUSL1E8GBKS920120511> [<http://perma.cc/EY28-Q8EM>].

¹²⁸ See *JPMorgan Chase Whale Trades: A Case History of Derivatives Risks and Abuses: Hearing Before the Permanent Subcomm. on Investigations of the S. Comm. on Homeland Sec. & Gov’t Affairs*, 113th Cong. 14 (2013), <http://www.hsgac.senate.gov/subcommittees/investigations/hearings/chase-whale-trades-a-case-history-of-derivatives-risks-and-abuses> [<http://perma.cc/7DER-ACCB>] (“Previously undisclosed evidence also showed that CIO personnel deliberately tried to lower the CIO’s risk results and, as a result, lower its capital requirements, not by reducing its risky assets, but by manipulating the mathematical models used to calculate its VaR . . . results.”).

¹²⁹ See TOBIAS ADRIAN & HYUN SONG SHIN, FED. RESERVE BANK OF N.Y., *THE CHANGING NATURE OF FINANCIAL INTERMEDIATION AND THE FINANCIAL CRISIS OF 2007–09*, at 9–12, 18 (2010), http://www.newyorkfed.org/research/staff_reports/sr439.pdf [<http://perma.cc/E78X-LVMB>] (noting that, for financial intermediaries, leverage grows when balance sheets are growing, and borrowings increase in order to expand balance sheet size); see also Erin Callan, Chief Fin. Officer, Lehman Brothers Holdings, Inc., Presentation: *Lehman Brothers—Leverage Analysis* (Apr. 7, 2008), <http://web.stanford.edu/~jbulow/Lehmandocs/docs/DEBTORS/LBEXDOCID%201401225.pdf> [<http://perma.cc/KD4T-PDMS>] (noting that “[l]everage for the industry and for Lehman Brothers has increased significantly and has been a key driver of improved profitability”).

¹³⁰ The Securities Exchange Act of 1934 contains provisions that are designed to assure the financial responsibility of investment banks, including Section 15(c)(3), 15 U.S.C. § 78o(c)(3) (2012). Rule 15c3-1, 17 C.F.R. § 240.15c3-1 (2015), does so, in part,

them.¹³¹ Introduction of the amendment is marked in Figure 3 as “Net Capital Rule Amendment.” Prior to the amendment, net capital was calculated using fixed percentage deductions (referred to as “haircuts”) in the value of a firm’s securities holdings, reflecting the risk of each type of security.¹³² As amended, securities firms within a group that consented to SEC supervision were eligible to compute net capital using an alternative formula.¹³³ On that basis, the five largest broker-dealers¹³⁴ began to calculate net capital using internally-generated VaR models rather than preset deductions.¹³⁵ In order to ensure that

by limiting the amount of indebtedness an investment bank can incur relative to its net capital. “Net capital” is defined in Rule 15c3-1(c)(2), 17 C.F.R. § 240.15c3-1(c)(2) (2015), as the investment bank’s net worth (the excess of total assets over total liabilities), adjusted by adding unrealized profits and deducting unrealized losses, and by making certain specified additional deductions.

¹³¹The U.S. Government Accountability Office noted a similar upward trend in leverage, measured using the asset-to-equity ratios of Goldman Sachs, Lehman Brothers, Merrill Lynch, and Morgan Stanley. See U.S. GOV’T ACCOUNTABILITY OFFICE, GAO-09-739, FINANCIAL CRISIS HIGHLIGHTS NEED TO IMPROVE OVERSIGHT OF LEVERAGE AT FINANCIAL INSTITUTIONS AND ACROSS SYSTEM 40–41 & fig.6 (2009) [hereinafter GAO REPORT], <http://www.gao.gov/products/GAO-09-739> [<http://perma.cc/EC65-EBUB>].

¹³²See Erik R. Sirri, Dir., SEC Div. of Trading & Mkts., Remarks at the National Economists Club: Securities Markets and Regulatory Reform (Apr. 9, 2009) [hereinafter Sirri Remarks], <http://www.sec.gov/news/speech/2009/spch040909ers.htm> [<http://perma.cc/Q5SZ-BUC3>].

¹³³See 17 C.F.R. §§ 240.15c3-1(a)(7), 240.15c3-1e(d); see also Alternative Net Capital Requirements for Broker-Dealers that Are Part of Consolidated Supervised Entities, 69 Fed. Reg. 34,428, 34,472 (June 21, 2004) (codified at 17 C.F.R. § 240.15c3-1) [hereinafter Alternative Net Capital].

¹³⁴The five firms that adopted the alternative calculation (Bear Stearns, Goldman Sachs, Lehman Brothers, Merrill Lynch, and Morgan Stanley) are no longer independent companies or have become bank holding companies subject to Federal Reserve oversight. See John C. Coffee, Jr., *Analyzing the Credit Crisis: Was the SEC Missing in Action?*, CORP. COUNS. (Dec. 5, 2008), <http://www.corpcounsel.com/id=1202426495544> [<http://perma.cc/4MHR-BELJ>]. All five or their successors, however, continue to rely on Rule 15c3-1e to compute regulatory capital for SEC purposes. See, e.g., The Goldman Sachs Grp., Quarterly Report for the Period Ended Mar. 31, 2010 (Form 10-Q) 73 (May 7, 2010); JPMorgan Chase & Co., Quarterly Report for the Period Ended June 30, 2010 (Form 10-Q) 63 (Aug. 6, 2010) (after acquiring Bear Stearns); Merrill Lynch & Co., Quarterly Report for the Period Ended June 30, 2010 (Form 10-Q) 77 (Aug. 6, 2010) (after being acquired by Bank of America); Morgan Stanley, Quarterly Report for the Period Ended Mar. 31, 2010 (Form 10-Q) 64 (May 7, 2010). Lehman Brothers was acquired by Barclays Capital, a non-U.S. financial services firm, which obtained temporary relief from the SEC to continue to calculate capital charges pursuant to Rule 15c3-1e for the Lehman Brothers positions it purchased. See Order Granting Temporary, Conditional Relief from the Net Capital Rule for Barclays Capital, Inc., 73 Fed. Reg. 55,571 (Sept. 25, 2008).

¹³⁵This new approach to regulation—relying, in part, on models to assess a portfolio’s riskiness—was being adopted by both commercial and investment bank regulators at roughly the same time. See LOWENSTEIN, *supra* note 19, at 21–22; *Coffee Testimony*, *supra* note 92, at 60–61. The SEC intended for its program to be broadly consistent with the Federal Reserve’s oversight over bank holding companies. See *id* at 60.

net capital did not decline, the SEC required firms that elected the alternative formula to file an early warning notice if net capital fell below \$5 billion, an amount comparable to the capital they maintained prior to the 2004 amendment.¹³⁶ The ability to more flexibly calculate net capital, however, gave investment banks the opportunity to increase their borrowings,¹³⁷ even though leverage caps remained unchanged.¹³⁸

As indicated in Figure 3 below, investment bank leverage increased significantly, with some estimates showing debt-to-equity ratios on average jumping from 22:1 to 33:1 within three years following adoption of the new requirements.¹³⁹ Firms increased leverage in response to changes in the financial industry and new business opportunities. Greater borrowing meant that an investment bank could purchase and hold additional assets, potentially increasing its profitability.¹⁴⁰

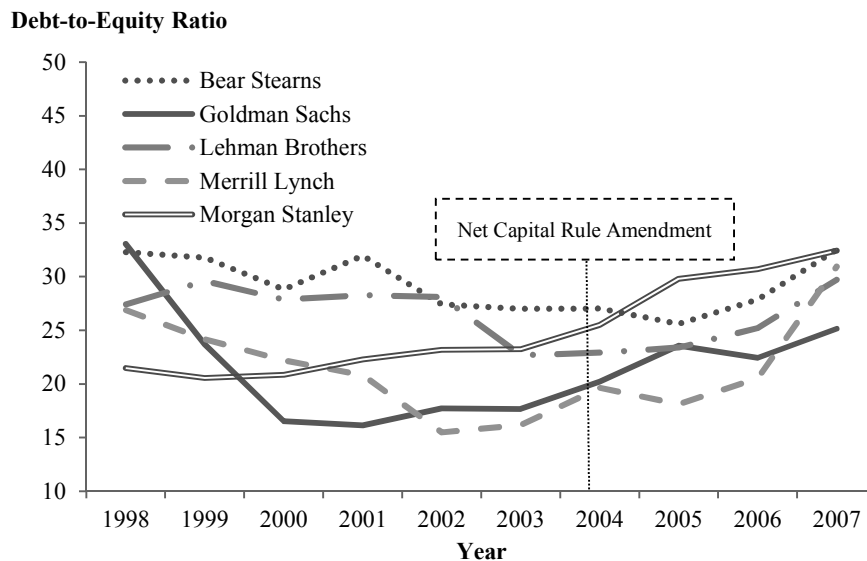
¹³⁶ See, e.g., GAO REPORT, *supra* note 131, at 39; Sirri Remarks, *supra* note 132.

¹³⁷ See *Coffee Testimony*, *supra* note 92, at 57–58; Lee A Pickard, *SEC Exemption That Fanned Crisis Remains on the Books*, AM. BANKER, Oct. 3, 2012, at 4 (stating that, under the alternative formula, broker-dealers “were relieved from . . . very important capital charges found in the traditional net capital rule,” including a shift away from prescribed haircuts to a reliance on internal models to calculate haircuts). This was, in fact, what the SEC expected would occur under the alternative formula. See *Alternative Net Capital*, *supra* note 133, at 34,428 (“These amendments are intended to reduce regulatory costs for broker-dealers by allowing very highly capitalized firms that have developed robust internal risk management practices to use those risk management practices, such as mathematical risk measurement models, for regulatory purposes. A broker-dealer’s deductions for market and credit risk probably will be lower under the alternative method of computing net capital than under the standard net capital rule.”).

¹³⁸ See Sirri Remarks, *supra* note 132.

¹³⁹ See Viral V. Acharya et al., *Capital, Contingent Capital, and Liquidity Requirements*, in *REGULATING WALL STREET* 143, 149 (Viral V. Acharya et al. eds., 2011). I am reluctant to argue that the 2004 amendment *caused* the increase in leverage levels. As this article illustrates, a number of factors encouraged greater risk-taking and leverage by the investment banks. The change in net capital requirements, however, made it possible for investment banks to increase their leverage in response to those factors.

¹⁴⁰ See GAO REPORT, *supra* note 131, at 39–40 (“To the extent that the use of their internal models . . . enabled them to reduce the amount of their haircuts, they could take on larger proprietary positions . . .”). Investment banks may have been able to increase leverage partly due to the limited oversight by SEC staff. Although firms that adopted the alternative formula were expected to be subject to greater and more tailored scrutiny, *see id.* at 41–42, the limited number of SEC staff, the absence of formal authority to limit an investment bank’s leverage, and the alternative formula’s reliance on each firm’s individualized VaR model made effective oversight difficult, *see Coffee Testimony*, *supra* note 92, at 61; *see also* Stephen Labaton, *Agency’s ‘04 Rule Let Banks Pile Up New Debt*, N.Y. TIMES, Oct. 3, 2008, at A1 (“The supervisory program . . . was a low priority.”).

Figure 3: *Debt-to-Equity Ratios of Investment Banks, 1998–2007*¹⁴¹

¹⁴¹ Debt-to-equity ratios typically are used to assess a firm's riskiness. The ratio indicates the margin for error that exists if assets are liquidated to satisfy creditors' claims. See, e.g., John K. Ford, *Credit Analysis: The Debt-to-Equity Ratio and Firm Performance*, 10 COM. LENDING REV. 88, 88 (1995). Due to its importance, the debt-to-equity ratio is one of the most closely-watched financial health indicators for creditors and investors. See STEVEN M. BRAGG, *BUSINESS RATIOS AND FORMULAS: A COMPREHENSIVE GUIDE* 110–11 (3d ed. 2012). The debt-to-equity ratios in Figure 3 are calculated as the remainder that results from dividing an investment bank's total liabilities by its stockholders' equity. Data used to calculate the debt-to-equity ratios were collected from public filings by each investment bank. For Bear Stearns, see Bear Stearns 1999, *supra* note 93, exhibit 13, at 56; Bear Stearns 2001, *supra* note 93, at 64; Bear Stearns 2003, *supra* note 93, at 53; Bear Stearns 2005, *supra* note 93, exhibit 13, at 65; Bear Stearns 2007, *supra* note 93, at 80; and Bear Stearns 2008, *supra* note 93, exhibit 13, at 82. For Goldman Sachs, see Goldman Sachs 2001, *supra* note 93, exhibit 13.1, at 48; Goldman Sachs 2002, *supra* note 93, at 48; Goldman Sachs 2004, *supra* note 93, exhibit 13.1, at 69; Goldman Sachs 2006, *supra* note 33, at F-3; and Goldman Sachs 2008, *supra* note 93, at 110. For Lehman Brothers, see Lehman 2000, *supra* note 56, exhibit 13, at F-3; Lehman 2002, *supra* note 88, exhibit 13, at 60–61; Lehman 2004, *supra* note 89, exhibit 13.01, at 69; Lehman 2006, *supra* note 93, at 72–73; and Lehman 2008, *supra* note 93, at 86–87. For Merrill Lynch, see Merrill Lynch 1999, *supra* note 93, exhibit 13, at 58–59; Merrill Lynch 2001, *supra* note 93, at 56–57; Merrill Lynch 2003, *supra* note 93, at 44–45; Merrill Lynch 2005, *supra* note 88, exhibit 13, at 50–51; Merrill Lynch 2007, *supra* note 93, at 72–73; and Merrill Lynch 2009, *supra* note 93, at 53–54. For Morgan Stanley, see Morgan Stanley Dean Witter 2000, *supra* note 56, exhibit 13.5, at 55–56; Morgan Stanley, Annual Report (Form 10-K) 74–75 (Feb. 19, 2003); Morgan Stanley 2004, *supra* note 63, at 82–83; Morgan Stanley 2006, *supra* note 33, at 107–08; and Morgan Stanley 2008, *supra* note 93, at 101–02.

Although borrowing increased after 2004, some have argued that leverage was not a significant factor leading to the 2007 financial crisis,¹⁴² partly because average leverage ratios were substantially higher in the 1980s and 1990s.¹⁴³ Nevertheless, leverage for the largest investment banks was significant. Assume, for illustration, that the debt-to-equity ratio of an investment bank was 30 to 1. As Figure 3 indicates, all of the large investment banks, except Goldman Sachs, reached that level within three years after 2004. That would mean, for every \$30 in assets a firm held, only \$1 in equity was available to cover losses. Consequently, a less than four percent drop in the value of a firm's total assets would deplete the firm's equity—causing liabilities to exceed assets, and wiping the firm out.

Moreover, a focus only on leverage ratios understates the risks that investment banks incurred during the period. First, in hindsight, it is clear that the published leverage ratios failed to fully reflect the amount of borrowings by investment banks and their affiliates.¹⁴⁴ Investment banks relied on off-balance-sheet special purpose vehicles¹⁴⁵ in order to hold and finance substantial asset positions.¹⁴⁶ For example, as a percentage of total assets, off-balance-sheet assets held by Bear Stearns nearly tripled, from 3.46% to

¹⁴² See, e.g., Andrew W. Lo, *Reading About the Financial Crisis: A Twenty-One-Book Review*, 50 J. ECON. LITERATURE 151, 153, 176 (2012).

¹⁴³ See, e.g., Bruce Mizrach, *Accounting for the Crisis 3* (May 2011) (unpublished manuscript), <http://ssrn.com/abstract=1894805>. The same was true for the largest commercial banks, although the difference in leverage ratios was generally less than for investment banks. See *id.* at 4.

¹⁴⁴ Among other reasons to understate leverage, hiding the total amount that has been borrowed enables a debtor to borrow at more attractive rates. See Franco Modigliani & Merton H. Miller, *The Cost of Capital, Corporation Finance and the Theory of Investment*, 48 AM. ECON. REV. 261, 273 (1958) (“Economic theory and market experience both suggest that the yields demanded by lenders tend to increase with the debt-equity ratio of the borrowing firm (or individual.)”; see also Aaron Unterman, *Innovative Destruction—Structured Finance and Credit Market Reform in the Bubble Era*, 5 HASTINGS BUS. L.J. 53, 59 (2009) (illustrating lower borrowing costs). Moving assets off the balance sheet to structured investment vehicles and other financing conduits may also minimize regulatory costs. See Floyd Norris, *High and Low Finance; No Way To Make A Loan*, N.Y. TIMES (Oct. 19, 2007), <http://query.nytimes.com/gst/fullpage.html?res=9F0CEEDF143CF93AA25753C1A9619C8B63> [<http://perma.cc/BGT5-N58W>].

¹⁴⁵ “Special purpose vehicles” (SPVs) are often used to finance the purchase and holding of assets. They are usually created by the firm that transfers those assets to the SPV, often for a specific purpose or transaction. Among their characteristics, SPVs typically are thinly capitalized, have no independent management or employees, may be administered by a trustee who follows pre-specified rules, and are structured to minimize the likelihood of bankruptcy. See Gary Gorton & Nicholas S. Souleles, *Special Purpose Vehicles and Securitization 1–2* (Fed. Reserve Bank of Phila., Working Paper No. 05-21, 2005), <http://ssrn.com/abstract=713782>.

¹⁴⁶ See *Coffee Testimony*, *supra* note 92, at 72.

11.32%, between February 2005 and May 2007.¹⁴⁷ The SEC's net capital rule applied only to broker-dealers and did not extend to investment bank activities—such as originating, warehousing, and financing real estate mortgages—that took place outside the broker-dealer entity.¹⁴⁸ In addition, Lehman Brothers' leverage ratio is likely to have been understated due to its reliance on repo transactions¹⁴⁹ it believed could move assets off its balance sheet.¹⁵⁰

Second, consolidation within the financial services industry resulted in growing concentrations of risk¹⁵¹ as commercial banks combined with investment banks¹⁵² and investment banks combined with mortgage originators and servicers.¹⁵³ Greater scale was a natural outcome of growing

¹⁴⁷ See Bruce Mizrach, *Comment on Jon Danielsson et al., Endogenous and Systemic Risk*, in *QUANTIFYING SYSTEMIC RISK* 94, 99 (Joseph G. Haubrich & Andrew W. Lo eds., 2013).

¹⁴⁸ See Sirri Remarks, *supra* note 132 (“[T]he aggregate indebtedness standard does not limit the amount of assets the broker-dealer could take on through financing transactions. Substantial portions of the balance sheets of the [largest investment banks] were comprised of these types of financing transactions.”).

¹⁴⁹ See *infra* notes 165–69 and accompanying text.

¹⁵⁰ Lehman Brothers used “Repo 105” (also referred to as “Repo 108”) contracts to temporarily remove securities from its balance sheet, usually for seven to ten days. See ANTON R. VALUKAS, *LEHMAN BROTHERS HOLDINGS INC. CHAPTER 11 PROCEEDINGS EXAMINER'S REPORT*, 3 REPO 105, 732, 744 (2010), <http://jenner.com/lehman> [<http://perma.cc/WL7P-M2RJ>]. Although Lehman Brothers agreed to repurchase the assets from the counterparty, the transactions were treated as sales (rather than financing transactions) based on the amount of over-collateralization. See *id.* at 732. Under Repo 105/108, securities sold were valued at a minimum of 105% (for fixed-income securities) or 108% (for equity securities) of market value, which was significantly greater than the normal market rate of 102%. See *id.* at 732, 767, 777. The greater discount (or haircut) permitted Lehman Brothers to treat the transaction as a sale of the underlying securities. See *id.* at 779–80. Lehman Brothers had a particular interest in keeping its leverage ratio low. It had purchased substantial amounts of residential mortgage-backed securities, and in the face of potential concerns by creditors over their value, Lehman Brothers wanted to maintain as low a leverage ratio as possible. See Charles Hines et al., *An Analysis of Lehman Brothers Bankruptcy and Repo 105 Transactions*, 26 AM. J. BUS. 40, 40–41 (2011).

¹⁵¹ See GROUP OF TEN, *BANK FOR INT'L SETTLEMENTS, CONSOLIDATION IN THE FINANCIAL SECTOR* 144 (Jan. 2001) [hereinafter *BIS REPORT*], <http://www.bis.org/publ/gten05.htm> [<http://perma.cc/4X7P-FVZF>] (noting that “the evolution of non-bank financial institutions in the United States, including their increasing ability to affiliate with banks, has reached the point where the scale and level of participation in financial markets of a number of these institutions is sufficient to make their financial impairment a potentially systemic event”); Wilmarth, *supra* note 9, at 77.

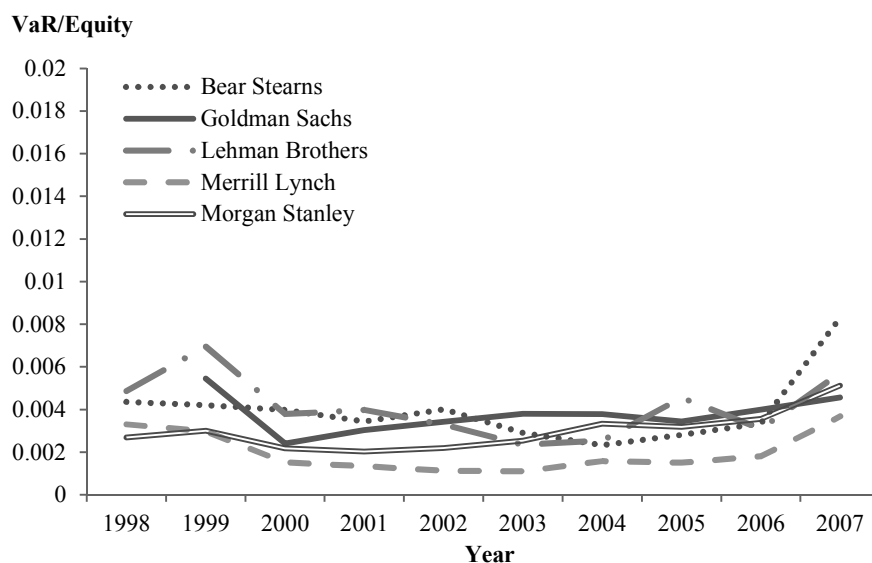
¹⁵² See *supra* notes 57–58 and accompanying text.

¹⁵³ See *supra* note 122 and accompanying text.

competition in the marketplace. Scale economies permitted larger financial institutions to lower costs and enhance profitability.¹⁵⁴

Third, as Figure 4 below illustrates, the investment banks (except Bear Stearns after 2006) appear to have managed their risk-taking by reference to the amount of equity capital they held.¹⁵⁵ Except for Bear Stearns, the ratios remained relatively constant over the period, suggesting that the investment banks moderated the amount of risk they incurred relative to equity capital or adjusted equity capital to reflect changes in risk-taking. Greater risk-taking raised the risk of insolvency. Consequently, it was important for the investment banks to understand the nature and extent of the new risks they assumed.

Figure 4: *VaR-to-Equity Ratios of Investment Banks, 1998–2007*¹⁵⁶



¹⁵⁴ See Robert DeYoung & William C. Hunter, *Deregulation, the Internet, and the Competitive Viability of Large Banks and Community Banks*, in *THE FUTURE OF BANKING* 173, 193–94 (Benton E. Gup ed., 2003).

¹⁵⁵ Adrian and Shin also find that VaR/equity is a “good approximation” of the way in which financial firms manage risk. See Adrian & Shin, *supra* note 112, at 12. Their conclusion is based on a review of VaR/equity for the five investment banks plus J.P. Morgan Chase, Citibank, and Bank of America. See *id.* at 10 n.5, 12. Credit rating agencies also use VaR/capital as one factor in assessing an investment bank’s credit quality, which reinforces the firms’ interest in monitoring VaR relative to equity capital. See, e.g., FITCH RATINGS, *SECURITIES FIRM CRITERIA 17* (2014), http://www.fitchratings.co.jp/ja/images/RC_20140131_Securities%20Firms%20Criteria_EN.pdf [<http://perma.cc/9CPB-QRQV>] (stating that average VaR/“Fitch Core Capital” is a “key ratio”).

¹⁵⁶ The VaR data in Figure 4 are derived from the VaR data in Figure 1. See *supra* note 93. Data on equity are drawn from the same sources as the data in Figure 3. See *supra* note 141.

Nevertheless, the nature of those risks had evolved with change in the financial markets¹⁵⁷ and may not have been fully captured by VaR.¹⁵⁸ Consolidation in the financial industry and higher levels of interdependency across financial firms through, for example, greater reliance on short-term interbank lending and derivatives trading,¹⁵⁹ increased the likelihood that the failure of one large firm would disrupt others.¹⁶⁰ That risk was not reflected in VaR. Competitive pressures also caused investment banks to enter new business lines, sometimes recklessly.¹⁶¹ For example, investment banks moved quickly into the mortgage securitization business, and in the process, significantly increased their exposure to the risk of a downturn in the real estate market¹⁶² and a slowdown in credit available to finance their mortgage assets.¹⁶³ Those risks were either new to investment banks or different in kind from the risks they incurred before, raising the likelihood that they were also not fully reflected in VaR.¹⁶⁴

Finally, the investment banks increasingly relied on short-term sale and repurchase (also known as “repo”) transactions in order to finance their holdings.¹⁶⁵ In a typical repo trade, a securities dealer (the “repo seller”) sells securities to an investor (the “repo buyer”) for cash. The repo buyer’s objective is not to invest in the securities; rather, the repo buyer expects to receive a return from the repo seller for the use of the repo buyer’s cash. Consequently, as part of the transaction, the repo seller also agrees with the repo buyer to repurchase the same or equivalent securities at some future time. The repurchase is frequently overnight at a price above the repo buyer’s original purchase price.¹⁶⁶ Economically, the trade is equivalent to a secured loan—with the repo buyer lending cash to the repo seller against collateral that

¹⁵⁷ See FIN. CRISIS INQUIRY COMM’N, THE FINANCIAL CRISIS INQUIRY REPORT, at xx (2011), <http://www.gpo.gov/fdsys/pkg/GPO-FCIC/pdf/GPO-FCIC.pdf> [<http://perma.cc/6DU9-H28N>] (“The heavy debt taken on by some financial institutions was exacerbated by the risky assets they were acquiring with that debt. As the mortgage and real estate markets churned out riskier and riskier loans and securities, many financial institutions loaded up on them.”).

¹⁵⁸ See *supra* note 114 and accompanying text.

¹⁵⁹ See BIS REPORT, *supra* note 151, at 140.

¹⁶⁰ See Wilmarth, *supra* note 9, at 71.

¹⁶¹ See *supra* notes 114–24 and accompanying text; see also *Coffee Testimony*, *supra* note 92, at 62–63.

¹⁶² See *Coffee Testimony*, *supra* note 92, at 62.

¹⁶³ See LOWENSTEIN, *supra* note 19, at 51–52.

¹⁶⁴ See *supra* notes 114–24 and accompanying text; see also *Coffee Testimony*, *supra* note 92, at 63 (“Their common goal was to assure themselves a continuing course of supply of subprime mortgages to securitize, but in pursuit of this goal, both Merrill Lynch and Lehman made risky acquisitions, in effect vertically integrating into the mortgage loan origination field.”).

¹⁶⁵ See Charles K. Whitehead, *Reframing Financial Regulation*, 90 B.U. L. REV. 1, 22 n.94 (2010).

¹⁶⁶ See Jeanne L. Schroeder, *A Repo Opera: How Criimi Mae Got Repos Backwards*, 76 AM. BANKR. L.J. 565, 570–72 (2002).

it discounts (a “haircut”) below market value.¹⁶⁷ Using a simple example, if a haircut is three percent, a firm can borrow \$97 million for each \$100 million of collateral it pledges; the remaining \$3 million must be financed using some other source of capital.

Repo financing as a fraction of investment bank total assets grew significantly after 1999, largely due to an increase in overnight repo which roughly doubled from 2000 to 2007.¹⁶⁸ The investment banks’ greater reliance on overnight repo required them to roll-over a large portion of their funding each day, exposing them to the risk of a shortfall in the event lenders refused to re-extend credit the next day.¹⁶⁹

Problems arose from the investment banks’ use of repo transactions to fund their mortgage-related investments. Beginning in 2007, the value of those assets began to drop as investors came to believe that loan quality had eroded.¹⁷⁰ As asset prices declined, lenders became unwilling to roll-over existing or to extend new credit, or required the investment bank to post additional collateral—tantamount, in any case, to depositors withdrawing money from a bank.¹⁷¹ The result was a sudden drop in lending to the investment banks¹⁷²—equivalent to a “bank run,” but rather than a run by depositors on a bank, it was a run by repo creditors on the investment banks.¹⁷³ In order to repay its lenders, each investment bank was forced to quickly sell assets, often at discounted fire-sale prices, causing asset prices to

¹⁶⁷ See Gary Gorton, *Slapped in the Face by the Invisible Hand: Banking and the Panic of 2007*, at 33–34 (May 9, 2009) (unpublished manuscript), <http://ssrn.com/abstract=1401882>.

¹⁶⁸ See Markus K. Brunnermeier, *Deciphering the Liquidity and Credit Crunch 2007–2008*, 23 J. ECON. PERSP. 77, 80 (2009).

¹⁶⁹ See *id.*

¹⁷⁰ See Christian Laux & Christian Leuz, *Did Fair-Value Accounting Contribute to the Financial Crisis?* 11 (European Corp. Governance Inst., Working Paper No. 266, 2009), <http://ssrn.com/abstract=1487905>.

¹⁷¹ See Gorton, *supra* note 167, at 33–34; see also Ana Fostel & John Geanakoplos, *Leverage Cycles and the Anxious Economy*, 98 AM. ECON. REV. 1211, 1238 (2008) (describing the “flight to collateral,” where investors sell assets that cannot be used as collateral and buy assets that can be pledged to lenders at lower cost (emphasis omitted)).

¹⁷² See generally Ben S. Bernanke, Chairman, Bd. of Governors of the Fed. Reserve, *Speech at the Federal Reserve Bank of Kansas City’s Annual Economic Symposium: Reducing Systemic Risk* (Aug. 22, 2008), <http://www.federalreserve.gov/newsevents/speech/bernanke20080822a.htm> [<http://perma.cc/C9T6-D4CF>].

¹⁷³ See Gorton, *supra* note 167, at 31–38.

drop further. The drop in value affected the price of similar assets held by others, causing the firms' balance sheet problems to be transmitted across the market.¹⁷⁴

* * *

Commercial banks were able to fully enter the capital markets following passage of the Gramm–Leach–Bliley Act in 1999. The result—in large part due to the banks' sizeable balance sheets, their ability to use credit to win investment bank mandates, and their push into traditional investment bank services—was to cause investment banks to assume greater risk and higher leverage in order to offset lost revenues, eventually precipitating the financial crisis. Specifically:

1. Commercial banks used their balance sheets—their ability to extend credit to potential clients—in order to win traditional investment bank mandates, such as debt and equity underwriting.¹⁷⁵ The restrictions on tying were ineffective, largely due to the relaxed interpretation by bank regulators.¹⁷⁶
2. The greater competition and declining profits forced investment banks into new business lines, increasing existing risks or creating new ones.¹⁷⁷
3. Aggregate risk also increased, consistent with growth in the investment banks' balance sheets and greater leverage,¹⁷⁸ even though, for most banks, relative risk (VaR/total assets) appears to have remained roughly the same¹⁷⁹ and risk also appears to have been managed relative to the equity capital available to cover losses (VaR/equity).¹⁸⁰
4. Greater leverage and higher aggregate risk meant that the investment banks had to be particularly accurate in their VaR calculations. That was difficult to do in light of VaR's reliance on historical data and the relative newness of the businesses and risks to

¹⁷⁴ See *id.* at 4–5, 31–35; see also Tobias Adrian & Hyun Song Shin, *Liquidity and Financial Contagion*, 11 FIN. STABILITY REV. (SPECIAL ISSUE) 1, 2–3 (2008), http://www.fednewyork.org/research/economist800drianan/Liquidity_Contagion_BdeF022008.pdf [<http://perma.cc/BU2X-MEJ4>].

¹⁷⁵ See *supra* notes 59–75 and accompanying text.

¹⁷⁶ See *supra* notes 76–86 and accompanying text.

¹⁷⁷ See *supra* notes 87–125 and accompanying text.

¹⁷⁸ See *supra* Figures 1 & 3, notes 92–97, 108, 131–43 and accompanying text.

¹⁷⁹ See *supra* Figure 2 and notes 109–11 and accompanying text.

¹⁸⁰ See *supra* Figure 4 and notes 155–56 and accompanying text.

which the investment banks were exposed.¹⁸¹ It was also possible that the investment banks masked their risk exposure by manipulating VaR to understate the new risks they assumed.¹⁸²

5. Greater risk-taking and leverage among the investment banks were significant factors leading to the meltdown in 2007,¹⁸³ first evidenced by Bear Stearns' collapse¹⁸⁴ and then by Lehman Brothers' failure.¹⁸⁵

In effect, as commercial banks began to capture greater amounts of investment banking business, investment banks began to mimic commercial bank operations. In some cases, they did so directly by building their own commercial bank capabilities. Investment banks provided loans to private wealth management¹⁸⁶ and corporate clients,¹⁸⁷ as well as allying with third-party commercial banks in order to extend credit.¹⁸⁸ In other cases, they increased their longer-term principal investments using short-term financing—for banks, by balancing loans and deposits, and for investment banks, by balancing loans and other principal investments that were financed using repo and other short-term funding.¹⁸⁹

The next Part addresses the regulatory divide—between commercial and investment banking regulators—that enabled the greater risk-taking and leverage among investment banks leading up to the financial crisis. At one level, concerns over the regulatory divide may simply be of historical concern, since the major investment banks are now all commercial banks.¹⁹⁰ At a more basic level, however, the story of what occurred after passage of the Gramm–Leach–Bliley Act serves as a cautionary tale—what can happen when “siloes” financial regulators, for legitimate reasons, pursue policy initiatives that spill over to other parts of the market. It evidences an ongoing need for greater

¹⁸¹ See *supra* notes 114–25 and accompanying text.

¹⁸² See *supra* notes 126–28 and accompanying text.

¹⁸³ See *supra* notes 18–19 and accompanying text.

¹⁸⁴ See *supra* note 111 and accompanying text.

¹⁸⁵ See *supra* note 11 and accompanying text.

¹⁸⁶ See, e.g., Goldman Sachs 2007, *supra* note 66, at 48.

¹⁸⁷ See McGeehan, *supra* note 66, at C1 (describing Merrill Lynch's efforts to sweep brokerage customer cash into the accounts of small banks it owned in order to lend to corporate clients); see also Goldman Sachs 2004, *supra* note 93, at 14 (describing the creation of the William Street subsidiaries to lend primarily to investment-grade clients); Lehman 2003, *supra* note 90, at 7. Some banks managed the incremental credit risk through, for example, loan syndication and derivatives. See, e.g., Morgan Stanley 2004, *supra* note 63, at 28.

¹⁸⁸ See *Deals & Deal Makers: Bids & Offers*, WALL STREET J., Jan. 31, 2003, at C4 (describing Goldman Sachs's investment in Sumitomo Mitsui Financial Group as “increas[ing] the amount of credit Goldman can extend to its clients”).

¹⁸⁹ See *supra* notes 162–63, 165–74 and *infra* notes 205–09 and accompanying text.

¹⁹⁰ See Stephen Labaton, *S.E.C. Concedes Oversight Flaws Fueled Collapse*, N.Y. TIMES, Sept. 27, 2008, at A1 (noting that “the five biggest independent Wall Street firms have all disappeared”); see also *supra* note 134.

coordination among regulators in light of continued convergence—a breaking down of “walls”—within the financial markets themselves.

III. SILOS AND WALLS

To this point, I have focused on changes in investment banking that occurred following passage of the Gramm–Leach–Bliley Act. Those changes were significant—a shift in market share, away from investment banks toward commercial banks,¹⁹¹ with a resulting rise in risk-taking¹⁹² (in all likelihood, inaccurately measured¹⁹³) and leverage by the investment banks.¹⁹⁴

What the changes suggest is that, as a competitive matter, it may be difficult for commercial and investment banks to independently work side-by-side even though (or, perhaps, because) both perform similar functions. In general, financial intermediaries bridge the gap between suppliers and consumers of capital. They collect capital from diverse investors and transfer it to end-users at lower cost than the investors could do themselves.¹⁹⁵ Those financial intermediaries also act as informational middlemen, for example, by conveying information about a consumer’s financial situation through changes in stock price (in the capital markets)¹⁹⁶ or using quasi-public information about consumers, based on low-cost monitoring and long-term relationships,¹⁹⁷ to decide whether to invest and on what terms (in a commercial bank).¹⁹⁸

Commercial and investment banks also help smooth the transfer of capital. Bank depositors typically can access money quickly, favoring short-term

¹⁹¹ See *supra* notes 69–72 and accompanying text.

¹⁹² See *supra* notes 92–111 and accompanying text.

¹⁹³ See *supra* note 114 and accompanying text.

¹⁹⁴ See *supra* notes 129–41 and accompanying text.

¹⁹⁵ See Robert C. Merton, *Operation and Regulation in Financial Intermediation: A Functional Perspective*, in OPERATION AND REGULATION OF FINANCIAL MARKETS 17, 21–27 (Peter Englund ed., 1993).

¹⁹⁶ See Jeffrey N. Gordon, *The Rise of Independent Directors in the United States, 1950–2005: Of Shareholder Value and Stock Market Prices*, 59 STAN. L. REV. 1465, 1561–63 (2007).

¹⁹⁷ See Fischer Black, *Bank Funds Management in an Efficient Market*, 2 J. FIN. ECON. 323, 323–24 (1975) (noting that the inefficiency of bank markets permits banks to profitably exploit quasi-public information); George G. Triantis & Ronald J. Daniels, *The Role of Debt in Interactive Corporate Governance*, 83 CALIF. L. REV. 1073, 1083–84 (1995) (attributing the monitoring advantage enjoyed by banks to special characteristics of the bank sector, including the banks’ ability to cross-benchmark different borrowers and press borrowers for more information).

¹⁹⁸ See Douglas G. Baird & Robert K. Rasmussen, *Private Debt and the Missing Lever of Corporate Governance*, 154 U. PA. L. REV. 1209, 1212–13, 1219–23 (2006) (describing the role of investors and covenants in the corporate decision-making of firms in financial distress); Douglas W. Diamond, *Financial Intermediation and Delegated Monitoring*, 51 REV. ECON. STUD. 393, 393–95 (1984) (introducing a model in which a financial intermediary has a net cost advantage relative to direct lending).

investments (bank deposits) that can be turned into cash on demand. Borrowers, by contrast, require a source of longer-term capital (bank loans).¹⁹⁹ One thing that makes banks special is their ability to balance the two—managing a loan portfolio against the obligation to make depositors whole, using loan proceeds to repay depositors, and compensating for any shortfall with liquid reserves.²⁰⁰ Market-making provides a parallel function in the capital markets.²⁰¹ Many securities transactions involve a specialized financial intermediary known as a “market-maker.” A market-maker trades securities as principal on either side of the market—it is both a buyer and seller of the same assets. 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.²⁰² Like banks, market-makers span the maturity gap between capital providers (who, as investors, expect liquidity) and capital users (who require longer-term stability).²⁰³ Both commercial and investment banks 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.²⁰⁴

There is, however, a significant difference between the two. Investment banks typically fund themselves through short-term borrowing,²⁰⁵ such as

¹⁹⁹ Term-loan maturities, for example, average sixty-nine months. See PHILIP E. STRAHAN, FED. RESERVE BANK OF N.Y., BORROWER RISK AND THE PRICE AND NONPRICE TERMS OF BANK LOANS 25 tbl.1 (1999), http://www.newyorkfed.org/research/staff_reports/sr90.pdf [<http://perma.cc/2X9Z-9CAG>].

²⁰⁰ See Herring & Santomero, *supra* note 40, at 13–14.

²⁰¹ See, e.g., THECITYUK, BOND MARKETS 2010, at 3 (2010) (noting that the U.S. bond market lacks a central exchange and instead operates through hundreds of market-makers).

²⁰² See Maureen O’Hara & George S. Oldfield, *The Microeconomics of Market Making*, 21 J. FIN. & QUANTITATIVE ANALYSIS 361, 361 (1986).

²⁰³ 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> [<http://perma.cc/FP4F-NKNK>] (report commissioned by the Securities Industry and Financial Markets Association).

²⁰⁴ See Thomas S. Y. Ho & Anthony Saunders, *The Determinants of Bank Interest Margins: Theory and Empirical Evidence*, 16 J. FIN. & QUANTITATIVE ANALYSIS 581, 582–83 (1981) (noting that a major uncertainty that banks face relates to the demand for bank loans and the supply of deposits—outflows and inflows, respectively—tending to follow independent schedules); 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> [<http://perma.cc/YRK9-6QKY>] (describing depositors as individuals interested in short-term liquidity and borrowers as individuals looking for longer-term finance, with banks acting as intermediators).

²⁰⁵ See Adrian & Shin, *supra* note 129, at 7.

overnight repo transactions.²⁰⁶ Commercial banks also rely on short-term borrowing, but a substantial portion of their funding comes from deposits,²⁰⁷ which are relatively stable in light of Federal Deposit Insurance Corporation (FDIC) support,²⁰⁸ as well as longer-term borrowing.²⁰⁹ Consequently, in the ordinary course, a commercial bank's ability to grow its balance sheet—its ability to make loans and other investments—is likely to be less volatile and less affected by change in capital markets conditions than an investment bank.²¹⁰ This access to stable, low-cost funding provided commercial banks with a substantial competitive advantage over their investment bank rivals—and so, as one might expect, commercial banks made substantial inroads into the traditional investment bank business.²¹¹

But at what cost? It is too early to fully assess the impact of those changes, but it is fair to say, even if the financial crisis had not occurred, that the effects of the Gramm–Leach–Bliley Act on the capital markets would have been substantial. For example, a principal goal of bank regulation has been to prevent individual banks from obtaining substantial economic power outside the financial markets, in particular, through control over non-financial businesses.²¹² Passage of the Gramm–Leach–Bliley Act permitted banks to enter new business lines. Among those businesses, commercial banks began to

²⁰⁶ See *supra* notes 165–74 and accompanying text.

²⁰⁷ See Kevin Buehler et al., *Between Deluge and Drought: The Future of US Bank Liquidity and Funding* 1 (McKinsey & Co., Working Paper on Risk No. 48, 2013) (noting that, for banks, deposits constitute forty-nine percent of liabilities, repo financing has declined, and debt maturity has increased); see also Adrian & Shin, *supra* note 129, at 7.

²⁰⁸ See Whitehead, *supra* note 165, at 14 (noting that, in response to the financial crisis, the maximum insurable amount for each deposit account was raised from \$100,000 to \$250,000). Banks can also access Federal Reserve funds to temporarily cover shortfalls in liquidity in the event of substantial withdrawals. See Mark E. Van Der Weide & Satish M. Kini, *Subordinated Debt: A Capital Markets Approach to Bank Regulation*, 41 B.C. L. REV. 195, 204–05 (2000). More recently, in light of the financial crisis, some of the nation's largest securities firms (including Goldman Sachs and Morgan Stanley) elected to become bank holding companies subject to federal bank regulation. Among other benefits, those firms can now access funding that has historically been made available by the Federal Reserve to commercial banks. See Patrice Hill, *Treasury to Try to Keep Owners in Their Homes; Goldman, Morgan Cleared to Acquire Banks*, WASH. TIMES, Sept. 22, 2008, at A1.

²⁰⁹ See Buehler et al., *supra* note 207, at 1.

²¹⁰ See TOBIAS ADRIAN & HYUN SONG SHIN, FED. RESERVE BANK OF N.Y., FINANCIAL INTERMEDIARIES AND MONETARY ECONOMICS 24 (2010), http://www.fednewyork.org/research/staff_reports/sr398.pdf [<http://perma.cc/5F62-MYGY>] (“Market-based intermediaries[, like investment banks,] who fund themselves through short-term borrowing such as commercial paper or repurchase agreements will be sensitively affected by market conditions. But for a commercial bank, its large balance sheet masks the effects operating at the margin.”).

²¹¹ See *supra* notes 57–58 and accompanying text.

²¹² See Mark J. Roe, *A Political Theory of American Corporate Finance*, 91 COLUM. L. REV. 10, 16–17 (1991) (examining commercial bank regulation using public choice theory).

buy and sell physical commodities—in some cases, requiring them to take ownership and delivery of the commodity itself.²¹³ The result was a concentration of power within, and the assumption of new risks by, commercial banks.²¹⁴ It also raised the risk of a change in the commodities markets themselves—with banks using their financial strength to influence non-bank participants and, potentially, changing the way in which the commodities markets function.²¹⁵

In addition, commercial and investment banks had competed with each other for decades before passage of the Gramm–Leach–Bliley Act. Many capital markets innovations were driven by that competition as investment banks searched for new ways to replicate bank functions through the capital markets.²¹⁶ With growing consolidation,²¹⁷ it is less clear that the capital markets would have continued to innovate at the same pace as before.²¹⁸ Moreover, with consolidation, there is a risk of less liquidity in the capital markets. Fewer participants may mean there are fewer entities to buy and sell

²¹³ 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, at 53, 65–66, <http://ssrn.com/abstract=1600058> (describing the rise of financial investors in the commodities market). Banks had traded commodity derivatives since the 1980s, but, following passage of the Gramm–Leach–Bliley Act, they began to trade in the underlying physical commodities as an activity that was “complementary” to their derivatives business. See Saule T. Omarova, *The Merchants of Wall Street: Banking, Commerce, and Commodities*, 98 MINN. L. REV. 265, 293–94, 297–307 (2014) (describing the growth of bank trading in commodities).

²¹⁴ See *id.* at 269–71.

²¹⁵ See *id.* at 346–48, 355.

²¹⁶ See *supra* notes 41–49 and accompanying text.

²¹⁷ See *supra* notes 57–58 and accompanying text.

²¹⁸ See WILLIAM C. DUDLEY & R. GLENN HUBBARD, GLOBAL MKTS. INST. GOLDMAN SACHS, HOW CAPITAL MARKETS ENHANCE ECONOMIC PERFORMANCE AND FACILITATE JOB CREATION 6 (2004), <https://www0.gsb.columbia.edu/faculty/ghubbard/Articles%20for%20Web%20Site/How%20Capital%20Markets%20Enhance%20Economic%20Performance%20and%20Facilit.pdf> [<https://perma.cc/Y37Z-W7T4>] (“Such [consolidated] systems may have stifled the incentives to develop capital market substitutes for depository institution intermediation.”).

securities.²¹⁹ It may also mean a decline in the number of venues through which small, start-up companies can access the public capital markets.²²⁰

Finally, even before commercial banks entered the capital markets, investment banks faced conflicts of interest as underwriters, on the one hand, and as research analysts, brokers, and asset managers, on the other.²²¹ Combining commercial and investment banks is likely to have raised new conflicts. Perhaps the best example is the recent London Interbank Offered Rate (LIBOR) scandal. LIBOR is a benchmark interest rate—used as a reference for \$300 trillion in loans, derivatives, and other financial products—that is derived from the rates that major banks charge each other for loans in the London interbank market.²²² Barclays, a U.K. bank, and fifteen other financial institutions, including J.P. Morgan and Citigroup, have been fined or are being investigated for manipulating LIBOR between 2005 and 2008.²²³ Among the allegations, traders at several banks are accused of conspiring to influence LIBOR by causing commercial bank colleagues to submit rates that were higher or lower than the rates the bank would actually pay.²²⁴ Doing so permitted the traders to profit on derivatives whose value was tied to LIBOR—meaning that, rather than reflecting a bank’s actual borrowing rates, LIBOR began to reflect the traders’ derivatives positions.²²⁵

Of course, it is possible that some or all of those changes would have arisen even without passage of the Gramm–Leach–Bliley Act. But I am skeptical, largely because they arose or became more acute as a result of consolidation in the financial markets—an outcome of the collapse of the wall

²¹⁹ See Luigi Zingales, *Why I Was Won Over by Glass–Steagall*, FIN. TIMES (June 10, 2012), <http://www.ft.com/cms/s/0/cb3e52be-b08d-11e1-8b36-00144feabdc0.html#axzz3FIOoPKRZ> [<http://perma.cc/CE24-WJ3V>] (“I realised it was not simply coincidence that we witnessed a prospering of securities markets and the blossoming of new ones (options and futures markets) while Glass–Steagall was in place, but since its repeal have seen a demise of public equity markets and an explosion of opaque over-the-counter ones.”).

²²⁰ See DAVID WEILD & EDWARD KIM, GRANT THORNTON, MARKET STRUCTURE IS CAUSING THE IPO CRISIS—AND MORE 15 (2010), <http://www.grantthornton.com/staticfiles/GTCom/Public%20companies%20and%20capital%20markets/Files/IPO%20crisis%20-%20June%202010%20-%20FINAL.pdf> [<http://perma.cc/5B3H-SNCD>] (stating that the investment banks that had supported the IPO market had not survived, and “[f]irms [that] have attempted to fill the void . . . have found that the economic model . . . no longer works”).

²²¹ See Papaioannou, *supra* note 64, at 99.

²²² John Kiff, *What is LIBOR?*, 49 FIN. & DEV. 32, 32 (2012), <http://www.imf.org/external/pubs/ft/fandd/2012/12/basics.htm> [<http://perma.cc/NRW8-FMFW>].

²²³ James McBride et al., *Understanding the Libor Scandal*, COUNCIL FOREIGN REL., <http://www.cfr.org/united-kingdom/understanding-libor-scandal/p28729> [<http://perma.cc/439S-QB8W>] (last updated May 21, 2015).

²²⁴ See *Libor—What is It and Why does It Matter?*, BBC NEWS (Dec. 18, 2012), <http://www.bbc.com/news/business-19199683> [<http://perma.cc/Y9D5-K89F>].

²²⁵ Harry Wilson, *Barclays Fund ‘Lowered’ Libor for Profit—Court Papers*, TELEGRAPH (Oct. 17, 2013), <http://www.telegraph.co.uk/finance/libor-scandal/10379316/Barclays-fund-lowered-Libor-for-profit-court-papers.html> [<http://perma.cc/TVK7-5UJH>].

separating commercial banks from other businesses following the Gramm–Leach–Bliley Act’s passage.²²⁶ More to the point, they all arose from changes in bank regulation that affect the capital markets. The bank regulators’ principal focus was on commercial bank stability and, to that end, improving bank profitability, as well as diversifying sources of revenue.²²⁷ Prior to the 2007 financial crisis,²²⁸ those regulators were not charged with overseeing investment banks,²²⁹ nor did they have access to investment bank information in order to do so.²³⁰ As a result, when relaxing the Glass–Steagall Act’s restrictions²³¹ and, later, when analyzing the anti-tying prohibitions,²³² the bank regulators focused on commercial bank stability, not on the potential for changes in regulation to negatively affect non-banks and the capital markets. Even today, the regulators continue to operate within separate silos—the principal capital markets regulators are the SEC and the Commodity Futures Trading Commission, and the principal commercial bank regulators are the Federal Reserve, the Comptroller of the Currency, and the Federal Deposit Insurance Corporation.²³³

One solution may simply be to reinstate the Glass–Steagall Act. There certainly are advocates to do so, perhaps most notably a bipartisan Congressional proposal in 2013.²³⁴ It is less certain whether the banks’

²²⁶ See *supra* notes 57–58 and accompanying text.

²²⁷ See *supra* notes 50–55 and accompanying text.

²²⁸ Recall that, today, the largest investment banks are no longer independent companies or have become bank holding companies subject to Federal Reserve oversight. See *supra* note 134.

²²⁹ See Onnig H. Dombalagian, *Requiem for the Bulge Bracket?: Revisiting Investment Bank Regulation*, 85 IND. L.J. 777, 782–84 (2010).

²³⁰ The SEC failed to acquire that information as well. See Labaton, *supra* note 140, at A1 (quoting former SEC Commissioner Harvey Goldschmid, “In retrospect, the tragedy is that . . . [the SEC had] the ability to get information that would have been critical to sensible monitoring, and yet the S.E.C. didn’t oversee well enough . . .”).

²³¹ See *supra* notes 50–53 and accompanying text.

²³² See *supra* notes 76–86 and accompanying text.

²³³ The Financial Stability Oversight Council (FSOC), created in July 2010, provides for some coordination among financial regulators. See Dodd–Frank Wall Street Reform and Consumer Protection Act § 111, 12 U.S.C. § 5321 (2012). Its principal charge is to identify risks to U.S. financial stability arising from activities in or outside the financial markets. See 12 U.S.C. § 5322. 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). The Council is chaired by the Treasury Secretary and is comprised of ten voting members and five non-voting members. See § 5321(b)(1).

²³⁴ See S. 1282, 113th Cong. (2013) (“To reduce risks to the financial system by limiting banks’ ability to engage in certain risky activities and limiting conflicts of interest, to reinstate certain Glass–Steagall Act protections that were repealed by the Gramm–Leach–Bliley Act, and for other purposes.”); H.R. 3711, 113th Cong. (2013) (same).

regulators would favor a return to the Glass–Steagall era,²³⁵ in particular in light of the pressures that caused deregulation in the first place.²³⁶ As I have argued elsewhere,²³⁷ fixed barriers like those in the Glass–Steagall Act may simply be fixtures of the past—a financial Maginot Line²³⁸ within an evolving financial system.²³⁹ This is particularly true to the extent new products fall outside the bounds of established regulation. Innovation may require more flexible regulation²⁴⁰ and more flexibility among regulators to the extent a new product or service is not squarely within the responsibility of any one agency.²⁴¹

The response may be to create a single regulator that is responsible for the financial markets as a whole, rather than a particular function or segment.²⁴² Such a regulator could balance the costs and benefits of regulatory change across the marketplace, without the “pushmi-pullyu”²⁴³ tension that characterized commercial and investment bank regulation before and after

²³⁵ See Carter Dougherty & Cheyenne Hopkins, *Warren Joins McCain to Push New Glass–Steagall Law for Banks*, BLOOMBERG (July 12, 2013), <http://www.bloomberg.com/news/2013-07-11/warren-joins-mccain-to-push-new-Glass-Steagall-bill-for-banks.html> [<http://perma.cc/HJV2-75T6>] (quoting Senator Warren, a co-sponsor of the Senate bill, as saying to regulators, “Based on what the regulators did to Glass–Steagall over the last 30 years, I don’t expect anyone on this panel will jump and endorse the new Glass–Steagall bill . . .”).

²³⁶ See *supra* notes 38–53 and accompanying text.

²³⁷ See Charles K. Whitehead, *The Volcker Rule and Evolving Financial Markets*, 1 HARV. BUS. L. REV. 39, 43–44 (2011) (querying whether the Volcker Rule properly reflects change in the financial markets).

²³⁸ The Maginot Line was a line of fortifications and other defenses that France constructed along its borders with Germany during the period before World War II. The fortification was based on the success of static, defensive combat in World War I and was intended to provide time for the French army to mobilize in the event of attack. It ultimately proved to be ineffective in World War II, as motorized elements of the German army were able to flank the Maginot Line and proceed directly into France. See Irving M. Gibson, *The Maginot Line*, 17 J. MOD. HIST. 130, 141–46 (1945).

²³⁹ See Whitehead, *supra* note 165, at 2–5 (describing broad changes in the financial markets, relating to market participants and financial instruments); see also *supra* notes 39–49 and accompanying text.

²⁴⁰ See Russell J. Funk & Daniel Hirschman, *Derivatives and Deregulation: Financial Innovation and the Demise of Glass–Steagall* 8 (Jan. 4, 2014) (unpublished manuscript), <http://ssrn.com/abstract=2374496>.

²⁴¹ See *id.* at 9.

²⁴² See John C. Coffee, Jr. & Hillary A. Sale, *Redesigning the SEC: Does the Treasury Have a Better Idea?*, 95 VA. L. REV. 707, 726 (2009) (moving to a central regulator proceeds “on the premise that, as the lines between banks, securities dealers, and insurers blur, so regulators should similarly converge. That idea should remain at the heart of the U.S. debate . . .”).

²⁴³ Readers of *The Story of Doctor Dolittle* will recall that the pushmi-pullyu (pronounced “push-me—pull-you”) was a gazelle-unicorn cross that had two heads, one each at opposite ends of its body. When it tried to move, each head tried to go in the opposite direction. See HUGH LOFTING, *THE STORY OF DOCTOR DOLITTLE* 68 (1997).

passage of the Gramm–Leach–Bliley Act. Commercial bank regulators would no longer pursue siloed policies that, as this Article has illustrated,²⁴⁴ had the effect of increasing investment bank risk-taking and leverage, in turn, spilling over to the commercial banks themselves.²⁴⁵

The concern is more than historical, notwithstanding more recent consolidation among commercial and investment banks.²⁴⁶ Consider, for example, the relationship between hedge funds, regulated by the SEC, and commercial bank holding companies, regulated by the Federal Reserve. Dislocation in one industry is likely to create problems in the other,²⁴⁷ with aggregate bank returns to date appearing to have had a more significant impact on hedge funds rather than vice versa.²⁴⁸ Part of the effect may be due to banks engaging in proprietary trading that previously competed with hedge funds.²⁴⁹ Another part may result from banks providing fee-based services to hedge funds that declined when the hedge fund industry slowed.²⁵⁰ A third part may be the ability of banks to transfer credit risk to hedge fund managers, who can then trade that risk with other market participants.²⁵¹ The result, in

²⁴⁴ See *supra* Parts II.B. and C.

²⁴⁵ Note that the Dodd–Frank Act authorizes the FSOC, with the vote of seven of its ten members, to designate systemically important non-bank financial institutions (SIFIs) for heightened regulation by the Federal Reserve Board. Firms are included “if the Council determines that material financial distress . . . or the nature, scope, size, scale, concentration, interconnectedness, or mix of the [firm’s] activities . . . could pose a threat to the financial stability of the United States.” 12 U.S.C. § 5323 (2012); see also Authority to Require Supervision and Regulation of Certain Nonbank Financial Companies, 76 Fed. Reg. 4555, 4559–60 (Jan. 26, 2011) (codified at 12 C.F.R. pt. 1310) (describing proposed criteria to be used in determining whether to subject a nonbank financial firm to Federal Reserve Board supervision and standards). Consequently, it is possible today for a SIFI to fall under a single regulator. Of course, not all entities are SIFIs, nor does the new requirement extend to industry-wide risks that may result from new or amended regulation. SIFI-based regulation, for example, would not address the industry-wide conflicts that may have caused the LIBOR scandal. See *supra* notes 221–25 and accompanying text. The FSOC is also charged with “identify[ing] gaps in regulation that could pose risks to” U.S. financial stability, 12 U.S.C. § 5322(a)(2)(G) (2012), as well as making 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). If used, those provisions could provide a basis for additional coordination among regulators.

²⁴⁶ See *supra* notes 134, 190 and accompanying text.

²⁴⁷ See Nicholas Chan et al., *Systemic Risk and Hedge Funds*, in *THE RISKS OF FINANCIAL INSTITUTIONS* 235, 318, 326 (Mark Carey & René M. Stulz eds., 2006).

²⁴⁸ See Monica Billio et al., *Econometric Measures of Systemic Risk in the Finance and Insurance Sectors* 3 (Nat’l Bureau of Econ. Research, Working Paper No. 16223, July 2010), <http://www.nber.org/papers/w16223> [<http://perma.cc/Y6LP-44U4>] (noting that financial innovation, like securitization, and the emergence of new business relationships between banks and hedge funds have resulted in a closer interrelationship between them).

²⁴⁹ See Chan et al., *supra* note 247, at 309; Billio et al., *supra* note 248, at 3.

²⁵⁰ See Chan et al., *supra* note 247, at 309.

²⁵¹ See Whitehead, *supra* note 237, at 45–46.

any case, is the potential for a downturn among commercial banks if there is a disruption in the hedge fund industry, and vice versa.²⁵² Commercial banks are largely prohibited from entering the hedge fund business by Section 619 of the Dodd–Frank Act, commonly known as the “Volcker Rule.” That Rule prohibits a banking entity²⁵³ 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,”²⁵⁴ subject to certain exceptions.²⁵⁵ As with the Glass–Steagall Act, the concern is whether change in the Volcker Rule, subject to oversight by one regulator, will affect markets and institutions subject to oversight by another. Experience to date suggests those changes are likely to occur.²⁵⁶ To the extent they do, recent history tells

²⁵² There is, in fact, a real risk of industry-wide slowdown among hedge funds. Recent evidence suggests that, under some circumstances, hedge funds may perform in the same way, irrespective of management style, causing an overall decline in hedge fund performance at the same time. See Tomas Garbaravicius & Frank Dierick, *Hedge Funds and Their Implications for Financial Stability* 43–45 (European Cent. Bank, Working Paper No. 34, Aug. 2005), <http://www.ecb.int/pub/pdf/scpops/ecbocp34.pdf> [<http://perma.cc/RKF6-J7G9>]. To be sure, the Dodd–Frank Act expanded hedge fund regulation by, among other things, eliminating the private adviser exemption from the Investment Advisers Act of 1940 and, with certain exceptions, requiring private fund advisers to register with the SEC. See Dodd–Frank Wall Street Reform and Consumer Protection Act § 403, 15 U.S.C. § 80b-3(b) (2012); see also Exemptions for Advisers to Venture Capital Funds, Private Fund Advisers With Less Than \$150 Million in Assets Under Management, and Foreign Private Advisers, 75 Fed. Reg. 77,190 (Dec. 10, 2010) (codified at 17 C.F.R. pt. 275); Rules Implementing Amendments to the Investment Advisers Act of 1940, 75 Fed. Reg. 77,052 (Dec. 10, 2010) (codified at 17 C.F.R. pts. 275, 279). As a practical matter, however, the new requirements are likely to do little to affect the hedge fund industry, since about seventy percent of hedge fund assets were ostensibly managed by advisers that had voluntarily registered with the SEC. See *After Dodging Many Bullets, Hedge Funds Are Back in Regulators’ Sights*, KNOWLEDGE@WHARTON (Mar. 18, 2009), <http://knowledge.wharton.upenn.edu/article.cfm?articleid=2185> [<http://perma.cc/CA6A-A3AW>] (noting that many hedge funds were willing to voluntarily register with the SEC in order to attract institutional investor funds). Moreover, based on current resources, the SEC has estimated it will not be able to audit a registered investment adviser more than once in every eleven years. See DIV. OF INV. MGMT., SEC, STUDY ON ENHANCING INVESTMENT ADVISER EXAMINATIONS 14 (2011), <http://www.sec.gov/news/studies/2011/914studyfinal.pdf> [<http://perma.cc/M5HA-ZF89>].

²⁵³ “Banking entity” is defined in section 13(h)(1) of the Bank Holding Company Act of 1956 (BHA), as amended by section 619 of the Dodd–Frank Act. 12 U.S.C. § 1851 (2012). The term includes any insured depository institution (other than certain limited purpose trust institutions), any company that controls an insured depository institution, any company that is treated as a bank holding company for purposes of section 8 of the International Banking Act of 1978, 12 U.S.C. § 3106 (2012), and any affiliate of any of the foregoing.

²⁵⁴ Dodd–Frank Act § 619 (amending the Bank Holding Company Act of 1956, 12 U.S.C. § 1851 (2012)).

²⁵⁵ See Whitehead, *supra* note 237, at 40. The Rule also limits similar activities by certain systemically important non-bank financial institutions. See *id.*

²⁵⁶ See *supra* notes 235–41 and accompanying text.

us that the ability of regulators to assess the effect of those changes across the financial markets is imperative, but also imperfect.

IV. CONCLUSION

In *Rashomon*, a film directed by Akira Kurosawa, four characters relate their (sometimes self-serving) account of a horrific crime and what may or may not have taken place.²⁵⁷ The film is perhaps best-known for a plot device involving characters who provide alternative and often contradictory versions of the same incident.

One might recall *Rashomon* when assessing the conventional story around financial regulatory reform and the Gramm–Leach–Bliley Act. That story offers an account based on the relationship between the Act and greater risk-taking by commercial banks, resulting in (or fueling) the 2007 financial crisis. No doubt, passage of the Act prompted change in how banks conducted business, including new or additional risks beyond those the banks traditionally encountered. But another version of the story is set out in this Article. Here, the focus has been on the effect of the Gramm–Leach–Bliley Act on the capital markets and investment banks. That effect was a consequence of policies that failed to consider the risk-taking and leverage that would result as commercial banks diversified their revenue sources.

This Article’s account is a critical part of the story, because the effects are ongoing. And, very likely, the story will be repeated when existing regulation—much like what occurred around the Glass–Steagall Act—is modified to reflect future change in the marketplace. Acknowledging the role that bank regulation (and de-regulation) played in reshaping the capital markets and its participants is a key step in the right direction.

²⁵⁷ See RASHOMON (Daiei Motion Picture Company 1950).