

DEREGULATION AND THE SUBPRIME CRISIS

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Source: *Virginia Law Review*, April 2018, Vol. 104, No. 2 (April 2018), pp. 235-300

Published by: Virginia Law Review

Stable URL: <https://www.jstor.org/stable/44863679>

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DEREGULATION AND THE SUBPRIME CRISIS

Paul G. Mahoney*

Many popular and academic commentators identify deregulation as a cause of the 2007–2008 financial crisis. Some argue that the Gramm-Leach-Bliley Act (“GLBA”) and the Commodity Futures Modernization Act of 2000 (“CFMA”) removed barriers to risk-taking by commercial and investment banks, while others contend that these statutes limited regulators’ ability to respond to changing market conditions. A more general argument is that stringent regulation of banking from the New Deal to the late 1970s produced a quiet period in which there were no systemic banking crises, but subsequent deregulation led to crisis-prone banking.

This Article examines the deregulation hypothesis in detail and concludes that it is incorrect. The GLBA and the CFMA did not remove existing restrictions that would have prevented the principal practices implicated in the subprime crisis, but instead codified the status quo. Although the two statutes prevented regulators from banning affiliations between commercial banks and securities firms and curbing over-the-counter derivatives markets, those actions would likely not have prevented the crisis or significantly reduced its severity.

The Article further argues that the era of stable banking was the result of a benign and predictable macroeconomic environment, not regulation of deposit interest rates. That era ended with the severe inflation and interest rate volatility of the 1970s. Policymakers had to either ease restrictions on the interest rates banks could pay their depositors or force savers to lend to banks at negative real rates of return. Interest rate risk caused both bank failures and bank deregulation.

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INTRODUCTION

After the collapse of Lehman Brothers in September 2008, journalists and bloggers promptly blamed financial deregulation for the growing crisis.¹ Prominent economists, including Alan Blinder, Paul Krugman,

¹ See, e.g., Nancy Gibbs, 25 People to Blame: The Good Intentions, Bad Managers and Greed Behind the Meltdown, *Time*, Feb. 23, 2009, at 20 (blaming former President Bill Clinton for signing the Gramm-Leach-Bliley Act and the Commodity Futures Modernization Act); Louis Uchitelle, Volcker's Voice, Often Heeded, Fails to Sell a Bank Strategy, *N.Y. Times*, Oct. 21, 2009, at A1; Shah Gilani, How Deregulation Fueled the Financial Crisis,

and Joseph Stiglitz, would soon join them in claiming that deregulation was a primary cause of the 2007–2008 subprime crisis.² The Financial Crisis Inquiry Commission, which Congress established to examine the causes of the crisis, concluded that deregulation was among them.³

Two statutes figure prominently in the ongoing deregulation discussion: the Financial Services Modernization Act of 1999, popularly known as the Gramm-Leach-Bliley Act (“GLBA”), which repealed parts of the Depression-era Glass-Steagall Act (“GSA”), and the Commodity Futures Modernization Act of 2000 (“CFMA”), which clarified the legal status of over-the-counter (“OTC”) derivatives transactions.⁴ Bankers, journalists, and popular authors argued that these statutes removed restrictions on commercial bank securities activities and on derivatives transactions, respectively.⁵ Others, including academic commentators, simply argued that the GLBA and the CFMA tied regulators’ hands, preventing them from restricting new and risky market practices.⁶

Some economists offer a broader version of the deregulation hypothesis. They argue that from the New Deal until the late 1970s, banks experienced a “quiet period” with no systemic banking crises and very few bank failures.⁷ Regulation, particularly of deposit interest rates, ensured that banks could earn steady profits without taking substantial

Mkt. Oracle (Jan. 13, 2009, 12:46 PM), <http://www.marketoracle.co.uk/Article8210.html> [<https://perma.cc/4HFP-GY7S>].

² See, e.g., Alan S. Blinder, *After the Music Stopped: The Financial Crisis, the Response, and the Work Ahead* 57–59 (2013); Joseph E. Stiglitz, *Freefall: America, Free Markets, and the Sinking of the World Economy* (2010); Joseph E. Stiglitz, *The Anatomy of a Murder: Who Killed America’s Economy?*, 21 *Critical Rev.* 329, 329–33 (2009); Paul Krugman, *Disaster and Denial*, *N.Y. Times*, Dec. 14, 2009, at A31.

³ See *Fraud Enforcement and Recovery Act of 2009*, Pub. L. No. 111-21, § 5(a), 123 Stat. 1617, 1625 (establishing Financial Crisis Inquiry Commission); *Fin. Crisis Inquiry Comm’n, The Financial Crisis Inquiry Report: Final Report of the National Commission on the Causes of the Financial and Economic Crisis in the United States*, at xviii (2011) [hereinafter *FCIC Report*] (stating that “[m]ore than 30 years of deregulation and reliance on self-regulation by financial institutions” contributed to the crisis).

⁴ See *Gramm-Leach-Bliley Act*, Pub. L. No. 106-102, § 101, 113 Stat. 1338, 1341 (1999) (repealing §§ 20 and 32 of the *Banking Act of 1933*, 12 U.S.C. §§ 377, 78 (1994)); *Commodity Futures Modernization Act of 2000*, Pub. L. No. 106-554, 114 Stat. 2763 (codified as amended in scattered sections of 7, 11, 12, and 15 U.S.C.).

⁵ See *infra* pp.119–20.

⁶ See Blinder, *supra* note 2, at 64 (“[H]ands off’ became the law of the land.”).

⁷ See Gary B. Gorton, *Misunderstanding Financial Crises: Why We Don’t See Them Coming* 4 (2012); see also Özgür Orhangazi, *Financial Deregulation and the 2007–08 US Financial Crisis* 4 (FESSUD, Working Paper No. 49, 2014) (referring to the same period as a “golden age”).

risks. Beginning in the early 1980s, however, Congress and regulators changed or eliminated these restrictions.⁸ Commentators draw a causal link from New Deal-era regulation to the quiet period, and from regulatory changes beginning in the 1980s to the savings and loan crisis of that decade and the later subprime crisis.⁹

The deregulation hypothesis deserves careful analysis because it remains widespread in political and popular discourse. Both major political parties' 2016 platforms called for the reinstatement of the GSA.¹⁰ Some commentators have responded by identifying specific holes in the claim that the GSA would have prevented the crisis.¹¹ However, there has been little comprehensive analysis of how and why banking and capital markets regulation changed from the 1970s to the time of the crisis and whether those changes allowed financial institutions to take the types of risks that brought them to insolvency in 2007–2008.

This Article aims to fill that gap. I argue that the deregulation hypothesis is incorrect. The Article first examines bank and derivatives regulation prior to the GLBA and the CFMA to show that these statutes did not remove existing regulatory barriers relevant to the crisis. Regulated banks and shadow banks had the legal authority to do what they did during the subprime crisis for decades before 2007–2008.¹²

⁸ See *infra* pp. 148–49.

⁹ See Gorton, *supra* note 7, at 4 (“[P]roperly designed bank regulations can prevent financial crises for a significant period”); Graciela L. Kaminsky & Carmen M. Reinhart, *The Twin Crises: The Causes of Banking and Balance-of-Payments Problems*, 89 *Am. Econ. Rev.* 473, 483 (1999) (“[F]inancial liberalization often precedes banking crises”); Orhangazi, *supra* note 7, at 4; Éric Tymoigne, *Securitization, Deregulation, Economic Stability, and Financial Crisis, Part II: Deregulation, the Financial Crisis, and Policy Implications* 3–4 (The Levy Econ. Inst. of Bard Coll., Working Paper No. 573.2, 2009).

¹⁰ See Andrew Ross Sorkin, *The One Thing Both Sides Want: Break Up Banks*, N.Y. Times, July 26, 2016, at B1. For a brief history of the GSA’s enactment and decline, see Kenneth Weiher, *The Rise and Fall of Glass-Steagall*, 19 *Essays Econ. & Bus. Hist.* 209 (2001).

¹¹ See, e.g., David Barker, *Is Deregulation to Blame for the Financial Crisis?*, 18 *Westlaw J. Bank & Lender Liability* 1, 1, 6 (2012); Peter J. Wallison, *Did the “Repeal” of Glass-Steagall Have Any Role in the Financial Crisis? Not Guilty. Not Even Close*, in *Financial Market Regulation: Legislation and Implications* 19, 19–20 (John A. Tatom ed., 2011); Norbert J. Michel, *The Glass-Steagall Act: Unraveling the Myth* (Heritage Found., Backgrounder No. 3104, 2016).

¹² Economist Edmund Phelps makes the related point that changes in financial system architecture were not the cause of the crisis. See Edmund Phelps, *A Fruitless Clash of Economic Opposites*, *Fin. Times* (Nov. 2, 2009), <https://www.ft.com/content/f71cfc6a-c7e6->

The Article also examines the argument that these statutes and other deregulatory measures indirectly caused the financial crisis by limiting regulators' discretion to curb risky activities. It concludes that giving regulators the power to separate commercial banking from securities underwriting or to ban OTC trading of derivatives products would likely not have prevented the crisis or significantly reduced its severity. It also describes the role of regulation in investment bank leverage prior to the crisis.

Finally, I argue that regulatory change did not terminate banking's quiet period. The culprit was the end of an era of low interest rate risk that extended from the end of World War II until the late 1960s. During the quiet period, banks could make long-term commercial and mortgage loans financed by retail deposits and earn a predictable spread between interest income and interest expense. This was true so long as interest rates remained well behaved, with low volatility and a consistently upward-sloping yield curve. This happy state persisted from the end of World War II until the late 1960s.

Inflation and accompanying interest rate volatility in the 1970s created two challenges for regulated banks and thrifts. First, savers resented the cost of holding demand deposits paying no interest and savings and time deposits paying below-market interest. They accordingly fled to new instruments such as money market mutual funds. In order to compete effectively, banks had to find a way to pay market rates on deposits. Regulators and Congress deregulated; that is, they allowed banks greater flexibility to pay market rates to attract deposits.

Banks may have been able to manage the additional funding cost had they not faced a second challenge. On several occasions during the 1970s and early 1980s, the yield curve inverted; long-term interest rates were lower than short-term rates. Banks were increasingly paying market (short-term) rates on deposits, but not earning enough on (long-term) loans to cover the higher funding costs. The combination was fatal; banks began to fail in large numbers.

Could Congress or regulators have saved banks by holding deposit interest rates low enough to guarantee banks a profit? Once money market mutual funds and other deposit substitutes were available, banks

11de-8ba8-00144feab49a [<https://perma.cc/DS6P-JENZ>] ("The crisis could have happened with a 1950s financial sector.").

could not attract deposits without the authority to compete on price. In order to maintain a system of regulated deposit rates, therefore, policymakers would have had to suppress competition from securities firms.¹³ In the high-inflation environment of the 1970s and early 1980s, this would have been devastating to small savers and therefore politically explosive. The same macroeconomic factors that made banks riskier also made deregulation inevitable.

The Article proceeds as follows. Part I sets the stage by describing the financial practices and institutions at the center of the crisis. Part II critically examines the deregulation hypothesis. It first shows that all of the key financial practices—shadow banking, mortgage securitization, subprime lending, OTC derivatives, highly leveraged investment banks, and the combination of commercial and investment banking under the same roof—were permissible and taking place for decades before the crisis. It also explains why separating commercial and investment banking and banning OTC derivatives would not have prevented the crisis. Part III argues that the growing riskiness of banking beginning in the 1970s reflects the interest rate environment rather than regulatory changes. The attempt to provide banks with steady, low-risk profits by holding down the rate of interest on deposits quickly became futile in an economy characterized by capital mobility, competition, and high inflation. Part IV concludes.

I. WHAT HAPPENED?

Before we can assess arguments about the role of deregulation in the financial crisis, we must understand the crisis itself. The general outline is straightforward.¹⁴ Real estate lending increased sharply in the early 2000s as residential real estate prices rose, leading to an equally sharp increase in bank assets. Many of the mortgage loans did not meet

¹³ Morgan Ricks argues that it would be normatively desirable and practically feasible to ban any institution other than a regulated bank from issuing short-term debt. See Morgan Ricks, *The Money Problem: Rethinking Financial Regulation* 225–26 (2016). For reasons explored in more detail in Part III, doing so in a high-inflation environment would have required extraordinary levels of coercion and imposed immense pain on households.

¹⁴ My account largely tracks that in Gary B. Gorton, *Slapped by the Invisible Hand: The Panic of 2007* (2010). For a description of the crisis that agrees on essential details but differs on some issues of interpretation, see Blinder, *supra* note 2, at 63–68.

traditional underwriting standards and, in some cases, were at significant risk of default should housing prices fall.¹⁵

Banks securitized many of their mortgage loans, creating residential mortgage-backed securities (“RMBSs”). Tranches of RMBSs were often resecuritized as part of collateralized debt obligations (“CDOs”). CDOs are debt securities issued by special purpose entities; if collateralized by asset-backed securities (“ABSs”), including RMBSs, they are sometimes called ABS CDOs. Investment banks resecuritized tranches of CDOs, forming products known as CDO-squared, and created synthetic CDOs using derivative products that referenced RMBSs.

House prices began to decline and mortgage payment delinquencies began to increase in 2006–2007.¹⁶ The United States had experienced severe regional housing declines in the past, but geographically diversified mortgage portfolios had suffered manageable losses. In this instance, however, the decline was nationwide. Investors began to worry that the top-rated tranches of RMBSs and ABS CDOs, previously thought to be nearly risk free, could suffer losses. They also became concerned that ambiguous drafting of the underlying documents would lead to disputes over the priority of investor claims to mortgage collateral should defaults occur.¹⁷

At first, the concern was limited to “private-label” securitizations of subprime mortgages (that is, securitizations not involving the government-sponsored entities (“GSEs”) Fannie Mae and Freddie Mac). When defaults on traditional prime mortgages also increased to unforeseen levels, however, investors lost confidence in the entire mortgage-related securities market, including “agency” securities issued by the GSEs and securities based on prime mortgages.

Most analysts and commentators initially believed these problems in the mortgage market would not have large spillover effects on the

¹⁵ See Blinder, *supra* note 2, at 70–71. For a survey of the economics of complex mortgage products, see Jason Scott Johnston, *Do Product Bans Help Consumers? Questioning the Economic Foundations of Dodd-Frank Mortgage Regulation*, 23 *Geo. Mason L. Rev.* 617, 652–71 (2016). For a nontechnical treatment, see Edward Conard, *Unintended Consequences: Why Everything You’ve Been Told About the Economy Is Wrong* 120–25 (2012).

¹⁶ See Blinder, *supra* note 2, at 87–89.

¹⁷ For a discussion of documentary problems in securitizations leading to disputes over rights to collateral, see Roy D. Oppenheim & Jacquelyn K. Trask-Rahn, *Deconstructing the Black Magic of Securitized Trusts: How the Mortgage-Backed Securitization Process Is Hurting the Banking Industry’s Ability to Foreclose and Proving the Best Offense for a Foreclosure Defense*, 41 *Stetson L. Rev.* 745, 757 (2012).

financial system as a whole.¹⁸ However, holders of AAA-rated tranches of RMBSs and ABS CDOs frequently used them as collateral for short-term repurchase agreements (“repo”) and asset-backed commercial paper (“ABCP”), which institutional investors treated as money substitutes.¹⁹ As soon as investors doubted the value of the underlying collateral, they sought to convert these money substitutes to cash, creating a “run” on repo and ABCP. The run forced obligors on those instruments, principally investment banks and special purpose vehicles created by commercial and investment banks, to attempt to sell RMBSs and ABS CDOs, leading to price declines for those securities.²⁰

RMBSs and CDOs traded in thin secondary markets. Rapid sales by institutions in financial distress accordingly resulted in substantial price declines. Because nearly all commercial and investment banks held portfolios of mortgage-related securities, those declines made all financial institutions look weaker. Short-term creditors had every incentive to exit their investments in financial institutions rather than wait to see if the declines were only temporary. Creditors accordingly ran on institutions that were likely healthy in the long run, a problem known as contagion, which led to a systemic panic.²¹

With this as the basic background, we can look in more detail at some institutional practices that played a role in the crisis.

A. The Originate-to-Distribute Model

In the textbook description of banking, banks hold their long-term industrial and mortgage loans to maturity and finance them with deposits that the depositors can withdraw on demand.²² This maturity transformation makes the bank subject to runs by depositors, a risk reduced since the 1930s by government-provided deposit insurance.²³ To

¹⁸ See, e.g., Int’l Monetary Fund, *Global Financial Stability Report: Market Developments and Issues 7* (2007) (“This weakness has been contained to certain portions of the subprime market (and, to a lesser extent, the Alt-A market), and is not likely to pose a serious systemic threat.”).

¹⁹ Both repo and ABCP are described in more detail at pp. 110–11.

²⁰ FCIC Report, *supra* note 3, at 256–79.

²¹ See Hal S. Scott, *Connectedness and Contagion: Protecting the Financial System from Panics 5–12* (2016).

²² See Douglas W. Diamond & Philip H. Dybvig, *Bank Runs, Deposit Insurance, and Liquidity*, 91 *J. Pol. Econ.* 401, 405 (1983).

²³ See Jonathan R. Macey, *Commercial Banking and Democracy: The Illusive Quest for Deregulation*, 23 *Yale J. on Reg.* 1, 4–7 (2006).

ameliorate the resulting moral hazard, banks are subject to prudential regulation, most notably capital and liquidity requirements.

Post–New Deal thinking considered this model normative and economically sound, but it was never an accurate description of reality. Until the 1990s, regulation created a geographically fragmented banking system in the United States, meaning that banks lent principally to local borrowers.²⁴ The likelihood that the supply of funds on deposit would just match the demand for commercial and mortgage loans in any given bank was low. Accordingly, specialized nonbank lenders known as mortgage brokers originated mortgage loans and sold them to banks and other investors.²⁵

A more sophisticated secondary market for mortgages developed in the 1970s. Banks, aided by the GSEs, began to securitize mortgages, selling pools of mortgage loans to intermediaries who sold securities backed by those loans to investors.²⁶ Investors in the securitized mortgages then bore the interest rate, prepayment, and default risk associated with the underlying loans apart from a small residual interest typically maintained by the originator. Many banks thus moved from an originate-to-hold model to an originate-to-distribute model, transferring most of their mortgage loans to special purpose vehicles that issued and sold securities to investors.

In addition to buying and selling whole mortgages, banks were substantial buyers of securitized mortgages. Indeed, in the early years of securitization, the most common type of transaction was for a bank to transfer a pool of mortgages to a GSE in return for securities backed by the same pool, thus trading a less liquid asset for a more liquid asset based on the same collateral.²⁷

B. Shadow Banking

The originate-to-distribute model made it possible for investors rather than depositors to fund residential mortgages. For federal regulatory

²⁴ See Charles W. Calomiris & Stephen H. Haber, *Fragile by Design: The Political Origins of Banking Crises and Scarce Credit* 166–67 (2014).

²⁵ See Frank J. Fabozzi & Franco Modigliani, *Mortgage and Mortgage-Backed Securities Markets* 16–18 (1992).

²⁶ For a comprehensive description of a securitization transaction, see Steven L. Schwarcz et al., *Securitization, Structured Finance and Capital Markets* §§ 1.01–.04, at 1–16 (2004).

²⁷ See Fabozzi & Modigliani, *supra* note 25, at 23–24, 24 tbl.2-3.

purposes, a “bank” both takes deposits and makes loans.²⁸ A company could therefore originate mortgages without taking deposits and avoid being regulated as a bank. By the 1970s, a number of nonbank mortgage lenders, such as Countrywide Financial Corp., took funds from institutional lenders rather than depositors and originated mortgages to be securitized rather than held to maturity.

Another important feature of shadow banking is the issuance of deposit-like liabilities by nonbank financial institutions. Deposit insurance has always been limited; the current cap is \$250,000.²⁹ Institutional investors, no less than households, desire temporary, low-risk instruments in which to invest short-term cash balances, but their cash balances are considerably larger than the insured amount. Institutional investors often invest these temporary cash balances in short-term IOUs collateralized by AAA-rated debt securities.

Two forms of short-term lending played an important role in the crisis. One is repo, which is economically equivalent to a short-term secured loan but structured as a sale of the collateral for cash along with the seller–borrower’s agreement to repurchase the security at an agreed price a short time later.³⁰ The difference between the repurchase and original sale prices provides an implicit interest rate. The lender can reduce credit risk by overcollateralization, achieved through a “haircut,” or the difference between the market value of the collateral and the original sale price.

An alternative structure for achieving a similar risk and maturity profile is ABCP.³¹ In this instance, a special purpose entity holds collateral and issues commercial paper (short-term IOUs). The ABCP is sold at a discount, implying an interest rate, and any difference between the value of the collateral the special purpose entity holds and the amount of ABCP it issues and sells provides overcollateralization just like the haircut in a repo transaction.

Repo and ABCP share two important similarities with demand deposits. They can have maturities as brief as overnight. Typical

²⁸ See 12 U.S.C. § 1841(c)(1)(B) (2012) (defining “bank” for Bank Holding Company Act purposes generally as an entity that “accepts demand deposits” and “is engaged in the business of making commercial loans”).

²⁹ See *id.* § 1821(a)(1)(E).

³⁰ See Gorton, *supra* note 14, at 5–7.

³¹ For a description of the structure of ABCP, see Viral V. Acharya et al., *Securitization Without Risk Transfer*, 107 *J. Fin. Econ.* 515, 519–20 (2013).

contractual arrangements make it easy to roll over, or re-extend, the credit. The lender can thereby leave funds on “deposit” with the borrower for an indefinite period yet recall them on short notice when desired. In addition, AAA-rated collateral and sufficient overcollateralization can make the risk of loss extremely low. As the financial crisis showed, however, even if the risk of ultimate loss is very low, that is not a guarantee against runs. During the financial crisis, holders refused to roll over maturing repo and ABCP. Unable to finance the collateral, borrowers disposed of it in fire sales, touching off a systemic financial crisis.

Through originate-to-distribute lending and the creation of deposit-like liabilities, banking activity is disintermediated—that is, not performed by traditional regulated banks. Mortgage originators, not all of which are banks, sell loans to special purpose vehicles that are not banks, which issue securities to investors, some of which are not banks. Meanwhile, nonbank entities issue repo and ABCP liabilities backed by RMBSs and ABS CDOs. We may observe a series of transactions in which no single entity both takes deposits and is in the business of making loans, and thus none is a bank for regulatory purposes, yet the system as a whole resembles traditional banking with deposit taking at one end and mortgage lending at the other.³² The term “shadow banking” developed to describe the system as a whole.³³

C. How the Crisis Unfolded in Different Types of Financial Institutions

Gary Gorton provides a careful account of the financial crisis, focusing on its spread from one type of financial instrument to another.³⁴ Perry Mehrling provides a complementary analysis focusing principally on the activities of the Federal Reserve.³⁵ In order to assess the importance of deregulation to the crisis, however, it is most useful to look at how the crisis affected specific types of institutions.

The securitization market is analogous to a pipeline through which mortgages flow from originators, to securitization sponsors, to

³² Under Dodd-Frank, some regulatory restrictions apply to insured depository institutions whether or not they meet the traditional definition of a “bank.” See 12 U.S.C. § 1813(c).

³³ An accessible description of shadow banking appears in Bryan J. Noeth & Rajdeep Sengupta, *Is Shadow Banking Really Banking?*, *Regional Economist*, Oct. 2011, at 8.

³⁴ See Gorton, *supra* note 14.

³⁵ See Perry Mehrling, *The New Lombard Street: How the Fed Became the Dealer of Last Resort* (2011).

underwriters, and then to investors. The flow is not instantaneous. Mortgages and securities based on them must be financed while in the pipeline. The financing is typically short-term and easily withdrawn by the lenders. In 2007–2008, as investor appetite for subprime risk waned, the mortgage pipeline became clogged and lenders began withdrawing credit. Credit dried up first to mortgage originators, whose principal business was mortgage securitization, then to investment banks that held large portfolios of RMBSs and CDOs as both underwriters and investors, then to commercial banks and other financial institutions that had large holdings of RMBSs and CDOs or had insured those securities.

1. Nonbank Mortgage Originators

First to experience financial distress, beginning in the second and third quarters of 2007, were specialized mortgage finance companies such as New Century, Countrywide, and American Home Mortgage.³⁶ Each operated on an originate-to-distribute model. They would “warehouse” newly made mortgage loans until they had assembled a pool to securitize. Meanwhile, they financed the mortgages by short-term loans, known as warehouse loans, from banks and other lenders, or by issuing commercial paper.³⁷

As residential real estate prices fell and delinquency rates rose, warehouse lenders began withdrawing credit and securitization sponsors began buying fewer new mortgage pools. The originators therefore found themselves with portfolios of loans they could not finance and borrowings they could not repay. Compounding the problem, these companies also held inventories of mortgage-related securities. American Home Mortgage not only originated and securitized mortgages, but also made leveraged investments in the resulting securities, somewhat similar to the GSE swap program described above.

³⁶ My description of New Century’s, Countrywide’s, and American Home Mortgage’s businesses and financial troubles are taken from their reports filed with the SEC. See New Century Fin. Corp., Quarterly Report (Form 10-Q) (Nov. 9, 2006), <https://www.sec.gov/Archives/edgar/data/1287286/000089256906001359/a24944e10vq.htm> [<https://perma.cc/889W-U7MH>]; Countrywide Fin. Corp., Annual Report (Form 10-K) (Mar. 1, 2007), https://www.sec.gov/Archives/edgar/data/25191/000110465907015136/a07-4926_110k.htm [<https://perma.cc/4ZVQ-GHQ2>]; Am. Home Mortg. Inv. Corp., Annual Report (Form 10-K) (Mar. 1, 2007) [hereinafter Am. Home Mortg. Inv. Corp. Annual Report], <https://www.sec.gov/Archives/edgar/data/1256536/000119312507044477/d10k.htm> [<https://perma.cc/BR4L-7VYG>].

³⁷ See, e.g., Am. Home Mortg. Inv. Corp. Annual Report, *supra* note 36, at 15.

These mortgage originators had to finance temporary holdings of warehoused whole mortgages and long-term holdings of RMBSs and ABS CDOs. They failed as soon as lenders withdrew credit.

While these nonbank originators are key parts of the shadow banking system, it is worth noting that the same dynamic occurred in a regulated U.S. depository institution, IndyMac Bank FSB, and a U.K. bank, Northern Rock. Both followed a business model similar to that of New Century or Countrywide, focusing principally on originating and securitizing residential mortgages.

Each failed once lenders stopped making warehouse loans. Northern Rock was unable to repay or refinance short-term loans beginning in August 2007, leading first to central bank liquidity support and ultimately to nationalization.³⁸ IndyMac's regulator, the Office of Thrift Supervision, closed it in July 2008. The Federal Deposit Insurance Corporation ("FDIC"), as conservator, arranged the transfer of substantially all its assets and insured deposits to a new institution.³⁹

Golden West Financial, a regulated savings and loan association ("S&L"), was also engaged principally in mortgage origination on a massive scale.⁴⁰ Wachovia, a regulated bank holding company, acquired Golden West in 2006. In 2008, concerns about Wachovia's resulting subprime exposure led wholesale depositors to withdraw funds, resulting in FDIC intervention and Wachovia's acquisition by Wells Fargo.⁴¹

The lesson from these examples is that the nonbank mortgage originators failed because of their business strategy, not because they operated out of the reach of bank regulators. Regulated depository institutions in the United States and abroad that were heavily dependent on subprime mortgage origination suffered fates similar to those of the nonbank originators.

³⁸ See Treasury Committee, *The Run on the Rock, 2007–08*, HC 56-I, at 62–68 (UK).

³⁹ See Press Release, Fed. Deposit Ins. Corp., FDIC Establishes IndyMac Federal Bank, FSB as Successor to IndyMac Bank, F.S.B., Pasadena, California (July 11, 2008), <https://www.fdic.gov/news/news/press/2008/pr08056.html> [<https://perma.cc/NY77-FU4S>].

⁴⁰ See Golden W. Fin. Corp., Annual Report (Form 10-K) (Mar. 8, 2006), <https://www.sec.gov/Archives/edgar/data/42293/000119312506048352/d10k.htm> [<https://perma.cc/J8XV-5ZUH>].

⁴¹ See *The Acquisition of Wachovia Corporation by Wells Fargo & Company: Hearing Before the Fin. Crisis Inquiry Comm'n* (Sept. 1, 2010) (statement of Scott G. Alvarez, General Counsel, Board of Governors of the Federal Reserve System), <https://www.federalreserve.gov/newsevents/testimony/alvarez20100901a.htm> [<https://perma.cc/W28Q-T4TD>].

2. Investment Banks

Investment banks specialize in capital markets. They were involved at multiple levels in the market for mortgage-related securities.⁴² They were securitization sponsors that held portfolios of mortgages in special purpose vehicles waiting to be securitized. Some also originated mortgages in order to securitize them. They underwrote RMBSs and CDOs that they or other financial institutions had securitized, holding portfolios of these securities awaiting sale to investors. They also invested in the resulting securities, both for their own account and for sponsored hedge funds and other off-balance sheet entities that issued ownership interests and liabilities to outside investors.

Investment banks financed many of these holdings with short-term borrowings. At the time of the crisis, the major investment banks financed approximately half of the assets on their balance sheets with short-term repo.⁴³ The lenders could and did recall these loans on short notice when they became concerned about the quality of the assets collateralizing them.⁴⁴

Major investment banks also acted as prime brokers for hedge funds. In that role, they held custody of hedge fund assets and used them as collateral for the investment banks' own borrowings. Hedge funds "ran" during the crisis by refusing to roll over maturing repo loans and by withdrawing prime brokerage assets.⁴⁵

The "run on repo" described by Gorton and Andrew Metrick began in the second half of 2007 and caused substantial problems for investment banks heavily invested in subprime assets.⁴⁶ Previously, lenders had treated AA- and AAA-rated mortgage-related securities as equivalent to Treasury bonds and accepted them as collateral without a haircut. After the second half of 2007, the haircuts rose steadily, reducing the availability of credit and prompting asset sales.⁴⁷ By March 2008, Bear

⁴² My description of investment banks' securitization, investment, and financing activities is taken from the SEC filings cited in notes 48 and 50.

⁴³ See Peter Hördahl & Michael R. King, *Developments in Repo Markets During the Financial Turmoil*, *Bank for Int'l Settlements Q. Rev.*, Dec. 2008, at 37, 39.

⁴⁴ See Gorton, *supra* note 14, at 47–50.

⁴⁵ See Gorton, *supra* note 7, at 39–40.

⁴⁶ See Gary Gorton & Andrew Metrick, *Haircuts*, 92 *Fed. Res. Bank St. Louis Rev.* 507, 512–13 (2010).

⁴⁷ See *id.* at 513–14.

Stearns could no longer finance its assets. JPMorgan Chase acquired it with assistance from the New York Fed.⁴⁸

Merrill Lynch was the leading underwriter of CDOs in 2006 and 2007.⁴⁹ It held large positions in the “super-senior,” or last-loss, tranches of many of its deals. These were the least risky tranches, but this did not matter once the repo haircuts on subprime assets became too high. In late July 2008, Merrill sold a \$30.6 billion face amount portfolio of super-senior CDOs to a hedge fund for \$6.7 billion.⁵⁰ It was ultimately unable to reduce its assets to a level that it could finance. In September 2008, Bank of America agreed to acquire Merrill Lynch.⁵¹

Lehman Brothers is a slightly more complicated case.⁵² It was also a substantial player in the subprime market, but had decided to reduce its subprime exposure in 2007. At the same time, however, it made an ultimately fatal push into commercial real estate investment on the theory that the turmoil in residential real estate would not carry over to commercial real estate.⁵³ Lehman’s balance sheet ballooned to almost \$700 billion, supported by only \$21 billion in common equity. In late 2008, Lehman’s repo lenders lost confidence and the firm failed promptly. Lehman’s bankruptcy filing in September 2008 ushered in the acute phase of the crisis.

After the Lehman failure, the remaining major investment banks, Goldman Sachs and Morgan Stanley, converted to bank holding

⁴⁸ See The Bear Stearns Cos. Inc., Quarterly Report (Form 10-Q) (Apr. 14, 2008) 47–48, <https://www.sec.gov/Archives/edgar/data/777001/000091412108000345/be12550652-10q.txt> [<https://perma.cc/L9CH-MKV2>].

⁴⁹ See Matthew Goldstein, *Why Merrill Got Burned So Badly*, *Bloomberg Businessweek*, Nov. 5, 2007, at 32.

⁵⁰ See Merrill Lynch & Co., Inc., Quarterly Report (Form 10-Q) (Aug. 5, 2008) 76, <https://www.sec.gov/Archives/edgar/data/65100/000095012308008850/y64172e10vq.htm> [<https://perma.cc/XUZ4-CWBN>].

⁵¹ See Merrill Lynch & Co., Inc., Current Report (Form 8-K) 2 (Sept. 15, 2008), <https://www.sec.gov/Archives/edgar/data/65100/000095012308011048/y71273ke8vk.htm> [<https://perma.cc/UG6Q-VP8Z>].

⁵² The discussion of Lehman’s failure is taken from the examiner’s report in Lehman’s bankruptcy proceeding. See 1 Report of Anton R. Valukas, Examiner at 2–14, *In re Lehman Bros. Holdings Inc.*, 433 B.R. 113 (Bankr. S.D.N.Y. 2010) (No. 08-13555).

⁵³ For a popular account of Lehman’s collapse, see Lawrence G. McDonald with Patrick Robinson, *A Colossal Failure of Common Sense: The Inside Story of the Collapse of Lehman Brothers* (2009).

companies.⁵⁴ At that point, none of the five largest pre-crisis investment banks was in existence as a traditional investment bank.

3. Commercial Banks

Commercial banks were in a different position than investment banks. Commercial banks fund part of their assets through insured deposits, and insured depositors did not run. However, banks were heavily exposed to residential real estate through direct lending and investment in mortgage-related securities. As investment banks and shadow banks sold mortgage-related assets at bargain-basement prices, commercial banks had to write down mortgage-related assets on their own balance sheets, creating a risk that they would be out of compliance with regulatory capital rules. Banks became wary of lending to one another, leading to a further freeze-up in the financial system.⁵⁵

Citigroup provides a useful illustration of the problems that faced money-center banks in 2007–2008. It had a substantial subprime lending unit.⁵⁶ Like Merrill Lynch, it held a large investment portfolio of super-senior CDO tranches.⁵⁷ A Citibank subsidiary acted as manager for structured investment vehicles (“SIVs”) that provided commercial paper facilities for its banking clients. The SIVs would purchase securities, including ABS CDOs, from the clients and issue ABCP. In the “run” on ABCP in late 2007, investors refused to roll over maturing paper. Moody’s announced that it would review Citi’s SIVs for possible downgrade.⁵⁸

Citi had designed the SIVs as off-balance sheet entities for which, in theory, it acted only in a managerial capacity. The ultimate risk of loss

⁵⁴ See Bd. of Governors of the Fed. Reserve Sys., Order Approving Formation of Bank Holding Companies, 94 Fed. Res. Bull. C101 (2008) (Goldman Sachs); Bd. of Governors of the Fed. Reserve Sys., Order Approving Formation of Bank Holding Companies and Notice to Engage in Certain Nonbanking Activities, 94 Fed. Res. Bull. C103 (2008) (Morgan Stanley).

⁵⁵ See FCIC Report, *supra* note 3, at 355.

⁵⁶ See FCIC Report, *supra* note 3, at 18, 84.

⁵⁷ See Citigroup Inc., Annual Report (Form 10-K) 48 (Feb. 22, 2008) [hereinafter Citigroup Inc. Annual Report], <https://www.sec.gov/Archives/edgar/data/831001/000119312508036445/d10k.htm> [<https://perma.cc/4N2C-DQG9>].

⁵⁸ See Rating Action, Moody’s Inv’rs Serv., Moody’s Takes Rating Action on Certain Structured Investment Vehicles Following Its Latest Review of the Sector - Approx. US\$130 Billion of Debt Securities Affected (42% of Total SIV Debt Outstanding) (Nov. 30, 2007), https://www.moody.com/research/Moodys-takes-rating-action-on-certain-Structured-Investment-Vehicles-following--PR_145257.

on the collateral lay with the ABCP holders. Those holders nevertheless assumed (correctly) that in the event of a serious problem with the collateral, Citibank would step in to protect the holders against loss to protect its own reputation.⁵⁹ In case of that event, Citibank established a credit support facility for its managed SIVs to prevent fire sales of their assets.⁶⁰ Citigroup accordingly consolidated the assets of those SIVs, including \$59 billion in subprime assets, onto its own balance sheet.⁶¹ Other major banks were in a similar position.⁶² In short, the largest banks and their holding companies had substantial exposure to subprime assets through a variety of banking activities. They relied in part on short-term funding from other financial institutions to finance those holdings.

4. Insurance Companies

The monoline insurers Ambac Financial Group and MBIA, Inc., insured structured finance bonds as well as municipal bonds, both through traditional insurance products and credit default swaps (“CDS”). However, they did not rely as heavily on short-term financing as a typical commercial or investment bank and therefore did not face the immediate problem of withdrawal of credit.

Nevertheless, as defaults on subprime mortgages rose, the likely payouts on the insurance policies rose, meaning that the monolines were subject to adverse action by their regulators and downgrades by rating agencies. In 2010, the state insurance regulator of Ambac’s principal insurance subsidiary decided to take control of a portion of its assets and insurance liabilities for the protection of policyholders, reducing the resources available to the publicly traded holding company.⁶³ Shortly

⁵⁹ See, e.g., Gary B. Gorton & Nicholas S. Souleles, *Special Purpose Vehicles and Securitization*, in *The Risks of Financial Institutions* 549, 551–52 (Mark Carey & René M. Stulz eds., 2006).

⁶⁰ See Press Release, Citigroup Inc., *Citi Commits Support Facility for Citi-Advised SIVs* (Dec. 13, 2007), <http://www.citigroup.com/citi/news/2007/071213c.htm> [<https://perma.cc/7FZK-ZJTH>].

⁶¹ See Citigroup Inc. Annual Report, *supra* note 57, at 8.

⁶² See Nicole Gelinias, *Super SIV to the Rescue?*, *City J.* (Nov. 8, 2007), <https://www.city-journal.org/html/super-siv-rescue-10325.html> [<https://perma.cc/2D4T-2DGX>].

⁶³ See Ambac Fin. Grp. Inc., *Annual Report (Form 10-K)* (Mar. 16, 2011) 114–18, <http://files.shareholder.com/downloads/AMDA-1TKRMB/2555215070> x0x657596/B7D1C5EF-AA19-4DD9-8EB4-FA87B38204CB/Annual2010.PDF [<https://perma.cc/2JF7-D8TH>].

thereafter, the holding company missed a debt payment and filed a bankruptcy petition.⁶⁴

American International Group (“AIG”) also insured mortgage-related securities, primarily by writing CDS.⁶⁵ Although not required by regulation at that time, parties to OTC derivatives transactions could contractually require their counterparties to post collateral to reduce counterparty credit risk. The largest swap dealers were rated AAA or guaranteed by a AAA-rated affiliate and were able to persuade counterparties to require no or modest collateral so long as they maintained a AAA rating.

AIG also ran a substantial securities lending program.⁶⁶ It lent securities from the portfolios of its insurance subsidiaries and received cash collateral, which it then invested in other securities, largely mortgage-related and other asset-backed securities. The program was economically equivalent to holding a portfolio of ABS CDOs and financing them with short-term repo. The program was accordingly vulnerable to a run should the borrowers become worried about AIG’s financial health and unwind the loans.

When the prices of mortgage-related securities fell and rating agencies downgraded AIG, it experienced a “run” both in its securities lending business and its CDS business. Securities borrowers returned the securities and demanded the return of their cash collateral; CDS counterparties demanded that AIG post cash collateral.⁶⁷ This put AIG in the same position as an investment bank financed by repo—its counterparties demanded cash, which it could raise only by selling subprime assets into an illiquid market. AIG received federal government assistance after the Lehman bankruptcy and ultimately received funds from the Troubled Asset Relief Program.⁶⁸

⁶⁴ Id. at 3; Ambac Fin. Grp. Inc., Current Report (Form 8-K) (Nov. 1, 2010) 1, <http://files.shareholder.com/downloads/AMDA-1TKRMB/5546738472x0xS1193125-10-241913/874501/filing.pdf> [<https://perma.cc/8ZWE-AHS7>].

⁶⁵ The discussion in this paragraph comes from the Special Inspector General for the Troubled Asset Relief Program (“SIGTARP”). See SIGTARP, Quarterly Report to Congress 63 (2009), https://www.sig tarp.gov/Quarterly%20Reports/July2009_Quarterly_Report_to_Congress.pdf [<https://perma.cc/3F6H-QNYT>].

⁶⁶ See Hester Peirce, Securities Lending and the Untold Story in the Collapse of AIG 15 (Mercatus Ctr., Working Paper No. 14-12, 2014).

⁶⁷ See id. at 27–28; Carrick Mollenkamp et al., Behind AIG’s Fall, Risk Models Failed to Pass Real-World Test, *Wall St. J.*, Nov. 3, 2008, at A1.

⁶⁸ See FCIC Report, *supra* note 3, at 349–350.

All financial institutions that experienced severe financial distress, then, had three things in common. They had substantial subprime exposure through holdings of whole mortgages, mortgage-related securities, and derivatives products referencing mortgage-related securities. Their positions in those assets were highly leveraged. And either a short-term creditor or regulator was in a position to force them to liquidate those assets at the worst possible time. We are now in a position to ask whether regulatory changes caused these three problems.

II. DEREGULATION AND THE SUBPRIME MARKET

Commercial and investment banks, insurance companies, and shadow banks suffered in 2007–2008 from investments in subprime mortgages and securities, insurance products, and derivatives tied to subprime mortgages and financed with short-term debt. In the wake of the crisis, several prominent bankers argued that the GLBA’s partial repeal of the GSA facilitated these practices.⁶⁹ The same claim was “espoused repeatedly by newspaper columnists, talk show pundits, and even some respected think tanks.”⁷⁰ The critics argued that the GLBA permitted large commercial banks to follow the (risky) business model of investment banking.⁷¹

⁶⁹ See Pat Garofalo, *Former Citigroup Chairman Blames Deregulation for the Financial Crisis*, ThinkProgress (Apr. 20, 2012, 8:15 PM), <https://thinkprogress.org/former-citigroup-chairman-blames-deregulation-for-the-financial-crisis-1c312c0846d#p0o1fq54i> [<https://perma.cc/HE9H-3ND9>]. A prominent hedge fund manager made a similar claim. See James Rickards, *Repeal of Glass-Steagall Caused the Financial Crisis*, U.S. News & World Rep. (Aug. 27, 2012, 1:19 PM), <https://www.usnews.com/opinion/blogs/economic-intelligence/2012/08/27/repeal-of-glass-steagall-caused-the-financial-crisis> (stating that bank underwriting of mortgage-backed securities was a major factor in the crisis).

⁷⁰ See Raymond Natter, *Deregulation and the Financial Crisis*, http://www.bsnlawfirm.com/newsletter/OP0812_Natter.pdf [<https://perma.cc/GA3G-R6UP>]; see also, e.g., Lawrence G. McDonald with Patrick Robinson, *supra* note 53, at 60–61 (attributing the financial crisis in part to the GSA repeal and the CFMA); Nomi Prins, *What a Hillary Clinton Presidency Means for Your Financial Future*, *Nation* (Oct. 27, 2016), <https://www.thenation.com/article/what-a-hillary-clinton-presidency-means-for-your-financial-future/> [<https://perma.cc/L2UL-MTZU>] (stating that the GSA “separated people’s bank deposits . . . from any kind of risky bets” and the CFMA “allowed Wall Street to concoct devastating unregulated side bets”); Gillian B. White & Bourree Lam, *Could Reviving a Defunct Banking Rule Prevent a Future Crisis*, *Atlantic* (Aug. 23, 2016), <http://www.theatlantic.com/business/archive/2016/08/glass-steagall/496856/> [<https://perma.cc/585R-AJNY>] (quoting former Labor secretary Robert Reich as asking, “[W]hy were the banks able to give [investment banks] easy credit on bad collateral?” and answering, “Because [the GSA] was gone”).

⁷¹ See FCIC Report, *supra* note 3, at 56 (“The strategies of the largest commercial banks and their holding companies came to more closely resemble the strategies of investment

Commentators also cite the CFMA as a cause of the subprime crisis. They claim that the CFMA “in essence deregulated the OTC derivatives market,” setting the stage for commercial and investment banks to use CDS to create synthetic mortgage-related securities.⁷²

However, the GLBA and the CFMA did not permit previously banned activities relevant to the crisis. This Part traces the evolution of the regulatory system and shows that all of the relevant activities—shadow banking, mortgage securitization, bank investment in and underwriting of mortgage-related securities, derivatives contracts tied to mortgage-related securities, and high financial leverage—were permissible for decades prior to the crisis.

Critics are correct to argue that after the GLBA and the CFMA, regulators had fewer tools available to *stop* banks from underwriting mortgage-related securities and financial institutions from trading in OTC derivatives. However, this Part will also argue that stricter limitations on those activities would likely not have prevented the crisis or substantially lessened its severity.

A. The GLBA, the GSA, and Bank Securities Activities

The GSA limited commercial banks’ investment and underwriting activities and affiliations with investment banks. The GLBA repealed the limitations on commercial bank affiliation with businesses engaged principally in securities underwriting and dealing. This section examines banks’ authority to invest in and underwrite mortgage-related securities and shadow banks’ authority to create money substitutes.

1. Bank Investments in RMBSs and CDOs

Commercial banks and their holding companies could and did invest for their own account in RMBSs and investment-grade CDOs for

banks.”); Marcus Baram, *Who’s Whining Now? Gramm Slammed by Economists*, ABC News (Sept. 19, 2008), <http://abcnews.go.com/Politics/story?id=5835269&page=1> [<https://perma.cc/N4QW-9LZY>] (quoting Joseph Stiglitz as stating, “As a result [of the GLBA], the culture of investment banks was conveyed to commercial banks and everyone got involved in the high-risk gambling mentality”).

⁷² FCIC Report, *supra* note 3, at 48; Lynn A. Stout, *Derivatives and the Legal Origin of the 2008 Credit Crisis*, 1 Harv. Bus. L. Rev. 1, 1–5 (2011).

decades before the GLBA and the crisis.⁷³ The GLBA did not change their ability to do so.

The National Bank Act of 1864 gave national banks enumerated powers as well as incidental powers necessary to carry out the business of banking.⁷⁴ Those incidental powers were understood to include investment, and even underwriting and dealing, in debt securities, although there was disagreement about banks' authority to buy and sell equities.⁷⁵ In 1927, the McFadden Act added a specific definition of "investment securities" that national banks could buy and sell for their own account, including "marketable obligations evidencing indebtedness . . . in the form of bonds, notes and/or debentures . . . under such further definition . . . as may by regulation be prescribed by the Comptroller of the Currency."⁷⁶ The definition was added to the National Bank Act's enumerated powers section, codified at 12 U.S.C. § 24, para. 7, which for simplicity I will call the "Investment Securities Provision."

The banking crisis of 1932–1933 led to the enactment of the GSA, comprising Sections 16, 20, 21, and 32 of the Banking Act of 1933.⁷⁷ Only Section 16 deals directly with the investment powers of national banks. Separately, the Banking Act subjected state member banks (that is, state-chartered banks that are members of the Federal Reserve system) to the newly added restrictions on securities activities.⁷⁸ In 1935, Congress amended Section 21 (which prohibits securities firms from taking deposits) to clarify that it did not prohibit state nonmember banks from engaging in activities permitted to national banks under Section

⁷³ A useful guide to the regulation of bank securities activities is a paper prepared by the Congressional Research Service: David H. Carpenter & M. Maureen Murphy, Cong. Research Serv., R41181, *Permissible Securities Activities of Commercial Banks Under the Glass-Steagall Act (GSA) and the Gramm-Leach-Bliley Act (GLBA)* 5–15 (2010).

⁷⁴ See Act of June 8, 1864, § 5, 13 Stat. 99, 100–01 (codified as amended at 12 U.S.C. § 24, para. 7).

⁷⁵ See George G. Kaufman & Larry R. Mote, Note, *Commercial Bank Securities Activities: What Really Happened in 1902*, 24 *J. Money, Credit & Banking* 370, 370–71 (1992).

⁷⁶ See 12 U.S.C. § 24, para. 7 (1926 & Supp. VI 1932).

⁷⁷ A useful description of the GSA and its legislative history appears in Edward J. Kelly III, *Legislative History of the Glass-Steagall Act*, in *Deregulating Wall Street: Commercial Bank Penetration of the Corporate Securities Market*, 41, 41–54 (Ingo Walter ed., 1985).

⁷⁸ See Banking Act of 1933, Pub. L. No. 73-66, § 5(c), 48 Stat. 162, 165 (codified as amended at 12 U.S.C. § 335 (2012)).

16.⁷⁹ Hereafter I will use “bank” to include national and state banks, whether or not members of the Federal Reserve System, unless the context requires a narrower meaning.

Section 16 amended the Investment Securities Provision to add stringent limitations on investment in equities. It also added specific restrictions on underwriting and dealing in securities, with the exception of full-faith-and-credit federal, state, and local bonds. Section 16 continued to permit a bank to “purchase for its own account investment securities under such limitations and restrictions as the Comptroller of the Currency may by regulation prescribe.”⁸⁰ Following enactment of Section 16, banks could both invest in and underwrite certain debt securities, invest in but not underwrite others, and neither own nor underwrite certain others based on the Office of the Comptroller of the Currency’s (“OCC”) regulations.⁸¹

Agency RMBSs and CDOs were expressly included in the first bucket, eligible for both investment and underwriting, shortly after they came on the scene. The infrastructure for securitization began in 1934 with the creation of the Federal Housing Administration (“FHA”) in the National Housing Act.⁸² The FHA insured certain residential mortgages as an inducement for banks to make mortgage loans. A 1938 amendment created Fannie Mae, a then-government-owned organization designed to purchase FHA—and Veterans Administration—insured loans from banks.⁸³

A 1964 statute authorized Fannie Mae to create investment pools of insured mortgages in a trust or similar device and simultaneously amended the Investment Securities Provision to include “participations, or other instruments of or issued by the Federal National Mortgage Association” in the list of securities that banks may both own and underwrite.⁸⁴ The Housing and Urban Development Act of 1968, which

⁷⁹ See Banking Act of 1935, Pub. L. No. 74-305, § 303(a), 49 Stat. 684, 707 (codified as amended at 12 U.S.C. § 378(a)).

⁸⁰ Banking Act of 1933, Pub. L. No. 73-66, § 16, 48 Stat. 162, 185.

⁸¹ The Comptroller defined an “investment security” that a bank could own as a “marketable debt obligation that is investment grade and not predominantly speculative in nature.” 12 C.F.R. § 1.2(e) (2016).

⁸² Pub. L. No. 73-479, 48 Stat. 1246 (1934).

⁸³ National Housing Act Amendments of 1938, Pub. L. No. 75-424, § 301(a), 52 Stat. 8, 23.

⁸⁴ Housing Act of 1964, Pub. L. No. 88-560, tit. VII, 78 Stat. 769, 800 (internal quotation marks omitted).

made Fannie Mae a private company, also gave it the power to issue securities collateralized by mortgages,⁸⁵ putting in place the basic tools for securitization. The same statute created Ginnie Mae, a government agency that would specialize in securitizing mortgages insured by federal agencies, while Fannie Mae and Freddie Mac, the latter created in 1970, would henceforth purchase and securitize conventional, or non-federally-insured, mortgages. Congress added these securitizations to the Investment Securities Provision's list of securities eligible for both investment and underwriting.⁸⁶

These statutory amendments did not mention private-label securitizations. Those stood on the same ground as other private sector debt securities, in which banks could invest so long as they met the OCC's standards. Those standards required that the security not be "predominantly speculative in nature."⁸⁷ The bank also had to make a "prudent banking judgment" that the issuer could perform its obligations.⁸⁸ Using that guidance, banks bought investment-grade private-label mortgage-related securities.

The Secondary Mortgage Market Enhancement Act of 1984 provided further guidance on bank investments in private-label securitizations. The statute defined a "mortgage related security" to include residential mortgage pass-through securities and debt securities collateralized by residential mortgages or mortgage-backed securities, so long as a nationally recognized rating agency rated the security in one of the two highest categories.⁸⁹ The statute also amended the Investment Securities Provision to permit banks to invest in (but not underwrite) mortgage-related securities as defined, subject to limits the OCC might prescribe by regulation. The statute in effect permitted a bank to rely on the judgment of rating agencies as to the default risk associated with a mortgage-related security.

Thus, when mortgage pass-through securities were first sold around 1970, banks had clear authority to sell mortgages (as they had done for decades), to securitize them with Ginnie Mae's assistance and

⁸⁵ Pub. L. No. 90-448, § 802(o)-(s), 82 Stat. 476, 538 (codified as amended at 12 U.S.C. § 1719(d)).

⁸⁶ See 12 U.S.C. § 24, para. 7 (1976).

⁸⁷ See 12 C.F.R. § 1.3(b) (1970).

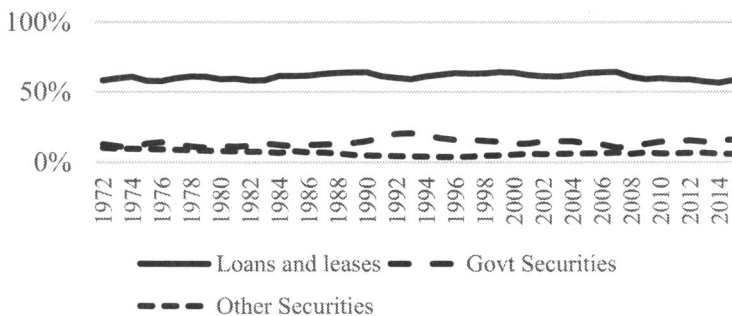
⁸⁸ *Id.* § 1.5.

⁸⁹ See 15 U.S.C. § 78c(a)(41) (2012). The Dodd-Frank Act removed the reference to ratings and replaced it with a requirement that the security "meets standards of credit-worthiness as established by the [Securities and Exchange] Commission." See *id.*

underwrite the resulting securities, and to invest in, underwrite, and deal in mortgage-backed securities issued by Fannie Mae and Freddie Mac. Prior to 1984, the OCC's regulations permitted banks to buy investment-grade private-label securitizations in the exercise of prudent banking judgment; from 1984 on that permission was provided by statute.

None of this changed in 1999. The GLBA did not repeal Section 16 of the GSA. Commercial banks accordingly retained the same powers and limitations as before with respect to investments in debt securities.⁹⁰ That the GLBA did not affect bank securities investments is clear from Figure 1, which plots three key categories of bank assets—loans and leases, government securities, and nongovernment securities—as a percent of total assets over time for the universe of domestic commercial banks. The mix shows no sharp change after enactment of the GLBA in 1999. Bank investment in nongovernment securities was actually higher in the early 1970s than in the early to mid-2000s.

Figure 1: Selected Assets of Commercial Banks, % of Total



Source: Federal Reserve⁹¹

⁹⁰ The GLBA did add certain additional types of municipal bonds to the list of bank-eligible securities in the Investment Securities Provision. See Pub. L. No. 106-102, § 151, 113 Stat. 1338, 1384 (1999) (codified at 12 U.S.C. § 24, para. 7). Bank holding companies had already gained the authority to underwrite and deal in those securities through a securities affiliate. See *infra* Subsection II.A.3.

⁹¹ See Bd. of Governors of the Fed. Reserve Sys., Data Download Program, Fed. Res., [https://www.federalreserve.gov/datadownload/Download.aspx?rel=H8&series=ad391bc8386319a8160543cb48dc2144&filetype=sheetml&label=include&layout=seriescolumn&lastObs=\[https://perma.cc/MU3Z-NCV2\]](https://www.federalreserve.gov/datadownload/Download.aspx?rel=H8&series=ad391bc8386319a8160543cb48dc2144&filetype=sheetml&label=include&layout=seriescolumn&lastObs=[https://perma.cc/MU3Z-NCV2]) (providing H.8 releases from 1947 to the present).

2. *The Creation of Money Substitutes*

Section 21 of the GSA makes it illegal for securities firms to take deposits.⁹² The GLBA did not repeal Section 21, which remains in force. Interpreted broadly, regulators might have used Section 21 as a tool to prevent investment banks from using repo or ABCP to create deposit-like liabilities.⁹³ However, regulators have long interpreted Section 21 narrowly. Not even the Dodd-Frank Act's drafters sought to rewrite it to cover repo, ABCP, and so on.

A separate and important question is whether shadow banks' creation of money substitutes, while a necessary condition for the crisis, was also a sufficient condition. One striking aspect of the sudden run on repo and ABCP was that nearly all of the relevant debt was backed ultimately by the same asset class—residential mortgages. Would we have experienced a similar crisis had different shadow banks used different forms of collateral, for example AAA-rated municipal bonds, equipment leases, AAA-rated tranches of credit card securitizations, AAA-rated corporate CDOs, and so on, with no one asset class playing a dominant role?⁹⁴ It is an interesting question without a clear answer. Greater cross-sectional diversity in portfolios should reduce the probability of a crisis.

The reason for commercial and investment banks' heavily correlated investments in mortgage-related securities is another critically important question. One possible answer is housing policies.⁹⁵ There is little dispute that congressional and regulatory action to encourage mortgage lending to lower-income households was a factor in the growth of the subprime market; the only dispute is how important a factor.

Bank capital rules also have the unintended consequence of encouraging banks to hold some types of assets rather than others. All other things equal, banks want to maximize their return on capital. Under a simple system of capital requirements that focuses only on the

⁹² 12 U.S.C. § 378.

⁹³ For a detailed argument in favor of limiting the creation of money substitutes to regulated banks, see Ricks, *supra* note 13. Kathryn Judge, Book Review, *The Importance of "Money,"* 130 *Harv. L. Rev.* 1148 (2017), provides a skeptical response.

⁹⁴ For example, although credit card securitizations served as collateral for money substitutes, they did not experience trouble at the same time as mortgage-related securities. While the latter were under severe strain by late 2007, the former came under pressure only in late 2008. See Adriana Z. Robertson, *Shadow Banking, Shadow Bailouts*, *Del. J. Corp. L.* (forthcoming 2018) (manuscript at 22) (on file with the Virginia Law Review Association).

⁹⁵ See Peter J. Wallison, *Hidden in Plain Sight: What Really Caused the World's Worst Financial Crisis and Why It Could Happen Again* 4–5 (2015).

ratio of equity to assets, banks can earn a higher return on capital by holding riskier assets. This is the motivation for risk-based capital rules which vary the amount of capital required depending on the perceived riskiness of different asset classes.

Risk-based systems, however, will inevitably get some risk weights wrong and thereby encourage certain holdings more than others. If, for example, all sovereign debt receives the same risk weight, banks will earn a higher return on capital by holding Greek debt in preference to German debt.

As implemented in the United States, the Basel I risk-weighted capital standards assigned whole mortgages a risk weight of 50%, thereby requiring only half the capital necessary to hold a commercial loan.⁹⁶ Under the Federal Reserve's so-called "recourse rule," investments in AAA- or AA-rated RMBSs and ABS CDOs received substantially lower risk weights than investments in whole mortgages.⁹⁷

It makes sense to treat a home mortgage as less risky than a commercial loan, given the historical default experience. It also makes sense to treat AAA-rated CDOs as less risky than a pool of whole mortgages. The latter incurs losses beginning with the very first default, while the former is a senior security that takes losses only after the junior tranches have been wiped out.⁹⁸

For present purposes, however, the key point is that these risk weights are necessarily imperfect. As a result, some classes of assets will produce a greater yield per dollar of capital than others. Banks will want to hold those assets. It is notable that bank investments in mortgage-related securities increased steadily after the 2002 implementation of the recourse rule.⁹⁹

Capital rules accordingly have a built-in tendency to create correlated portfolios among banks. Simple capital rules encourage banks to hold riskier assets. Complicated risk-based rules draw fine-grained distinctions among different assets, which may encourage even more highly correlated portfolios.

⁹⁶ See 12 C.F.R. § 3.32(g) (2016).

⁹⁷ See *Capital Treatment of Recourse, Direct Credit Substitutes and Residual Interests in Asset Securitizations*, 66 Fed. Reg. 59,613, 59,617, 59,659 (Nov. 29, 2001).

⁹⁸ See Conard, *supra* note 15, at 146–48.

⁹⁹ See Jeffrey Friedman & Wladimir Kraus, *Engineering the Financial Crisis: Systemic Risk and the Failure of Regulation 68–72* (2011).

A third reason for the correlated investment portfolios is that securitized real estate seems custom-made for collateralizing money substitutes. Specialized institutions that issue money substitutes backed by mortgage loans have been around at least since the late seventeenth century.¹⁰⁰ In the early to mid-2000s, bankers, investors, and regulators alike believed there was almost no chance that residential real estate prices would fall so much, so quickly, and in so many locations simultaneously as to threaten the safety of AAA-rated mortgage-related securities.

Unfortunately, the maturity and liquidity mismatch between mortgages and banknotes, checkable deposits, and other short-term liabilities means that the structure is inherently risky. Financial institutions failed because of those risks in the Great Depression, the savings and loan crisis of the 1980s, and the subprime crisis.

For present purposes, it will suffice to say that none of these reasons for bank and shadow bank investment in subprime mortgage-related assets has anything to do with deregulation. Even the most fervent supporters of stringent financial regulation favored an expansion of lending to low-income households.¹⁰¹ Capital rules serve a valuable regulatory purpose, but tend to encourage some investments more than others, thereby creating correlated risks. In addition, regulators allowed commercial and investment banks to create off-balance sheet entities that the sponsors implicitly guaranteed and should therefore have consolidated on their balance sheets. These were faulty risk assessments resulting from imperfect information and the failure to foresee unintended consequences. They did not result from a lack of regulatory authority.

3. Bank Underwriting of Mortgage-Related Securities

The GSA permitted banks to underwrite only certain debt securities, including agency RMBSs and CDOs and municipal securities. For decades before the GLBA, money-center banks were among the nation's leading underwriters of municipal bonds.¹⁰² They also acted as

¹⁰⁰ See William Letwin, *The Origins of Scientific Economics: English Economic Thought 1660-1776*, at 53–54 (1963).

¹⁰¹ See Peter J. Wallison, Barney Frank, *Predatory Lender*, *Wall St. J.*, Oct. 16, 2009, at A19.

¹⁰² See, e.g., Evelyn Kondratuk, *A Rocky Road for Municipals During 1980's First Half*, *46 Inv. Dealers' Dig.* 4, 6 tbl.IV (1980) (listing Morgan Guaranty Trust Co., Continental

placement agents for private placements of other securities, including securities they could not underwrite. The Board of Governors of the Federal Reserve System (the “Board”) and the U.S. Court of Appeals for the D.C. Circuit concluded that private placements are agency and not principal transactions and therefore are permitted to banks under Section 16 of the GSA.¹⁰³

Most banks operate under a holding company. Section 20 of the GSA prohibited affiliation between a member bank and any organization “engaged principally” in the normal investment banking activities of securities underwriting and dealing.¹⁰⁴ This is what commentators mean when they say that the GSA “separated” investment and commercial banking—it prohibited them from taking place under the same holding company umbrella.¹⁰⁵ Nevertheless, the “engaged principally” language gave bank holding companies greater flexibility than banks themselves, which were subject to a blanket prohibition on underwriting or dealing in many types of securities.

The Bank Holding Company Act of 1956 also limits the activities of bank affiliates. As amended by the Bank Holding Company Act Amendments of 1970, the statute allows bank holding companies to own banks and companies engaged in activities that, in the judgment of the Board, are “so closely related to banking . . . as to be a proper incident thereto.”¹⁰⁶

Prior to the GLBA, the Board’s Regulation Y provided a procedure for a bank holding company to request a determination that a particular activity is closely related to banking.¹⁰⁷ Over time, the Board added to

Illinois National Bank, Bankers Trust Co., Citibank, N.A., First National Bank of Chicago, Harris Trust & Savings Bank, and Northern Trust Co. among the top twenty-five municipal bond underwriters).

¹⁰³ See *Sec. Indus. Ass’n v. Bd. of Governors of the Fed. Reserve Sys.*, 807 F.2d 1052, 1055, 1058 (D.C. Cir. 1986).

¹⁰⁴ See Banking Act of 1933, Pub. L. No. 73-66, § 20, 48 Stat. 162, 188 (repealed by Gramm-Leach-Bliley Act, Pub. L. No. 106-102, § 101(a), 113 Stat. 1338, 1341 (1999)). The FDIC’s regulations imposed similar limitations on the securities activities of affiliates of insured state nonmember banks. See 12 C.F.R. § 362.4 (2016).

¹⁰⁵ Meanwhile, § 21 prohibited investment banks from taking deposits. See Banking Act of 1933, Pub. L. No. 73-66, § 21, 48 Stat. 162, 189 (codified as amended at 12 U.S.C. § 378(a) (2012)). The fourth provision, § 32, was designed to prevent evasion of § 20 by prohibiting director overlaps between banks and companies engaged primarily in underwriting or dealing. See Banking Act of 1933, § 32, 48 Stat. 162, 194 (repealed by Gramm-Leach-Bliley Act, Pub. L. No. 106-102, § 101(b), 113 Stat. 1338, 1341 (1999)).

¹⁰⁶ See 12 U.S.C. § 1843(c)(8) (1970).

¹⁰⁷ See 12 C.F.R. § 222.4(a) (1970).

the regulation a list of activities that it had already concluded were permissible for bank holding companies and required only prior notification to, rather than prior approval from, the Board.¹⁰⁸

One of those permissible activities was to establish a securities affiliate to underwrite and deal in bank-eligible securities (that is, securities that Section 16 of the GSA permitted banks to underwrite).¹⁰⁹ Accordingly, some money-center banks moved their municipal bond, agency RMBS, and other bank-eligible investment banking activities out of the bank and into investment banking subsidiaries of their holding companies.¹¹⁰

In 1985, several bank holding companies sought permission for their existing investment banking subsidiaries to underwrite certain bank-*ineligible* debt securities, including municipal revenue bonds and private-label, mortgage-related securities.¹¹¹ In order to permit it, the Board had to conclude both that underwriting bank-*ineligible* debt was “closely related to banking” as required by the Bank Holding Company Act and that the affiliate would not be “engaged principally” in the distribution of those securities in violation of Section 20 of the GSA.

In a series of rulings beginning in early 1987, the Board concluded that a securities affiliate would meet both conditions so long as underwriting bank-*ineligible* securities did not account for more than 10% of the securities affiliate’s gross revenues.¹¹² The limitation did not pose a problem for the largest bank securities affiliates. Citicorp Securities, for example, already held twelfth place in nonconvertible debt underwriting by virtue of its underwriting of bank-eligible securities, giving it a substantial revenue base against which to measure

¹⁰⁸ See, e.g., 12 C.F.R. § 225.4(a) (1980).

¹⁰⁹ See 12 C.F.R. § 225.25(a)(16) (1984).

¹¹⁰ See Citicorp Asks Fed to Let It Underwrite Corporate Debt, Wall St. J., Dec. 28, 1984, at 2.

¹¹¹ See Citicorp Proposal on Underwriting Is Scaled Down, Wall St. J., Mar. 28, 1985, at 4.

¹¹² See Bd. of Governors of the Fed. Reserve Sys., Orders Issued Under Section 4 of the Bank Holding Company Act: Citicorp, J.P. Morgan & Co. Incorporated, and Bankers Trust New York Corp., 73 Fed. Res. Bull. 473, 485 (1987); Bd. of Governors of the Fed. Reserve Sys., Orders Issued Under Section 4 of the Bank Holding Company Act: Chase Manhattan Corp., Chemical New York Corp., Manufacturers Hanover Corp., and Security Pacific Corp., 73 Fed. Res. Bull. 607, 607 n.2, 608, 617, 621-23 (1987).

its newly authorized underwriting of bank-ineligible securities.¹¹³ By shifting more activity (such as government and agency bond dealing) into a securities affiliate, the holding company could conduct more bank-ineligible underwriting through that affiliate.

Fearing more competition from bank securities affiliates, the investment banking industry tried to thwart the Board's decision. As part of the Competitive Equality Banking Act of 1987, Congress enacted a one-year moratorium preventing bank securities affiliates from exercising the new powers.¹¹⁴ Meanwhile, the Securities Industry Association pursued ultimately unsuccessful litigation against the Board.¹¹⁵

In 1988 the litigation concluded, the moratorium ended, and bank securities affiliates began underwriting bank-ineligible securities. These subsidiaries became known as "Section 20" subsidiaries. Subsequently, the Board broadened the permissible activities of Section 20 subsidiaries to include underwriting corporate debt and equity securities. It also permitted underwriting of bank-ineligible securities to account for up to 25% of a Section 20 affiliate's gross revenues.¹¹⁶

The GLBA repealed Sections 20 and 32 of the GSA, giving Congress's blessing to Section 20 subsidiaries and relieving them of the 25% revenue cap.¹¹⁷ The statute also ended the Board's authority to add further to the list of activities "closely related" to banking.¹¹⁸ As the discussion above makes clear, however, bank holding company subsidiaries were already major players in the investment banking business before the GLBA. Indeed, J.P. Morgan, Chase Manhattan Corp., and Bank of America Corp. were all among the top fifteen underwriters for *all* domestic new issues of securities in 1998, the year before the GLBA.¹¹⁹ With respect to bank affiliates' underwriting activities, the GLBA ratified facts on the ground.

¹¹³ See Evan Guillemain, *Who Survived the Crash?: A Complete Guide to the Financing Trends of 1987, Including Pre- and Post-Crash Comparisons*, 54 *Inv. Dealers' Dig.*, 19, 27 (1988).

¹¹⁴ Pub. L. No. 100-86, § 201(b), 101 Stat. 552, 582.

¹¹⁵ See *Sec. Indus. Ass'n v. Bd. of Governors of the Fed. Reserve Sys.*, 900 F.2d 360, 361 (D.C. Cir. 1990); *Sec. Indus. Ass'n v. Bd. of Governors of the Fed. Reserve Sys.*, 839 F.2d 47, 49, 69 (2d Cir. 1988).

¹¹⁶ See *Carpenter & Murphy*, *supra* note 73, at 13-14.

¹¹⁷ See Gramm-Leach-Bliley Act, Pub. L. No. 106-102, § 101, 113 Stat. 1338, 1341 (1999).

¹¹⁸ See *id.* § 102(a).

¹¹⁹ See *Domestic Rankings*, 65 *Inv. Dealers' Dig.* 29, 29 (1999).

4. Would the Failure to Enact the GLBA Have Made a Difference?

Absent the GLBA, the Board could have changed its mind about permitting bank securities affiliates. For the sake of argument, imagine that in the early 2000s, the Board had forced banks to divest their securities affiliates. Would this have prevented the subprime crisis?

It would obviously not have prevented the failure of the standalone investment banks Bear Stearns, Merrill Lynch, and Lehman Brothers. It would also not have prevented banks from making the same heavy investments in subprime assets. Those investments were the main cause of financial distress in the major commercial banks.

For example, Citigroup's troubles stemmed principally from Citibank's investments in subprime loans and AAA-rated CDOs based on those loans—both traditional banking activities permitted by the GSA. Citibank's allowance for loan losses increased from \$5.2 billion at the end of 2006 to \$18.2 billion at the end of 2008, reflecting expected losses on real estate loans.¹²⁰ During the same period, the bank accumulated \$9 billion in unrealized losses on holdings of investment securities. The exit of investors from the bank's sponsored ABCP program substantially increased its exposure to subprime assets at a time when those assets were illiquid.

One might argue that banks invested in mortgage-related securities primarily to assist their underwriting affiliates. If so, then perhaps without those affiliates, commercial banks would not have invested so heavily in RMBSs and ABS CDOs, and the crisis might have been contained within the investment banking sector.

This argument turns on the idea that the securitization market was essentially supply-driven. The primary impetus, in other words, was the desire to earn underwriting fees and convert assets to cash that the banks could then use to make more loans to securitize in turn.¹²¹ As a side benefit, because banks promptly sold the loans they made to securitizers, they could be less than scrupulous about loan quality.¹²²

¹²⁰ Compare Citigroup Inc., Annual Report (Form 10-K) 108 (Feb. 23, 2007), <https://www.sec.gov/Archives/edgar/data/831001/000119312507038505/d10k.htm> [<https://perma.cc/A3PZ-GWZL>], with Citigroup Inc., Annual Report (Form 10-K) 121 (Feb. 27, 2009), <https://www.sec.gov/Archives/edgar/data/831001/000119312509041237/d10k.htm> [<https://perma.cc/4GKX-6SXE>].

¹²¹ See Blinder, *supra* note 2, at 72–73; FCIC Report, *supra* note 3, at 42–44.

¹²² FCIC Report, *supra* note 3, at 44 (expressing former Federal Reserve Chair Paul Volcker's concern that loan quality would deteriorate because of securitization). The fact

However, the evidence better supports the view that the securitization market was significantly demand-driven.¹²³ There were simply too few low-risk assets to meet the enormous demand. The number of AAA-rated corporate issuers has fallen over time to nearly zero.¹²⁴ The Treasury bond market is not large enough to satisfy domestic and foreign investors' and foreign governments' demand for risk-free, U.S. dollar-denominated assets.¹²⁵

Commercial and investment banks took up the slack by creating AAA-rated debt securities through securitization. The immense demand for these low-risk debt securities to serve as collateral for short-term debt instruments that function as money substitutes created a similarly large demand for securitization.¹²⁶ Financial institutions bought what they thought were extremely safe assets in order to meet their institutional customers' demand for money substitutes.

Even the supply of AAA-rated CDOs was insufficient to meet demand, leading banks to use CDS to create synthetic super-senior CDOs. Banks sold the synthetic CDOs to investors, simultaneously lending them most of the purchase price so that the investor could leverage the investment and increase the return on invested capital.¹²⁷ Unfortunately, when these CDOs suffered mark-to-market losses, leading the banks to demand partial repayment or collateral, the investors often walked away from the transactions, putting the CDOs

that banks were substantial investors in asset-backed securities belies the moral hazard argument. If banks were selling off "bad" assets to investors, surely they would realize that the ABS CDOs they were buying were someone else's "bad" assets.

¹²³ For a review of the various positions in the debate, see Robertson, *supra* note 94 at 5–12.

¹²⁴ See John Morgan, *Path to Extinction: Only 3 US Companies Still Have AAA Credit Ratings*, *Newsmax Fin.* (Apr. 15, 2014, 11:48 AM), <http://www.newsmax.com/Finance/Economy/S-P-rating-companies-Moodys/2014/04/15/id/565714/> [<https://perma.cc/5J2G-RC3M>] (showing decline from sixty corporations with AAA ratings in 1980 to three in 2014).

¹²⁵ See Daniel O. Beltran et al., *Foreign Holdings of U.S. Treasuries and U.S. Treasury Yields 1* (Bd. of Governors of the Fed. Reserve Sys., International Finance Discussion Paper No. 1041, 2012) (documenting growth in foreign holdings of U.S. Treasury bonds).

¹²⁶ See Gorton & Souleles, *supra* note 59, at 550–52, 554 (mortgage securitization); Robertson, *supra* note 94, at 13–21 (credit card securitization also driven by demand for money substitutes).

¹²⁷ See Matt Levine, *Welcome Back, Leveraged Super Senior Synthetic CDOs*, *Bloomberg* (Nov. 27 2013), <https://www.bloomberg.com/view/articles/2013-11-27/welcome-back-leveraged-super-senior-synthetic-cdos> [<https://perma.cc/5N29-QD49>].

back on the banks' balance sheets.¹²⁸ Some of the banks' CDO holdings, therefore, were the unintended result of making secured loans, yet another traditional banking activity.

In short, the pattern that all but guaranteed trouble during the crisis— heavy subprime exposure, substantial leverage, and the issuance of money substitutes—is not a function of combining commercial banking and securities underwriting under the same roof. Banks' direct investments in subprime loans and securities based on subprime loans were the proximate cause of their problems, and those would likely have occurred on a similar scale with or without the GSA.

C. OTC Derivatives

In the years before the crisis, OTC derivatives were not regulated as futures contracts. As a result, most of them were not centrally cleared (that is, there was no institution guaranteeing each counterparty's performance to the other). When the financial health of a significant OTC derivatives dealer, AIG, deteriorated, its counterparties faced potential losses. The Financial Crisis Inquiry Commission accordingly mentions the CFMA as a contributing factor to the crisis.¹²⁹ Lynn Stout goes farther, arguing that the CFMA was the single most important cause of the crisis because derivatives products dramatically magnified financial institutions' losses from mortgage defaults.¹³⁰

These arguments do not take account of the regulatory system that preceded the CFMA and overstate the connection between CDS, a category of OTC derivatives, and the crisis.

1. The OTC Derivatives Market and Its Regulation

Imagine two banks, *A* and *B*. *A* owns a \$1 million, ten-year fixed-rate loan and *B* owns a \$1 million, ten-year floating-rate loan. However, *A* would prefer a floating payment stream and *B* would prefer a fixed stream. Bank *A* could sell its loan on the secondary market and buy a floating-rate loan; bank *B* could take the opposite side of the trade. So far, this is an everyday banking transaction of no novelty or complexity.

¹²⁸ See Structured Credit: They're Back! Leveraged Super Seniors Return, Euromoney (Nov. 27, 2013), <http://www.euromoney.com/Article/3283751/Structured-credit-Theyre-back-Leveraged-super-seniors-return.html> [<https://perma.cc/DUP3-SQJW>].

¹²⁹ See FCIC Report, *supra* note 3, at 45–51.

¹³⁰ See Stout, *supra* note 72, at 3–4.

The innovation behind interest rate swaps is dispensing with the actual transfer of the loans and instead transferring only the interest payments, calculated on a “notional” principal amount set by contract.¹³¹ This structure reduces transaction costs but subjects each bank to counterparty credit risk. A counterparty can manage this risk, like the risk of lending generally, by requiring collateral. The same principle is at work in a currency swap, although there the parties trade foreign exchange rather than underlying loans.

The similarity between a swap, on the one hand, and an exchange of loans, on the other, is important. Commentators sometimes date the beginning of the swaps market to the World Bank’s interest rate swap program in 1981.¹³² However, a prototype of the currency swap, in which companies lent to each other’s foreign subsidiaries in different currencies, arose much earlier in the wake of the Bretton Woods agreement. The objective was to manage exchange rate risk while not violating exchange controls.¹³³ The more general, and important, point is that swap contracts are substitutes for higher-cost transactions or combinations of transactions in loans or other financial instruments that banks normally hold.

In the era before Dodd-Frank’s rewriting of the laws relating to swaps, the question naturally arose whether swaps were a futures contract subject to the jurisdiction of the Commodity Futures Trading Commission (“CFTC”), a security subject to the SEC’s jurisdiction, or a normal commercial contract not subject to any specialized regulatory scheme.¹³⁴

It is unlikely that a court would have found a “plain vanilla” interest rate or currency swap to be a security. It does not fit the *Howey* test for an “investment contract.”¹³⁵ Rather than one party providing capital and the other providing management, each party agrees to a schedule of

¹³¹ For an accessible explanation of interest rate and currency swaps and some of the common variants, see Roberta Romano, A Thumbnail Sketch of Derivative Securities and Their Regulation, 55 Md. L. Rev. 1, 46–51 (1996).

¹³² See, for example, Thayer Watkins’s website, Interest Rate Swaps, <http://www.sjsu.edu/faculty/watkins/swaps.htm> [<https://perma.cc/46DX-4CBS>].

¹³³ See Mehrling, *supra* note 35, at 72–79; Romano, *supra* note 131, at 49.

¹³⁴ For a detailed discussion of the political economy of the regulatory competition over derivatives products, see Roberta Romano, The Political Dynamics of Derivative Securities Regulation, 14 Yale J. on Reg. 279, 353–80 (1997).

¹³⁵ See SEC v. W. J. Howey Co., 328 U.S. 293, 297 (1946) (interpreting the definition of “security” in 15 U.S.C. § 77b(a)(1) (2012), previously 15 U.S.C. § 77b(1) (1994)).

payments determined by external events and each is exposed to the other's credit. The contract is therefore not a "common enterprise" in which investors are "led to expect profits solely from the efforts of" another.¹³⁶

Swap contracts are also not structured as notes or evidences of indebtedness. Because they are not used for raising capital, not marketed to the general public, and not perceived by their normal users as securities, they would not likely have been found to be debt securities.¹³⁷

While the question is more complex, the most plausible reading of the Commodity Exchange Act before Dodd-Frank is that a plain vanilla swap is not a futures contract. The question could have arisen only after enactment of the Commodity Futures Trading Commission Act of 1974.¹³⁸ Prior to 1974, the Commodity Exchange Act applied only to futures in enumerated agricultural commodities.¹³⁹ The basic scheme of the statute was to require that any contract "for future delivery" in the covered commodities take place on an exchange regulated by the Secretary of Agriculture.¹⁴⁰

However, in light of the commodity exchanges' desire to get into the business of financial futures, the 1974 amendments broadened the statute's scope to include futures contracts in "all services, rights, and interests . . . in which contracts for future delivery are presently or in the future dealt in."¹⁴¹ The statute created a new independent agency, the CFTC, to oversee the newly expanded regulatory system.

The Commodity Exchange Act draws a distinction between futures and "forward" contracts, commercial arrangements calling for the deferred delivery of and payment for a cash commodity.¹⁴² In deciding whether a particular contract is a forward or a futures contract, the CFTC and courts emphasized whether a contract contained individually

¹³⁶ See *id.* at 299; see also *Procter & Gamble Co. v. Bankers Tr. Co.*, 925 F. Supp. 1270, 1275, 1277–78 (S.D. Ohio 1996) (applying *Howey* and finding an interest rate swap contract not an "investment contract").

¹³⁷ See *Reves v. Ernst & Young*, 494 U.S. 56, 67–69 (1990); see also *Banco Espanol de Credito v. Sec. Pac. Nat'l Bank*, 973 F.2d 51, 54–56 (2d Cir. 1992) (applying *Reves* to loan participation agreements between banks); *Procter & Gamble*, 925 F. Supp. at 1280 (finding an interest rate swap to be neither a "note" nor "evidence of indebtedness").

¹³⁸ Pub. L. No. 93-463, 88 Stat. 1389 (codified as amended in scattered sections of 7 U.S.C.).

¹³⁹ See 7 U.S.C. § 2 (1970).

¹⁴⁰ See *id.* § 6 (1970).

¹⁴¹ See 7 U.S.C. § 1a(9) (2012).

¹⁴² See *id.* § 1a(27).

negotiated nonprice terms or was standardized, whether it was limited to industry participants or marketed to the general public, and whether the parties anticipated physical delivery of the commodity or financial offset.¹⁴³ These factors argued against treating interest rate swaps as futures contracts.

For financial institutions trying to decide whether they are violating a statute by trading a new type of instrument, however, the central question is not what the ultimate resolution would be if litigated, but what position the administering agency will take. Initially, neither the SEC nor the CFTC chose to assert jurisdiction over interest rate and currency swaps.¹⁴⁴

The swaps market, however, did not remain limited to interest rate and currency swaps. As transactions gained in complexity, some began to condition payments on the movement of a commodity, security, or index.¹⁴⁵ In so doing, they came closer to the line separating swaps from securities or commodity futures contracts. The regulatory implications remained limited so long as these instruments were nonstandardized and negotiated individually between financial and commercial institutions. As such, they fell within exemptions from the registration requirements of the Securities Act of 1933 and continued to resemble forwards more than futures.¹⁴⁶ Thus, by the late 1980s, the OTC derivatives market was coterminous with individually negotiated contracts entered into using industry-standard swap documentation.

The CFTC warned that it might assert regulatory jurisdiction in the unlikely event that financial institutions began marketing swaps to retail investors. In 1989, the CFTC issued a policy statement indicating that it would not exert regulatory jurisdiction over swap transactions that were nonstandardized, not centrally cleared, and not marketed to the public.¹⁴⁷

¹⁴³ See, e.g., *CFTC v. Co Petro Mktg. Grp.*, 680 F.2d 573, 580–81 (9th Cir. 1982); Philip McBride Johnson & Thomas Lee Hazen, *Derivatives Regulation* 30–31 (2004) (successor ed. to *Commodities Regulation*, 3d ed. 1998) (CFTC interpretation).

¹⁴⁴ See Henry T.C. Hu, *Swaps, the Modern Process of Financial Innovation and the Vulnerability of a Regulatory Paradigm*, 138 U. Pa. L. Rev. 333, 366 (1989) (stating that “commodities and securities regulators refrained from intervening in the offer, sale or trading of” swaps).

¹⁴⁵ See, e.g., Mark D. Young & William L. Stein, *Swap Transactions Under the Commodity Exchange Act: Is Congressional Action Needed?*, 76 *Geo. L.J.* 1917, 1917–18 (1988) (describing development of commodity-linked swaps).

¹⁴⁶ See Securities Act of 1933 § 4(a)(2), 15 U.S.C. § 77d(a)(2) (2012).

¹⁴⁷ See Commodity Futures Trading Comm’n, *Policy Statement Concerning Swap Transactions*, 54 *Fed. Reg.* 30,694 (1989).

This was a statement of interpretation rather than an exemption because the CFTC at the time lacked authority to exempt a futures contract from the exchange-trading requirement. The CFTC gained that authority in the Futures Trading Practices Act of 1992 and promptly adopted a regulation exempting the swap market in its then-current form.¹⁴⁸ The regulation exempted any nonstandardized swap entered into between “eligible swap participants,” a definition including only sophisticated entities.¹⁴⁹

Both the SEC and the CFTC considered any swap transaction meeting the statutory definition of a security or a contract for future delivery to be within the scope of their respective antifraud provisions. The SEC brought an enforcement action against a broker-dealer and its associated person for making misleading statements in connection with a swap that was in substance an option on a security.¹⁵⁰ The CFTC swap regulation did not exempt swaps from the general antifraud provisions of the Commodity Exchange Act (“CEA”).¹⁵¹ However, it remained doubtful that even a commodity swap as typically structured would be considered a futures contract, and accordingly the threat of applying the CEA’s antifraud provisions was probably more theoretical than real.

This is the status quo the CFMA largely ratified. It provided “legal certainty” to the question whether swaps were securities or futures contracts.¹⁵² The statute defined a class of institutions and high net worth individuals as “eligible contract participant[s]”¹⁵³ and excluded nonstandardized swaps between eligible contract participants from

¹⁴⁸ See 7 U.S.C. § 6(a), (c) (2012).

¹⁴⁹ See 17 C.F.R. § 35.1–.2 (1993).

¹⁵⁰ See *In the Matter of Mitchell A. Vazquez*, Securities Act Release No. 33-7269, Exchange Act Release No. 34-36906, 61 SEC Docket 858, 860 (Feb. 29, 1996) (finding respondent to have violated antifraud provisions of federal securities laws with respect to certain options structured as swaps). The conclusion that a particular swap was a security would also subject anyone acting as a broker or dealer in the transactions to registration under the Securities Exchange Act, see 15 U.S.C. § 78o(a) (2012). The SEC exempted persons acting as brokers or dealers in OTC options constituting securities from broker-dealer registration. See *Order Exempting Certain Brokers and Dealers From Broker-Dealer Registration*, Exchange Act Release No. 34-35135, 58 SEC Docket 1250 (Dec. 22, 1994).

¹⁵¹ See 17 C.F.R. § 35.2 (1999) (exempting certain swaps from all provisions of the Commodity Exchange Act except for, among others, 7 U.S.C. §§ 4b and 4c, §§ 6b, 6c (1994)).

¹⁵² See Commodity Futures Modernization Act of 2000, Pub. L. No. 106-554, tit. III, § 206A, 114 Stat. 2763, 2763A-449.

¹⁵³ See Commodity Futures Modernization Act of 2000, Pub. L. No. 106-554, § 101(4), 114 Stat. 2763, 2763A-368 (codified as amended at 7 U.S.C. § 1a(18) (2012)).

coverage under the CEA, including its antifraud provisions.¹⁵⁴ It similarly excluded swaps from the definition of “security” in the Securities Act and Securities Exchange Act.¹⁵⁵ However, it subjected a subclass of swaps to the SEC’s principal antifraud rule. The statute defined a “security-based swap” as one that based payments on the “price, yield, value, or volatility of any security or any group or index of securities.”¹⁵⁶ The CFMA made security-based swaps expressly subject to the anti-manipulation and antifraud provisions of the Securities Exchange Act.¹⁵⁷

Meanwhile, credit derivatives had entered the market in 1994, prior to the CFMA. A typical CDS operates like an insurance contract. In the simplest version, a “buyer” of credit protection agrees to make periodic payments to the “seller” over the life of the swap. In return, the seller is liable for the difference between the face value and the realized value of a reference bond in the event of a default during the life of the swap.¹⁵⁸

Consider a commercial or investment banker structuring an early CDS in the mid-1990s. He or she might have asked outside counsel a series of questions and received answers based on pre-CFMA statutory, regulatory, and judge-made law: Will this transaction be subject to registration under the Securities Act? (No.) Will the swap be subject to the securities registration requirements of Section 12 of the Securities Exchange Act? (No.) Will arranging the swap subject the firm to registration as a broker-dealer? (No.) Must the transaction take place on a regulated futures exchange? (No.) Will an intentional or reckless misstatement in connection with the transaction subject the maker to antifraud liability under Rule 10b-5? (Yes.) Under Section 4b of the Commodity Exchange Act? (Probably not.) After enactment of the CFMA, the only change is that the final “probably not” becomes a “no.”

¹⁵⁴ See Commodity Futures Modernization Act of 2000, Pub. L. No. 106-554, § 105(b), 114 Stat. 2763, 2763A-379. This provision was amended substantially by Dodd-Frank. See 7 U.S.C. § 2(d).

¹⁵⁵ See Commodity Futures Modernization Act of 2000, Pub. L. No. 106-554, §§ 302–303, 114 Stat. 2763, 2763A-451, 452 (codified as amended at 15 U.S.C. §§ 77b-1, 78c-1 (2012)).

¹⁵⁶ See Commodity Futures Modernization Act of 2000, Pub. L. No. 106-554, § 301, 114 Stat. 2763, 2763A-451 (internal quotation marks omitted) (adding a new § 206B to the GLBA).

¹⁵⁷ See Commodity Futures Modernization Act of 2000, Pub. L. No. 106-554, § 302(b), 114 Stat. 2763, 2763A-453 (codified as amended at 15 U.S.C. §§ 78i(a)(2)–(5), 78j).

¹⁵⁸ See Antulio N. Bomfim, *Understanding Credit Derivatives and Related Instruments* 6 (2005).

2. *Would Not Enacting the CFMA Have Prevented the Crisis?*

The CFMA did not deregulate in the sense of removing existing restrictions. However, it did keep the CFTC from revisiting its hands-off approach to the institutional OTC derivatives market. In the late 1990s, the CFTC began to raise questions about the swaps market. It issued a concept release suggesting that it might reassess its treatment of OTC derivatives and requesting comment on various possible changes.¹⁵⁹

The CFMA largely put the OTC derivatives market out of the CFTC's reach. However, there is little reason to assume that the CFTC's review would have regulated OTC derivatives in such a way as to prevent the growth of the CDS market. The concept release itself did not suggest that a radical overhaul was in the works.

A more limited argument, offered by Steven Gjerstad and Vernon Smith, is that the CFTC proposed to gather more information about OTC derivatives dealers that might have given regulators better information about the buildup of subprime risk.¹⁶⁰ Even this argument seems strained, particularly coming in a paper that notes the myriad failures of bank regulators to understand the risks that banks were taking in the years before the crisis.

Let us nevertheless indulge the assumption that absent the CFMA, the CFTC would have required detailed transaction reporting for CDS and possibly forced institutions to trade them on an exchange and clear them centrally. It is unlikely that this would have prevented or significantly altered the financial crisis.

As an initial matter, it is important to note that reported volumes of outstanding derivatives substantially overstate their economic impact. Commentators note that before the crisis, there were approximately \$670 trillion in notional value of OTC derivatives outstanding.¹⁶¹ Of that amount, approximately \$26 trillion consisted of CDS.¹⁶²

¹⁵⁹ See Concept Release, Commodity Futures Trading Comm'n, *Over the Counter Derivatives* (May 6, 1998), <http://www.cftc.gov/opa/press98/opamntn.htm> [<https://perma.cc/M46P-26S7>].

¹⁶⁰ See Steven Gjerstad & Vernon L. Smith, *Monetary Policy, Credit Extension, and Housing Bubbles, 2008 and 1929*, in *What Caused the Financial Crisis* 107, 124 (Jeffrey Friedman ed., 2011).

¹⁶¹ Stout, *supra* note 72, at 24.

¹⁶² See Mary Childs, *The Incredible Shrinking Credit-Default Swap Market*, Bloomberg (Jan. 30, 2014, 6:56 PM), <http://www.bloomberg.com/news/articles/2014-01-30/credit-default-swap-market-shrinks-by-half> [<https://perma.cc/2NQG-V3F8>].

Even critics of the OTC derivatives market recognize that because swap counterparties never exchange the notional value of loans in a plain-vanilla swap transaction, the actual exposure of each to the other is much smaller than the notional amount.¹⁶³ A separate and less obvious issue is that the OTC derivatives market is a dealer market; when a buyer and seller of credit protection find each other, they do so through the intermediation of at least one, and often several, dealers. The dealers' objective is to have a net exposure of zero at all times. For every swap they enter into, they intend to find another market participant with which to make an offsetting transaction. They expect to make money from fees and bid-ask spreads, not from correctly guessing price movements.

Matters would be different had CDS been traded on exchanges, as critics argued they should be and as Dodd-Frank, with some exceptions, requires.¹⁶⁴ An exchange is not a dealer market; end users meet through the facilities of the exchange and a clearinghouse serves as the counterparty to each.

Figure 2 illustrates the difference. Suppose Investor *A* wishes to buy credit protection in the form of a CDS for a \$10 million bond and Investor *B* wishes to sell it. In an OTC market, illustrated in the top diagram, Investors *A* and *B* do not deal directly with one another; each goes to a dealer (Dealers *C* and *E*, respectively) who takes the other side of the trade. Each dealer wishes to have zero net exposure, which it can do if the two dealers can in turn find one another. In the diagram, they do so through the offices of Dealer *D*.

The exchange-traded market, represented in the bottom diagram, operates differently. Investors *A* and *B* negotiate directly with one another (through brokers), represented by the dashed line. Once they agree on a price, the clearinghouse becomes the counterparty to each and they look only to the clearinghouse for performance.

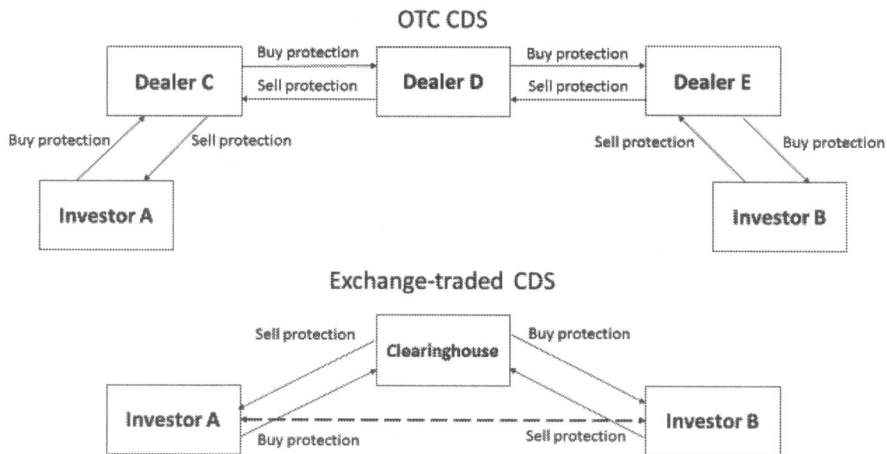
In both the top and bottom diagrams, the net outcome is a single transfer of \$10 million in credit risk from Investor *A* to Investor *B*; all other parties have a net exposure of zero. An exchange, seeing the entire transaction flow in one location, would report a single trade of \$10 million of risk. In the OTC market, however, measuring the transaction flow is more complex because the information comes from multiple,

¹⁶³ See, e.g., Blinder, *supra* note 2, at 62.

¹⁶⁴ See 7 U.S.C. § 2(h) (2012).

dispersed parties. It is possible that each pair of arrows in the top figure would be identified as a separate trade, creating an apparent volume of \$40 million in notional amount.

Figure 2. OTC and Exchange-Traded Derivatives



The decentralized structure of the OTC market and resulting multiple counting means that swap dealers can have enormous gross positions but small net exposures. Recognizing the major OTC derivatives dealers' modest net exposures, René Stulz concludes: "Though Lehman was a big CDS dealer, CDS were not the cause of Lehman's failure. Neither were they the direct cause of Bear Stearns's demise."¹⁶⁵

Critics of the CFMA have a valid point in this respect: had CDS been exchange-traded and centrally cleared, or just subject to rigorous reporting standards, the positions of major dealers, like Lehman and Bear Stearns, would have been more transparent to external observers. Investors may therefore have been in a better position to assess other financial institutions' exposure to Lehman's counterparty and credit risk.

How big a difference would this have made? The answer depends on whether the market reacted so strongly to Lehman's bankruptcy because (a) Lehman's interconnectedness threatened to create financial distress for its counterparties and for institutions bearing the risk of CDS

¹⁶⁵ René M. Stulz, *Credit Default Swaps and the Credit Crisis* 25 (Nat'l Bureau of Econ. Research, Working Paper No. 15384, 2009).

referencing Lehman; or (b) it exposed disagreement and uncertainty within the government about appropriate policy responses to the subprime crisis. In the first case, exchange trading of derivatives would have helped; in the second, it would have not.

I have previously argued in favor of (b).¹⁶⁶ By allowing Lehman to become bankrupt, the government created uncertainty about which firms it considered too big to fail, leading to runs on a wide variety of financial institutions. John Taylor has similarly argued that the timing of the sudden disappearance of liquidity suggests that it resulted principally from uncertainty about government policies.¹⁶⁷ By September 2008, the most important counterparty of the largest commercial and (surviving) investment banks was the federal government. Each one had its own subprime problem. It is likely that they all would have been under greater pressure from creditors absent the implicit government guarantee. That guarantee became less than ironclad after the Lehman bankruptcy.

Data regarding CDS referencing Lehman tell the same story. At the time of the Lehman Brothers bankruptcy, the Depository Trust and Clearing Corp. (“DTCC”) had cleared CDS contracts referencing Lehman Brothers with a notional principal amount of \$72 billion. However, when those trades were resolved in the wake of Lehman’s bankruptcy, the net cash exchanged through DTCC was only \$5.2 billion.¹⁶⁸ This is an important fact in Hal Scott’s conclusion that the run on various banks after the Lehman bankruptcy was not a consequence of other institutions’ expected losses from exposure to Lehman credit risk.¹⁶⁹

AIG’s use of CDS was different from that of Lehman Brothers. AIG is in the business of insuring risks, and it did not intend to have a zero net exposure. It sold substantial amounts of credit protection on the super-senior tranches of CDOs without hedging its exposure. Its use of CDS rather than traditional insurance may have been a form of regulatory arbitrage. If the cost of posting collateral for a CDS was less than the cost of holding reserves for an insurance product, as was likely the case, AIG had an incentive to use CDS.

¹⁶⁶ See Paul G. Mahoney, *Wasting a Crisis: Why Securities Regulation Fails* 168 (2015).

¹⁶⁷ See John B. Taylor, *Getting Off Track: How Government Actions and Interventions Caused, Prolonged, and Worsened the Financial Crisis* 25–30 (2009).

¹⁶⁸ See Stulz, *supra* note 165, at 21.

¹⁶⁹ See Scott, *supra* note 21, at 32–33.

The question, then, is what would AIG have done differently had CDS been regulated like futures contracts? There was demand for insurance on CDOs that AIG believed it could meet without taking excessive risks. Forcing CDS onto exchanges would not have led AIG to change its assessment of the risk of default on super-senior CDOs.

Imagine that the regulatory environment had been different so that AIG had to use either centrally cleared CDS or traditional insurance products to insure against default. Instead of posting no collateral up front but being subject to collateral calls when the value of the insured CDOs declined, AIG would have had to post initial margin with the clearinghouse or carry reserves against the insurance policy.

There is no reason to think that the amount of initial margin or reserves would have been sufficient to deter AIG from insuring CDOs. In the years before the crisis, historical data suggested that AAA-rated ABS CDOs had almost no default risk.¹⁷⁰ That, in turn, suggests that a clearinghouse would have set a modest initial margin and an insurance regulator would not have been very concerned about the risk of major losses.

In the centrally cleared swaps case, the clearinghouse would have required additional margin once the market value of the bonds declined, just as AIG's counterparties did. In the insurance policy case, the policyholders would have had no right to demand collateral, but the regulator might have stepped in and seized assets once AIG was downgraded. In either event, the distribution of losses among AIG's shareholders, policyholders, and counterparties might have changed somewhat, but the crisis would have unfolded in a broadly similar fashion.

As a separate matter, AIG would likely not have escaped financial distress even had it not been a heavy seller of credit protection. As noted above, it held a substantial portfolio of CDOs through its securities lending program. Ultimately, it lost more through those investments than it did from writing CDS.¹⁷¹ It faced calls for cash collateral in respect of those investments just as it did in respect of its CDS exposure and would therefore have experienced the equivalent of a bank run even without CDS.

¹⁷⁰ See Mollenkamp et al., *supra* note 67 (stating that academic work suggested that it was “free money” to insure mortgage-related CDOs (internal quotation marks omitted)).

¹⁷¹ See Stulz, *supra* note 165, at 25–26.

D. Investment Bank Leverage

Excessive leverage in the investment banking system was a source of risk unrelated to bank securities activities or to derivatives. More generally, the stand-alone investment banks were subject to a weaker set of prudential constraints than were commercial banks. These facts did play a role in the subprime crisis. Some commentators have argued that they, too, were a consequence of deregulation.

In 2004, the SEC adopted a “Consolidated Supervised Entity” (“CSE”) program, a revision of the capital requirements that previously applied to registered broker-dealers.¹⁷² A page-one *New York Times* story shortly after the Lehman bankruptcy claimed that the CSE program “unleashed” the major investment banks, allowing Bear Stearns, among others, to increase its leverage “sharply.”¹⁷³ Several economists, including Blinder and Stiglitz, subsequently argued that the adoption of the CSE program permitted investment banks to go from 12-to-1 leverage to 30- or 40-to-1 leverage.¹⁷⁴ These critics have unfortunately misunderstood the SEC’s net capital rule, Rule 15c3-1.¹⁷⁵

While the Bank Holding Company Act requires bank holding companies to register with and become subject to regulation by the Board, there is no analogous broker-dealer holding company act.¹⁷⁶ Accordingly, unlike bank capital rules that apply to holding companies as well as banks themselves, Rule 15c3-1 applied only to the broker-dealer (I speak in the past tense because after the crisis the major investment banks converted to bank holding companies). The structure

¹⁷² See Alternative Net Capital Requirements for Broker-Dealers That Are Part of Consolidated Supervised Entities, Exchange Act Release No. 34-49830, 69 Fed. Reg. 34,428 (June 21, 2004).

¹⁷³ See Stephen Labaton, Agency’s ‘04 Rule Let Banks Pile Up New Debt, and Risk, *N.Y. Times*, Oct. 3, 2008, at A1.

¹⁷⁴ See Bethany McLean, The Meltdown Explanation That Melts Away, *Reuters* (Mar. 19, 2012), <http://blogs.reuters.com/bethany-mclean/2012/03/19/the-meltdown-explanation-that-melts-away/> [<https://perma.cc/896F-2V7Z>].

¹⁷⁵ 17 C.F.R. § 240.15c3-1 (2003). For purposes of this discussion, I will refer to the 2003 version of the rule, the version just prior to the CSE program.

¹⁷⁶ The GLBA gave investment banks the option of SEC supervision at the holding company level but did not give the SEC the authority to require it. See Pub. L. No. 106-102, § 231, 113 Stat. 1338, 1402 (1999). The provision added a new § 17(i) to the Securities Exchange Act, which was then repealed by the Dodd-Frank Act. See Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, § 617(a), 124 Stat. 1376, 1616 (2010).

of the rule also reflected the SEC's mandate to protect consumers in comparison to the Board's broader concern about systemic stability.

Rule 15c3-1 provides that a broker-dealer must hold a sufficient amount of capital, calculated by either the "aggregate indebtedness standard" or the "alternative standard," at the broker-dealer's election.¹⁷⁷ The first requires that the broker-dealer's debts not exceed 15 times its capital. Capital is defined as assets minus liabilities with two important (and various minor) adjustments. First, certain subordinated debts are excluded from liabilities. However, a broker-dealer must inform its examiner if servicing its subordinated debt would result in its debts exceeding 12 times net capital.¹⁷⁸ This is the source of the frequently cited 12:1 standard. Second, asset values are reduced by haircuts that reflect their relative liquidity.¹⁷⁹

The large investment banks' broker-dealer subsidiaries, however, calculated their capital based on the alternative standard.¹⁸⁰ The alternative standard requires that the broker-dealer have capital (as previously defined) equal to the greater of \$250,000 or 2% of certain customer-related receivables. The largest broker-dealers, accordingly, were never subject to a 12:1 or 15:1 leverage limitation. They were instead subject to a standard that sought to assure that the failure of a customer to meet obligations to the broker-dealer would not cause the broker-dealer's collapse and thereby endanger the funds of other customers.¹⁸¹

Investment banks became concerned in the late 1990s that the SEC's approach would not satisfy the regulators of their European operations, who require that capital rules apply at the holding company level.¹⁸² The investment banks accordingly requested, and received, an amendment to

¹⁷⁷ 17 C.F.R. § 240.15c3-1(a)(1)(i)–(ii) (capitalization omitted).

¹⁷⁸ Id. § 240.15c3-1d(b)(8)(i)(A), (c)(2).

¹⁷⁹ Id. § 240.15c3-1(c)(2).

¹⁸⁰ See Richard Herring & Til Schuermann, *Capital Regulation for Position Risk in Banks, Securities Firms, and Insurance Companies*, in *Capital Adequacy Beyond Basel: Banking, Securities, and Insurance* 15, 35 (Hal S. Scott ed., 2005).

¹⁸¹ A separate rule, 15c3-3, requires that a broker-dealer hold a segregated bank account in the amount of its net amounts due to customers. See 17 C.F.R. § 240.15c3-3.

¹⁸² See Andrew W. Lo, *Reading About the Financial Crisis: A Twenty-One-Book Review*, 50 *J. Econ. Literature* 151, 176 n.26 (2012).

Rule 15c3-1 that permits voluntary calculation of required capital at the holding company level.¹⁸³

The amendments also changed the haircuts described above for broker-dealers that chose to be supervised on a consolidated basis. Instead of the formulas contained in the rule, these broker-dealers were permitted to use risk weights complying with Basel standards, in practice meaning that they could use value-at-risk models similar to those used by the major bank holding companies.¹⁸⁴

While it changed the calculation of haircuts, the revised rule did not change the capital ratios to which broker-dealers were subject.¹⁸⁵ The changes also implicitly put the SEC for the first time in the position of assessing not just whether a broker-dealer could meet its obligations to customers, but also the systemic risks of its activities. The new rule gave the SEC additional information about potential risks arising within a holding company group but outside the regulated broker-dealer. In principle, the SEC could now assess and monitor those broader risks.

The SEC's own Inspector General concluded that the agency did not perform this new task well.¹⁸⁶ Had the CSE program not been in existence, however, the SEC would not have had clear authority even to consider risks arising outside the regulated broker-dealer subsidiaries of the major investment banks.

How, then, have commentators concluded that the CSE program allowed investment bank leverage to rise from 12:1 to 30:1 or more? They did so by comparing apples to oranges along two different

¹⁸³ See Alternative Net Capital Requirements for Broker-Dealers That Are Part of Consolidated Supervised Entities, 69 Fed. Reg. 34,428, 34,429, *supra* note 172 (adding a new paragraph (a)(7) to Rule 15c3-1 and amending Rule 15c3-1e).

¹⁸⁴ See *id.* at 34,428 ("The alternative method of computing net capital responds to the firms' requests to align their supervisory risk management practices and regulatory capital requirements more closely. Under the alternative method, firms with strong internal risk management practices may utilize mathematical modeling methods already used to manage their own business risk, including value-at-risk ('VaR') models . . . for regulatory purposes.").

¹⁸⁵ See Erik R. Sirri, Dir. of the Div. of Trading and Mkts., Sec. & Exch. Comm'n, Remarks at the National Economists Club: Securities Markets and Regulatory Reform (Apr. 9, 2009), <https://www.sec.gov/news/speech/2009/spch040909ers.htm> [<https://perma.cc/W72T-AZ9U>].

¹⁸⁶ See Sec. & Exch. Comm'n, Office of Inspector Gen., Office of Audits, SEC's Oversight of Bear Stearns and Related Entities: The Consolidated Supervised Entity Program, Report No. 446-A, at ix (Sept. 25, 2008) ("[T]he audit found that [the Division of Trading and Markets] became aware of numerous potential red flags prior to Bear Stearns' collapse . . . but did not take actions to limit these risk factors.").

dimensions. They first confuse the holding company with the regulated broker-dealer. They then confuse regulatory capital ratios with financial leverage.

Financial leverage is easy to understand and comparable from one type of institution to another. It is typically calculated as the ratio of assets to common equity, both as shown on the balance sheet. A regulatory capital ratio, by contrast, is a calculation mandated by a specific regulatory scheme. It is also typically a ratio of assets to equity, but not necessarily measured on an accounting basis. Different classes of assets are often subject to multipliers or haircuts to reflect relative risk or liquidity. Capital itself may not reflect balance sheet common equity.

As a result, financial leverage and regulatory capital, while in the same ballpark conceptually, can differ substantially when calculated. A bank's Tier 1 capital ratio, for example, is conceptually a ratio of common equity to assets, but both are adjusted in various ways pursuant to the U.S. bank regulators' implementation of the Basel capital accord. At the end of 2006, Citigroup's reported Tier 1 capital was 8.6% of risk-weighted assets. Its common equity, however, was 6.3% of its assets as measured for accounting purposes.¹⁸⁷

Figure 3 compares apples to apples by showing the financial leverage of the five investment banks included in the CSE program over time. Leverage is the ratio of the holding company's assets to its common equity, each as shown on its balance sheet, at the end of each fiscal year from 1988 to 2006 (or in the case of Goldman Sachs Group, beginning after it became a publicly traded company in 1998).

Looking only at the right-hand edge of the graph, we see an uptick in leverage ratios beginning in 2003, consistent with the general procyclical trend in leverage that Tobias Adrian and Hyun Song Shin document.¹⁸⁸ Looking at the graph as a whole, however, it is clear that the adoption of the CSE program in 2004 did not unleash the floodgates of investment bank leverage. Instead, the picture is of a secular decline with fluctuations over the economic cycle. The average leverage of the

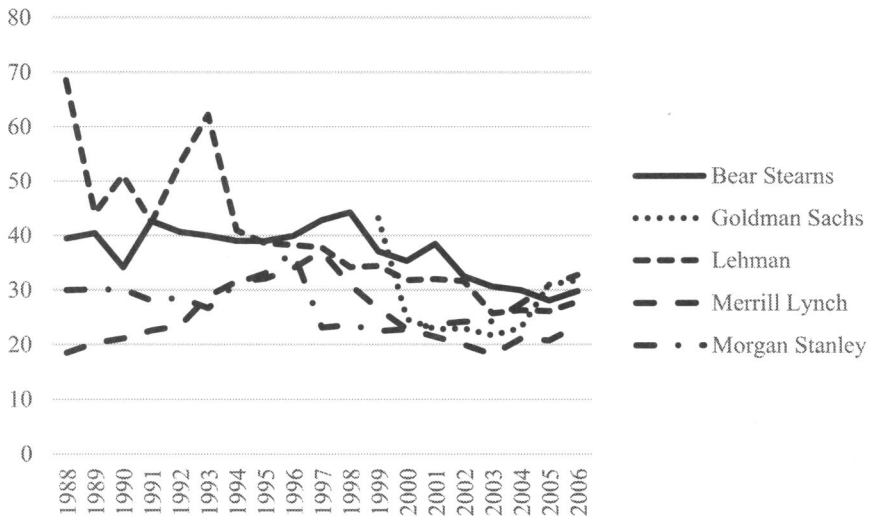
¹⁸⁷ All data are taken from the COMPUSTAT database. Tier 1 capital, total assets, and common equity are variables CAPR1, AT, and CEQ, respectively, in the database (on file with the Virginia Law Review Association).

¹⁸⁸ See Tobias Adrian & Hyun Song Shin, *Liquidity and Leverage* (Fed. Reserve Bank of N.Y., Staff Report No. 328, 2008, rev. 2010), https://www.newyorkfed.org/medialibrary/media/research/staff_reports/sr328.pdf [<https://perma.cc/AM76-TTEG>].

included firms declined from 39:1 to 29:1 over the entire period.¹⁸⁹ The argument that the CSE program increased leverage at the major investment banks is incorrect both analytically and empirically.

One can of course argue that the SEC should have written a more stringent rule. However, to claim that a rule increasing the SEC's supervision of holding companies was "deregulatory" because it did not go farther still stretches the English language to the breaking point.

Figure 3. Leverage Ratios, Selected Investment Banks



Source: COMPUSTAT. Leverage is the ratio of assets to common equity, each taken from fiscal year-end financial statements.

III. THE DEREGULATORY ERA AND BANK STABILITY

Showing that the GLBA and the CFMA did not cause the financial crisis is not the same thing as showing that deregulation played no role in creating a riskier financial system. An alternative form of the deregulation hypothesis is that New Deal banking and securities reforms

¹⁸⁹ The ratios shown in Figure 3 at the end of the period are broadly consistent with those shown in the SEC Inspector General's report, which contains a table of leverage ratios from 2006–2008. See Sec. & Exch. Comm'n, Office of Inspector Gen., Office of Audits, *supra* note 186, at 120. The differences, which are not material, reflect discrepancies in COMPUSTAT's calculations of common equity generally having to do with employee stock ownership plans.

ushered in a period of strong regulation that produced low-risk banking. However, beginning in the late twentieth century, Congress and regulatory agencies watered those regulations down, prompting banks to take greater risks.¹⁹⁰ The result was a wave of bank failures that began on a small scale in the mid-1970s and then surged during the thrift crisis of the 1980s and again during and after 2007.

Gorton offers a causal mechanism through which U.S. bank regulation helped create the quiet period and deregulation was a factor in its demise.¹⁹¹ The argument is that bank regulation created rents for regulated banks through a combination of subsidy and restrictions on competition. Deposit insurance is a subsidy to covered depository institutions. Caps on deposit interest rates restricted competition. These created rents, or “charter value.”¹⁹²

Charter value in turn gave banks an incentive to avoid risk. Deposit insurance, limits on deposit interest rates, and restrictions on territorial expansion enabled low-risk banks to stay alive with a high probability and continue to enjoy charter value indefinitely. However, competition from nonbanks beginning in the 1980s destroyed much of that charter value.

Congress responded with the Depository Institutions Deregulation and Monetary Control Act of 1980 (“DIDMCA”)¹⁹³ and the Garn-St. Germain Depository Institutions Act of 1982 (“GSGA”).¹⁹⁴ These provisions gave banks and thrifts greater ability to pay market rates of interest on deposits, among other things.¹⁹⁵

¹⁹⁰ See sources cited *supra* note 9. An influential regulator, then-Fed governor Daniel Tarullo, made the same argument. See Daniel K. Tarullo, Remarks at Federal Reserve Bank of Chicago Bank Structure Conference: Rethinking the Aims of Prudential Regulation 4 (May 8, 2014).

¹⁹¹ See Gorton, *supra* note 7, at 125–33.

¹⁹² See *id.* at 125–26 (“Banks had subsidized deposit insurance . . . [and] they were prohibited from paying interest on deposits. And they earned more than a competitive profit because of these protections. The value of these protections . . . is called a bank’s ‘charter value.’”).

¹⁹³ Pub. L. No. 96-221, 94 Stat. 132.

¹⁹⁴ Pub. L. No. 97-320, 96 Stat. 1469.

¹⁹⁵ Some critics argue that the DIDMCA and the GSGA also deregulated by exempting mortgage loans from state usury laws and permitting adjustable-rate mortgages, thus making subprime lending possible. See, e.g., Souphala Chomsisengphet & Anthony Pennington-Cross, *The Evolution of the Subprime Mortgage Market*, 88 *Fed. Res. Bank St. Louis Rev.* 31, 38 (2006) (stating that “[t]he ability to charge high rates and fees to borrowers was not possible until” passage of the DIDMCA and stating that the GSGA “permitted the use of variable interest rates and balloon payments”); John Atlas, *The Conservative Origins of the*

Around the same time, the average number of failures of insured depository institutions increased from five per year during the period 1946–1979 to 207 per year during the period 1980–1993.¹⁹⁶ The annual average dropped back to five during the period 1994–2007 before increasing again by an order of magnitude immediately following the subprime crisis.

There is accordingly a connection between bank deregulation and the rise in bank failures during the 1980s. I will argue, however, that the link is not causal. Banks faced little interest rate risk during the quiet period but substantial interest rate risk beginning in the 1970s. The difference adequately explains the difference in bank failures during the two periods. It also explains why Congress chose to deregulate deposit interest rates.¹⁹⁷

The analysis proceeds in three steps. I first provide basic facts about interest rate risk during and after the quiet period. I then note that interest rate caps imposed only a modest cost on depositors given the low short-term interest rates of the quiet period, but created a substantial disincentive for households to hold bank deposits during the Great Inflation. In response, Congress removed interest rate caps in a series of steps beginning in the mid-1970s. Finally, I ask whether Congress had any realistic alternative to deregulating deposit interest rates.

Sub-Prime Mortgage Crisis, *Am. Prospect* (Dec. 17, 2007), <http://prospect.org/article/conservative-origins-sub-prime-mortgage-crisis-0> [<https://perma.cc/HG8Y-85ZS>]. These arguments are substantially overstated. The Banking Act of 1933 partially preempted state usury laws. 12 U.S.C. § 85 (1976). The U.S. Supreme Court interpreted that provision to permit a bank to comply with the usury law of only its home state, regardless of the location of the borrower. See *Marquette Nat'l Bank v. First of Omaha Serv. Corp.*, 439 U.S. 299, 313 (1978). This gave banks the practical ability to lend at high interest rates. Prior to the GSGA, national banks' regulators had given them the authority to make adjustable-rate loans; the GSGA extended the same authority to state-chartered banks. See 12 U.S.C. § 3801(a)(3), (b) (1982). The most significant deregulatory elements in those statutes were the end of deposit interest caps and the granting of permission for thrift institutions to engage in activities previously limited to banks.

¹⁹⁶ Data from Fed. Deposit Ins. Corp., Table BF02: Federal Deposit Insurance Corporation Failures and Assistance Transactions, <https://www5.fdic.gov/hsob/HSOBSummaryRpt.asp?begYear=1929&endYear=2009&state=2&Print=Y> [<https://perma.cc/4KEN-M9X2>].

¹⁹⁷ James Barth and coauthors also claim that the 1970s inflation gave Congress no choice but to deregulate deposit interest rates. See James R. Barth et al., *The Future of American Banking* 61–62 (1992).

A. Interest Rate Risk and the End of the Quiet Period

There is a large literature discussing the relative importance of macroeconomic and regulatory factors in systemic banking crises.¹⁹⁸ Commentators agree that macroeconomic shocks are often a precipitating event in banking crises. Increases in the volatility of interest rates, exchange rates, and other key variables are a particular concern.¹⁹⁹ Sharply increased interest rate risk played an obvious causal role in the severe rise in bank failures in the United States in the 1980s.

Bank profits are sensitive to the interest rate spread, or the difference between the interest income on loans and the interest expense on deposits and other bank borrowings. Banks earn a positive spread by issuing short-term obligations and making longer-term loans. At least, this is true so long as there is generally an upward-sloping yield curve, meaning long-term rates are higher than short-term rates, holding credit risk constant.

Figure 4 below plots the difference between representative long-term and short-term market interest rates from the end of World War II until the end of the 1970s inflation in 1982. The long-term rate is the monthly yield on the Moody's index of AAA-rated corporate debt. The short-term rate is the secondary market yield on three-month Treasury securities.

These two rates are available monthly for the entire period and reflect transactions in the capital markets. They are also highly correlated with bank-specific rates. Although they are not available for the entire period, the prime rate and the effective federal funds rate have correlation coefficients above 0.9 with the AAA bond yield and the T-bill yield, respectively, for the period up to 1982.²⁰⁰ Changes in the difference

¹⁹⁸ Important examples include Gerard Caprio, Jr. & Daniela Klingebiel, *Bank Insolvency: Bad Luck, Bad Policy, or Bad Banking?*, in *Annual World Bank Conference on Development Economics: 1996*, at 79 (Michael Bruno & Boris Pleskovic eds., 1997); Michael Gavin & Ricardo Hausmann, *The Roots of Banking Crises: The Macroeconomic Context*, in *Banking Crises in Latin America* 25, 28–29 (Ricardo Hausmann & Liliana Rojas-Suárez eds., 1996); Graciela L. Kaminsky & Carmen M. Reinhart, *The Twin Crises: The Causes of Banking and Balance-of-Payments Problems*, 89 *Am. Econ. Rev.* 473 (1999).

¹⁹⁹ See Donald J. Mathieson, *Comment on "Bank Insolvency: Bad Luck, Bad Policy, or Bad Banking?"* by Gerard Caprio Jr. and Daniela Klingebiel, in *Annual World Bank Conference on Development Economics: 1996*, supra note 198, at 105 (stating that "periods of macroeconomic instability—especially when accompanied by high inflation"—are particularly risky for banks).

²⁰⁰ Author's calculations from Federal Reserve Board and Wharton Research Data Services data (on file with the Virginia Law Review Association).

between the AAA bond yield and the three-month Treasury yield are therefore reasonable proxies for changes in banks' potential profitability. They measure banks' opportunity set as opposed to their strategic choices.

The trend is striking. For the period 1945–1968, the observations are consistently positive with modest monthly variation. From 1969 to 1981, by contrast, the standard deviation of the monthly observations is higher than the mean. As we would expect, many of the monthly observations are negative.

Figure 4. Moody's AAA Yield Minus 3-Month Treasury Yield



Source: Author's calculation from Federal Reserve data.

Figure 4 is a simple graphic depiction of rising interest rate risk. During the quiet period, banks could earn a consistently positive interest rate spread even if all loans and deposits paid interest at market rates. Beginning in the mid-1970s, however, that ceased to be the case.

B. Deregulation and Bank Failures

The Banking Act of 1933 prohibited the payment of interest on demand deposits and empowered the Board to regulate interest on savings and time deposits.²⁰¹ The Board's Regulation Q limited rates on

²⁰¹ Pub. L. No. 73-66, § 11(b), 48 Stat. 162, 181–82 (codified as amended at 12 U.S.C. § 371a (2012)) (repealed 2010).

those accounts.²⁰² The caps would have generated rents for banks had they been binding; that is, if competition among banks would have produced higher interest rates on savings and time deposits absent the caps. This is doubtful for most of the quiet period. As we will see, Congress and the Board imposed interest rate caps when they were largely unnecessary; once they began to bind, Congress quickly abandoned them.

1. Interest Rate Caps During the Quiet Period

When savers deposited money in non-interest-bearing checking accounts to handle day-to-day transactional needs, they provided banks a modest rent. However, savers could keep the bulk of their funds in savings and time deposit accounts. At the beginning of the period of interest, the maximum rate on savings accounts was 2.5%, rising to 3% in 1957 and 3.5% in 1963.²⁰³ During much of that time, however, banks paid interest on these deposits at rates below the Regulation Q caps.²⁰⁴

One might argue that banks were able to get away with paying such low rates because other regulatory restrictions, such as the geographic limits on bank expansion and the GSA ban on securities firms taking deposits, restricted competition. A more compelling argument, however, is that the low rates banks paid on deposits reflected low short-term market rates.

Consider a plausible substitute for an insured bank savings account—a short-term Treasury bill, which is also risk free, short-term, and highly liquid. From the beginning of 1946 to the end of 1956, the average secondary market yield on three-month Treasury bills, observed monthly, was 1.3%, lower than the 2.5% Regulation Q cap for savings accounts.²⁰⁵ From 1957 to the end of 1962, it was 2.7%, lower than the 3% cap.

In the 1960s, however, the caps began to bind. From 1963 to the end of 1966, the monthly return on three-month Treasury bills was 3.9%,

²⁰² See Regulation Q, 12 C.F.R. § 217 (1949).

²⁰³ See 12 C.F.R. § 217.6(b) (1963); 12 C.F.R. § 217.6(a) (1957); 12 C.F.R. § 217.6(a) (1938).

²⁰⁴ See R. Alton Gilbert, *Requiem for Regulation Q: What It Did and Why It Passed Away*, *Fed. Res. Bank St. Louis Rev.*, Feb. 1986, at 22, 26.

²⁰⁵ Author's calculation from Federal Reserve Bank of St. Louis data series TB3MS. See FRED, Fed. Reserve Bank of St. Louis, 3-Month Treasury Bill: Secondary Market Rate (TB3MS), <https://fred.stlouisfed.org/series/TB3MS> [<https://perma.cc/YN4B-2TWL>].

slightly higher than the 3.5% cap. In 1967, the Fed raised the cap on retail savings accounts to 4%. At that point, two things began to happen. Regulation Q became more detailed and variegated, with a greater number of specific caps for deposits of various sizes and durations. In addition, the Fed began to issue a large number of interpretations, indicating that banks were struggling to satisfy customers while following the letter of the regulation.²⁰⁶

2. Market Forces and the End of Interest Rate Caps

The inflation of the 1970s produced rapid rises in short-term interest rates that put the deposit caps under further pressure. From 1967 to the end of 1970, the rate of return on Treasury bills rose to 5.7% on average. The increase reflected rising inflation; the consumer price index increased by 5.6% in 1970.²⁰⁷ At that level, it was costly to hold any funds at all in a checking account paying no interest. Savers began to look for an alternative to insured bank deposits.

The mutual fund industry provided the alternative. In the early 1970s, it introduced the money market mutual fund, which held Treasury bills, commercial paper, and other short-term securities and issued shares to investors that they could redeem on demand, including by writing a check.²⁰⁸ Rather than allowing the redemption price of the shares to fluctuate daily with the market prices of the underlying portfolio, these new funds maintained a fixed redemption price and quoted a daily yield.²⁰⁹ This made them an attractive and intuitive alternative to checkable bank deposits.

²⁰⁶ For Treasury bill yield, see *id.*; For Regulation Q, see 12 C.F.R. § 217.6(b) (1963); 12 C.F.R. § 217.6(a) (1957); 12 C.F.R. § 217.6(a) (1938).

²⁰⁷ Data from Dep't of Labor, Bureau of Labor Statistics, United States Consumer Price Index for All Urban Consumers (Current Series), <https://data.bls.gov/cgi-bin/surveymost?bls> [<https://perma.cc/99QR-Z4MM>] (data retrieved by selecting "CPI for All Urban Consumers (CPI-U) 1982-84=100 (Unadjusted) - CUUR0000SA0").

²⁰⁸ See John A. Adams, *Money Market Mutual Funds: Has Glass-Steagall Been Cracked?*, 99 *Banking L.J.* 4, 6-8 (1982).

²⁰⁹ Because the Investment Company Act of 1940 requires that redeemable shares be marked to market daily, the SEC in 1977 issued an interpretive release disallowing the fixed dollar value. See *Valuation of Debt Instruments and Computation of Certain Price per Share by Certain Open-End Investment Companies (Money Market Funds)*, 47 *Fed. Reg.* 5428, 5428-29 (1982). However, after considerable outcry, it exempted money market funds on an individual basis from the mark to market requirement and ultimately adopted a rule permitting money market funds to maintain a fixed dollar value. See 17 C.F.R. § 270.2a-7 (1984).

Banks responded to the competition with the “negotiable order of withdrawal” (“NOW”) account beginning in 1973.²¹⁰ These were accounts that paid interest and permitted a limited number of withdrawals by check; banks argued that they were not demand deposits and therefore not subject to the statutory ban on interest payments.

Congress allowed experimentation, permitting NOW accounts in 1973 within Massachusetts and New Hampshire, then in 1976 throughout New England.²¹¹ The DIDMCA permitted NOW accounts nationwide beginning in 1981.²¹² The statute also phased out Regulation Q, enabling further competition and innovation in savings and time deposit accounts. The GSGA authorized money market deposit accounts that were checkable, but, unlike NOW accounts, available to corporate as well as individual depositors.²¹³

The experimentation with NOW accounts in the mid-1970s was a dry run; short-term rates moderated from 1975 through 1977. They again increased substantially in the late 1970s, causing depositors to flee in large numbers to money market mutual funds.

At the same time, the yield curve inversion shown on the right-hand edge of Figure 4 caused a deterioration in interest spreads. Thrifts, which specialized in making conventional, thirty-year mortgage loans, were particularly hard hit. By the late 1970s, they held large portfolios of loans previously made at relatively low rates that they now had to finance with short-term deposits at higher rates. Even new mortgage loans were not profitable, as is obvious from Figure 4. The same pattern holds if we substitute the interest rate on thirty-year fixed rate conventional mortgages for the AAA bond yield.²¹⁴

By the early 1980s, it was clear that many S&Ls were in serious financial trouble. Rather than liquidate the troubled S&Ls in 1981–1982, which would have cost an estimated \$25 billion, Congress and the thrift regulators pursued a strategy of regulatory forbearance in hopes that the

²¹⁰ See Haselton Brothers' Role in Banking Innovations, *N.Y. Times*, Jan. 4, 1983, at D2.

²¹¹ See Pub. L. No. 93-100, § 2, 87 Stat. 342, 342 (1973); Pub. L. No. 94-222, § 2, 90 Stat. 197, 197 (1976).

²¹² See Pub. L. No. 96-221, § 303, 94 Stat. 132, 146.

²¹³ See Gillian Garcia et al., *The Garn-St Germain Depository Institutions Act of 1982*, *Fed. Res. Bank Chi. Econ. Persp.*, Mar./Apr. 1983, at 3, 7–8.

²¹⁴ Mortgage rates for the period are available from FRED, Fed. Reserve Bank of St. Louis, 30-Year Conventional Mortgage Rate (DISCONTINUED) (MORTG), <https://fred.stlouisfed.org/series/MORTG> [<https://perma.cc/SE4Y-Q6AA>] (last updated Oct 3, 2016).

industry could right itself.²¹⁵ The GSGA expanded the powers of thrifts, authorizing them to issue new types of deposit accounts and make commercial loans, among other things.²¹⁶ Regulators hoped that the new powers would reduce the mismatch between thrifts' assets and liabilities.

At the supervisory level, the forbearance included reductions in required capital ratios and regulatory accounting changes that helped troubled S&Ls to meet the new ratios.²¹⁷

These attempts to keep S&Ls alive did not succeed and may have contributed to the ultimate scale of the cleanup, which is estimated at \$132 billion.²¹⁸ Nevertheless, the industry's insolvency was already a fact by the end of the Great Inflation in 1982.

Problems were not as severe at commercial banks, but rising short-term rates harmed them as well. Compounding their problems, low-risk corporate borrowers began to issue debt securities in the capital markets rather than borrowing from banks. The combination of the two trends led banks to make riskier loans.²¹⁹ In particular, they shifted at the margin to longer maturities and to more leveraged borrowers. They also increased their commercial and residential real estate lending. Finally, banks began to operate with lower equity capital in order to boost the rate of return on equity.²²⁰

Commercial banks also responded to interest rate risk by looking for fee income that would not be highly sensitive to changes in interest rates. In particular, banks moved aggressively into securities brokerage and underwriting as a way to generate fee income. They also developed ways to hedge interest rate risk, including financial futures and interest rate swaps. Ironically, depository institutions were motivated to move into securities and derivatives to *reduce* the risk of banking.

These risk-reducing measures were not always sufficient to compensate for a challenging interest rate environment, disintermediation, and the geographical limits on bank expansion that

²¹⁵ See Nat'l Comm'n on Fin. Inst. Reform, Recovery and Enf't, *Origins and Causes of the S&L Debacle: A Blueprint for Reform* 1–2 (1993); Alane Moysich, *The Savings and Loan Crisis and Its Relationship to Banking*, in *1 History of the Eighties—Lessons for the Future* 167, 168–73 (Fed. Deposit Ins. Corp. 1997).

²¹⁶ See Garcia et al., *supra* note 213, at 7–8.

²¹⁷ See Macey, *supra* note 23, at 12–13.

²¹⁸ See U.S. Gen. Accounting Office, GAO/AIMD-96-123, *Resolution Trust Corporation's 1995 and 1994 Financial Statements* 13 (1996).

²¹⁹ See Barth et al., *supra* note 197, at 14–23.

²²⁰ *Id.* at 15.

reduced diversification. The collapse of oil prices during the 1980s devastated depository institutions in Texas.²²¹ In the recession of 1990, it was New England banks, having moved aggressively into commercial real estate loans, which failed in large numbers.²²²

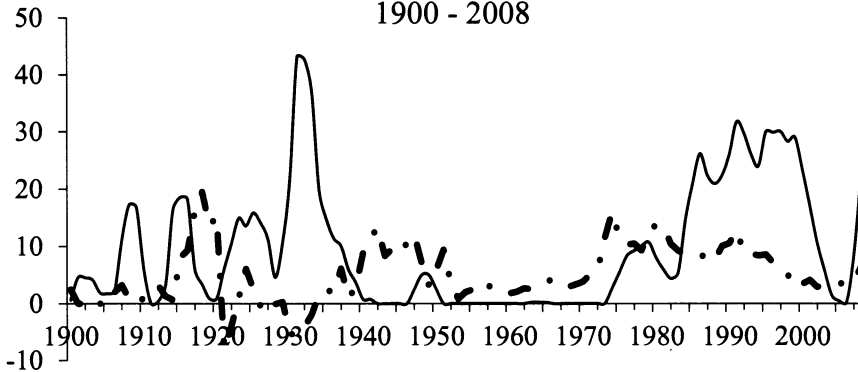
The United States was not alone in facing a more volatile macroeconomic environment in the 1970s and early 1980s, nor in experiencing problems in the banking sector immediately afterward. Figure 5 superimposes two data sets from Carmen Reinhart and Kenneth Rogoff's *This Time is Different*.²²³ The dashed line shows the median inflation rate, in percent, in each year from 1900 to 2008 for a sample of sixty-six countries accounting for roughly 90% of world GDP over the period. The solid line shows the percent of those countries experiencing a systemic banking crisis during the same years. It is immediately apparent that the period from about 1950 to 1970 is unusual on both counts. Inflation was low and steady around the globe and banking crises were almost unknown.

²²¹ FDIC data show that 625 insured depository institutions failed or received FDIC assistance from 1980 to 1989, inclusive. Data available at Fed. Deposit Ins. Corp., Failures and Assistance Transactions - Historical Statistics on Banking, <https://www5.fdic.gov/hsob/SelectRpt.asp?EntryTyp=30> [<https://perma.cc/T8KF-BQW3>].

²²² See John S. Jordan, Resolving a Banking Crisis: What Worked in New England, *New Eng. Econ. Rev.*, Sept./Oct. 1998, at 49, 49–50.

²²³ Carmen M. Reinhart & Kenneth S. Rogoff, *This Time is Different: Eight Centuries of Financial Folly* 181, 205 (2009). The data are available at Carmen M. Reinhart & Kenneth S. Rogoff, *This Time is Different* figs.12.1, 13.1, <http://www.carmenreinhardt.com/this-time-is-different/> [<https://perma.cc/V385-4QPT>] (author website).

Figure 5. Worldwide Inflation and Banking Crises,
1900 - 2008



Source: Reinhart and Rogoff, *This Time is Different*

This is not to say that a sharp change in inflation is the sole or most important cause of banking crises, simply that the postwar period to 1970 was unusually calm. Other data series, such as external government debt defaults or commodity prices, tell a similar story.²²⁴ The central point is that the United States was only one of many countries that had no banking crises during that period, so the explanation is probably not a set of regulations specific to the United States.

The macroeconomic environment was not the only thing that changed toward the end of the quiet period, however. A number of developing countries made significant policy changes in the 1970s and 1980s that liberalized their financial markets. They began allowing residents to own foreign currency, ended or relaxed capital controls, and ended controls on interest rates and prices.²²⁵ These measures gave banks more freedom of action but were not always accompanied by increased supervision.²²⁶ A number of economists argue that financial liberalization was an

²²⁴ See, e.g., Reinhart & Rogoff, *supra* note 223, at xxxiv (external debt defaults); *id.* at 78 (commodity prices).

²²⁵ See The World Bank, *Economic Growth in the 1990s: Learning from a Decade of Reform 205-07* (2005).

²²⁶ See Gerard Caprio, Jr. & Daniela Klingebiel, *Bank Insolvencies: Cross-Country Experience* 24, 26, 29, 31-32 (The World Bank, Policy Research Working Paper No. 1620, 1996).

important factor in developing-country financial crises of the 1980s and 1990s.²²⁷

The United States, however, already had an open, market-based economy well before the deregulation of the 1970s and 1980s. There were changes in bank regulation, but on a quite different scale from the substantial policy changes that go under the heading of financial liberalization. Moreover, once macroeconomic conditions stabilized in the United States, bank failures returned to quiet period levels during the so-called Great Moderation of the 1990s and early 2000s—even though there was no reversal of the 1980s regulatory changes.

In sum, the combination of interest rate volatility, inverted yields, and payment of market rates on deposits marked the end of the era of low-risk banking and ushered in roughly a decade of unusually numerous bank failures beginning in the early 1980s. These same factors persuaded Congress that deregulation was necessary to prevent widespread disintermediation. I elaborate on that point by asking what alternatives to deregulation were available.

C. Deregulation or Financial Repression?

Interest rate spreads and bank profitability declined in the late 1970s and early 1980s.²²⁸ Had banks been able to pay below the market rate of interest on their deposits, they would have been partly insulated from interest rate risk.

This was not achievable so long as securities firms could offer retail products paying market rates of interest. In order to prevent disintermediation, Congress and regulators faced a choice between allowing banks to compete by paying market rates on deposits, which would destroy charter value, or disallowing competition from money market mutual funds and other securities products, which would preserve charter value but harm savers. In retrospect, allowing money market mutual funds to operate in competition with bank deposits made the subsequent deregulation inevitable.

Could Congress have responded instead by shutting down competition for retail savers' funds outside the regulated banking sector?

²²⁷ See Gorton, *supra* note 7, at 4–5; Kaminsky & Reinhart, *supra* note 9, at 473, 476–80; see also Reinhart & Rogoff, *supra* note 223, at 155 (discussing link between liberalization and banking crises).

²²⁸ See Barth et al., *supra* note 197, at 59–77.

In principle, yes, but only by employing a level of regulatory coercion that would have been inconsistent with the maintenance of an open, market-based economy.

Regulators might have been able to suppress competition from money market mutual funds through creative interpretation of existing law. They could have defined an interest in a money market mutual fund as a “deposit.”²²⁹ Had the courts upheld that interpretation, mutual fund complexes and other securities firms could no longer have offered the product.²³⁰ Alternatively, Congress could have extended deposit insurance to money market mutual funds and banned them from paying interest, making them indistinguishable from bank checking accounts from a saver’s perspective.

Doing away with money market mutual funds would not have been sufficient to channel savings to regulated banks because they were not the only possible vehicle through which the securities industry could have competed with depository institutions. Securities firms might have created a retail-level market for commercial paper issued by industrial and financial companies.²³¹ They might have introduced a retail product similar to ABCP by using long-term, highly rated bonds as collateral for small-denomination, short-term debt instruments. Congress or regulators would have had to suppress any such innovations as well.

Households might also have looked outside the United States for investments yielding a market rate of return. To foreclose that possibility, the United States would have had to impose some form of capital or exchange controls on retail-level accounts.

Finally, households might have fled bank accounts for investments that are not close substitutes for deposits but are potentially able to hold value in an inflationary environment, such as equities and gold. The

²²⁹ The Department of Justice advised the SEC that a share of a money market mutual fund is an undivided interest in a pool of securities and not a “deposit.” See Letter from Philip B. Heymann, Assistant Attorney Gen., Criminal Div., U.S. Dep’t of Justice, to Martin Lybecker, Assoc. Dir., Div. of Mktg. Mgmt., Sec. & Exch. Comm’n (retyped Jan. 9, 1980) (on file with author).

²³⁰ See 12 U.S.C. § 378(a) (2012).

²³¹ This would likely have required registration under the Securities Act of 1933. Section 3(a)(3) of that Act exempts short-term debt used for “current transactions” from the registration requirement, see 15 U.S.C. § 77c(a)(3). However, the SEC’s longstanding view, in which the courts have acquiesced, is that this exemption covers only the institutional commercial paper market. See, e.g., *Zeller v. Bogue Elec. Mfg. Corp.*, 476 F.2d 795, 799–800 (2d Cir. 1973). That said, the securities industry has had little reason to press the issue vigorously, but of course would have had in the scenario envisioned in the text.

government would have had to continue the New Deal-era ban on household ownership of gold coins and bullion, which Congress fully rescinded in 1974.²³² It might also have had to use regulatory and taxing powers to make equity mutual funds an unattractive vehicle for small savers.

By doing all of this, Congress and the executive would have locked households in to bank accounts, and banks would have continued to enjoy a nearly assured profit (albeit a more volatile profit than during the quiet period). The rents to banks would have come at the expense of households, which would have seen the real value of savings eroded because the real rate of return on demand deposits would always have been negative and the rates on savings and time deposits sometimes so. The government might have chosen to extract some of that “inflation tax” for itself by requiring banks to hold a significant portion of their assets in the form of Treasury debt, thereby ensuring that the government could also borrow at below-market rates from a captive audience.

In short, to guarantee banks a high charter value in an era of volatile inflation and interest rates, the United States would have had to use financial repression. Although different authors define the term in different ways, financial repression generally means that governments intentionally hold interest and exchange rates in the formal financial sector below (black) market rates.²³³ To reinforce those constraints, the government uses regulatory means to deprive savers of alternatives to domestic bank deposits.²³⁴

Financial repression was once common in developing countries. It enables governments to finance spending through an inflation tax rather

²³² In March 1933, Congress authorized the President, upon declaration of a national emergency, to regulate or prohibit “hoarding” of monetary gold. See Pub. L. No. 7-31, § 2, 48 Stat. 1, 1 (1933). In Executive Order 6102, on April 5, 1933, President Roosevelt declared such an emergency and prohibited hoarding of gold bullion and coins, in effect making private ownership of monetary gold illegal. See Exec. Order No. 6102 (1933), *reprinted in* 2 *The Public Papers and Addresses of Franklin D. Roosevelt* 111, 111–12 (Samuel I. Rosenman ed., 1938). Congress subsequently gave the executive branch explicit authority to regulate private holding of gold. See 31 U.S.C. §§ 442–443 (1934) (repealed by Pub. L. No. 93-110, § 3, 87 Stat. 352, 352 (1973)). Pub. L. No. 93-373, 88 Stat. 445 (1974) provides that “no rule, regulation, or order . . . may be construed to prohibit any person from purchasing, holding, selling, or otherwise dealing with gold[.]”

²³³ See Ronald I. McKinnon, *Money and Capital in Economic Development* 68–71 (1973).

²³⁴ See Reinhart & Rogoff, *supra* note 223, at 143 (“Under financial repression[.] . . . [g]overnments force local residents to save in banks by giving them few, if any, other options.”).

than through explicit taxes.²³⁵ Under financially repressive policies, governments require savers to hold bank deposits offering a negative real return while also requiring banks to lend to the treasury, state-owned enterprises, and other favored borrowers at artificially low rates. To make these measures effective, governments may also employ exchange controls, limits on regulated institutions' investments, bans on foreign asset holdings, and subordination of the central bank to the treasury.

The United States used a few financially repressive measures during World War II and its aftermath, although on a more modest scale than described above. The purpose was to finance the enormous cost of the war and pay down the resulting debt afterward.²³⁶

The government did so principally by requiring the Federal Reserve to make substantial purchases of Treasury debt.²³⁷ The Treasury gave the Fed a mandate to hold the yield on Treasury bills at no more than 0.375% and on long-term Treasury bonds at no more than 2.5%. In periods when the demand for Treasuries at those yields was insufficient, the Fed in effect became the market for Treasury debt.

Regulation also encouraged financial institutions to hold government debt, likely widening the interest rate spread between it and riskier debt. Insurance companies and pension plans were required to invest in low-risk assets, typically government securities and investment-grade corporate debt.²³⁸ Similarly, the Investment Securities Provision to which member banks were subject banned holdings of speculative securities.

²³⁵ See Alberto Giovannini & Martha de Melo, Government Revenue from Financial Repression, 83 *Am. Econ. Rev.* 953, 954 (1993).

²³⁶ See Carmen M. Reinhart & M. Belen Sbrancia, The Liquidation of Government Debt, 30 *Econ. Pol'y* 291, 294–95, 316 (2015).

²³⁷ See Allan H. Meltzer, *A History of the Federal Reserve, Volume I: 1913–1951*, at 579–724 (2003) (chapter entitled “Under Treasury Control, 1942 to 1951”).

²³⁸ See Reinhart & Sbrancia, *supra* note 236, at 296. The Fed's Flow of Funds report during this period shows that insurance companies were invested overwhelmingly in bonds, with the mix gradually shifting from more Treasury bonds to more corporate bonds, and mortgages. Pension plans were also invested principally in bonds, with Treasuries dominant. Bd. of Governors of the Fed. Reserve Sys., *Financial Accounts of the United States: Flow of Funds, Balance Sheets, and Integrated Macroeconomic Accounts, Historical Annual Tables 1945–1954*, at 85, 87 (2016) [hereinafter *Fed Flow of Funds Report*].

By the end of the war, the federal government's outstanding debt was 118% of gross domestic product.²³⁹ In order to service that debt at an acceptably low cost, the Treasury continued to insist that the Fed purchase as much of it as necessary to maintain rates at the wartime levels. The formal mandate ended only with the Treasury-Fed Accord of March 1951.²⁴⁰

After the Treasury-Fed Accord, the Fed enjoyed greater but not complete *de facto* independence. It continued to view its main task as maintaining low nominal yields on Treasury debt.²⁴¹ Only with the Paul Volcker-led Fed's decision to tame the 1970s inflation by raising short-term rates to punishing levels did the Fed evolve into a fully independent central bank focused on maintaining price stability. Banks had to manage a difficult transition once the Fed changed its focus from nominal interest rates to the inflation rate. Thousands of banks did not survive it.

Why did Congress choose deregulation of deposit interest rates and greater flexibility for banks rather than financial repression? One obvious answer is political feasibility. The public might not have tolerated a persistent loss in the real value of its savings.

Another potentially important reason is that in the early 1970s, the ratio of federal debt to GDP reached a postwar low of 31%.²⁴² Rising yields on government debt were not a great threat to the Treasury. Put differently, the government did not have self-interested fiscal reasons to suppress financial innovation and preserve bank charter value.

D. A Cautionary Note

The situation today is quite different from that in the 1970s and early 1980s. Inflation is low. The Treasury is again heavily in debt and has reason to be concerned about nominal interest rates. Meanwhile, some

²³⁹ Federal debt is from U.S., *The Budget of the United States Government for the Fiscal Year Ending June 30, 1948*, at 1389 (1947), https://fraser.stlouisfed.org/docs/publications/usbudget/bus_1948.pdf [<https://perma.cc/5VND-5U7L>]. GDP is from Fed Flow of Funds Report, *supra* note 238, at 2.

²⁴⁰ See Peter Conti-Brown, *The Power and Independence of the Federal Reserve* 33–37 (2016).

²⁴¹ See Allan H. Meltzer, *Federal Reserve Independence*, 49 *J. Econ. Dynamics & Control*, Sept. 2014, at 160, 161.

²⁴² Data from FRED, Fed. Res. Bank St. Louis, *Federal Debt: Total Public Debt as Percent of Gross Domestic Product, Percent of GDP (GFDEGDQ188S)*, <https://fred.stlouisfed.org/series/GFDEGDQ188S> [<https://perma.cc/4CAA-7DCN>].

critics argue that the United States could get by with a simpler, smaller, low-risk financial system.²⁴³

To date, policymakers and commentators have tried to promote financial stability through stringent prudential regulation. Banks have been required to tighten their lending standards, raise more capital, and hold more highly liquid assets.²⁴⁴ The major investment banks have become subject to banking regulation by virtue of their conversion to bank holding companies. Dodd-Frank gives the Board the ability to regulate other types of financial institutions to the extent the Financial Stability Oversight Counsel finds them systemically important.²⁴⁵

The line between prudential regulation and the politically determined allocation of credit, however, is partly a matter of intent and therefore demands careful policing.²⁴⁶ The regulatory changes just described both magnify existing incentives for banks to hold government debt and create new ones. Federal debt receives a risk weight of zero for bank capital purposes.²⁴⁷ It is a “high-quality liquid asset” for purposes of the new liquidity rules.²⁴⁸ The Volcker Rule, which prohibits banks from engaging in certain forms of proprietary trading, exempts trading in government and agency debt.²⁴⁹

Banks have responded to the incentive; in the six years since the enactment of Dodd-Frank, commercial bank assets have increased by 32%, but their holdings of Treasury and agency debt and reserve balances at Federal Reserve banks have increased by 66%.²⁵⁰

²⁴³ See Paul Krugman, *The Market Mystique*, N.Y. Times, Mar. 27, 2009, at A29 (comparing “tightly regulated,” “staid, even boring” post-New Deal banking sector with “wheeling and dealing” banking that emerged during the “deregulation-minded Reagan era”).

²⁴⁴ See Charles W. Calomiris, *Reforming Financial Regulation After Dodd-Frank* 7 (2017) (lending standards); Scott, *supra* note 21, at 169–88 (capital and liquidity requirements).

²⁴⁵ See Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, § 113, 124 Stat. 1376, 1398 (2010) ((codified as amended at 12 U.S.C. § 5323(a)(1) (2012))).

²⁴⁶ See Peter M. Garber, *Buttressing Capital-Account Liberalization with Prudential and Foreign Entry*, in *Should the IMF Pursue Capital-Account Convertibility?*, 207 *Essays Int'l Fin.* 28, 29 (1998) (stating that prudential regulation is a “first cousin” of capital controls).

²⁴⁷ See 12 C.F.R. § 3.32(a)(1)(i) (2016).

²⁴⁸ See *id.* § 50.20(a).

²⁴⁹ See 12 U.S.C. § 1851(d)(1)(A) (2012).

²⁵⁰ Total assets and Treasury and agency securities holdings are from Bd. of Governors of the Fed. Reserve Sys., *Federal Reserve Statistical Release H.8* (Dec. 30, 2010), and Bd. of Governors of the Fed. Reserve Sys., *Federal Reserve Statistical Release H.8* (Dec. 30, 2016). Reserve balances at Federal Reserve banks are from Bd. of Governors of the Fed. Reserve

Meanwhile, the SEC has rescinded the exemption allowing institutional prime money market mutual funds to maintain a constant \$1.00 redemption value, but maintained the exemption for those holding exclusively cash and government debt.²⁵¹ The marginal effect will again be to increase demand for government debt at the expense of private sector debt.

This must be a welcome development from the Treasury's perspective now that the gross federal debt to GDP ratio is nearly where it was at the end of World War II. As was true after the war, the Fed holds a significant portion of that debt.²⁵² Unlike the 1970s, the federal government today has a self-interested financial incentive to favor financially repressive policies over deregulatory ones.

To date, regulators have not had to do much beyond telling banks to take less risk and watching them pile into risk-free assets. This has reduced earnings on bank portfolios, but banks' funding costs are also much lower than before the crisis. Short-term interest rates remain near zero and inflation has been persistently below the Fed's 2% target. Households that were burned in the financial crisis have willingly accepted slightly negative real returns on insured bank deposits and other risk-free assets. Governments and economists argue that these negative real returns are socially desirable because they discourage saving and encourage spending, thus boosting aggregate demand and promoting growth (although growth too remains low by the standard of past recoveries).

Should inflation rise, however, investors will demand higher yields on their savings. This will be a problem for the Treasury as well as the banks. Rising interest payments on Treasury debt would pose a significant problem for a federal government that has run substantial deficits even with interest rates near zero.

Sys., Federal Reserve Statistical H.4.1 (Dec. 30, 2010), and Bd. of Governors of the Fed. Reserve Sys., Federal Reserve Statistical H.4.1 (Dec. 29, 2016).

²⁵¹ See 17 C.F.R. § 270.2a-7 (2015).

²⁵² As of the end of 2017, the Fed holds approximately \$2.5 trillion of the \$19 trillion Treasury securities outstanding. See FRED, Fed. Reserve Bank of St. Louis, U.S. Treasury Securities Held by the Federal Reserve: All Maturities (TREAST), <https://fred.stlouisfed.org/series/treast> [<https://perma.cc/7JYL-5RXG>]. See Liz Capo McCormick, Fed's \$216 Billion Treasuries Rollover Recalls Crisis Era Buying, Bloomberg (Jan. 18, 2016), <http://www.bloomberg.com/news/articles/2016-01-18/fed-s-216-billion-treasuries-rollover-recalls-crisis-era-buying> [<https://perma.cc/3M4C-8VPT>].

In that event, the government may be tempted to use regulatory means to require financial institutions to lend even more to the government under the guise of protecting the financial system from systemic risk. A likely corollary would be to require households to lend to banks or to the government itself under the guise of preventing them from taking excessive risks with their retirement and college savings. Should the government give in to this temptation, some of the intellectual support will come from the supposed link between deregulation and excessive risk prior to the financial crisis. This is the strongest reason to subject the hypothesis to the careful examination I have tried to provide.

CONCLUSION

The crisis of 2007–2008 was extremely painful for the financial system and the real economy. It is easy to understand nostalgia for the GSA and other apparent regulatory quick fixes. Unfortunately, deregulation was not a cause of the financial crisis, and new restrictions on bank securities activities and OTC derivatives trading will not insulate the financial system from interest rate, exchange rate, and house price volatility. During the quiet period of bank stability, interest rates were stable and increasing in duration. When those conditions ended, so did the stability of the banking system.

We must rethink financial regulation with the goals of promoting capital formation, permitting small savers to accumulate wealth, and minimizing the cost of financial crises. This is a daunting task. Choosing to believe an inaccurate story about the connection between regulation and the 2007–2008 crisis only serves to hinder the work ahead.